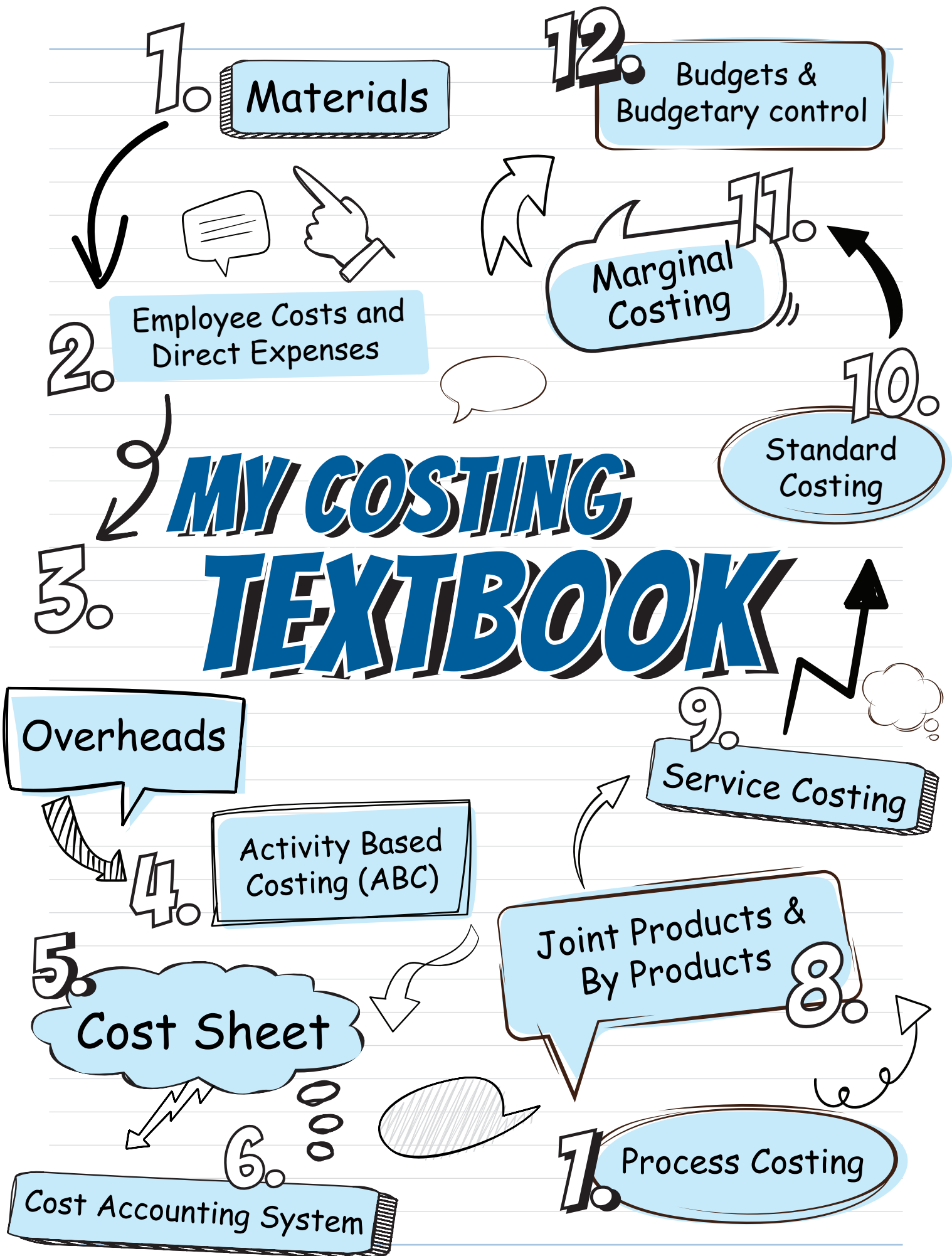




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MATERIALS COST

EOQ Without Discount

Q.1. Calculate the Economic Order Quantity from the following information. Also state the number of orders to be placed in a year.

NB

PN

Consumption of materials per annum 10,000 kg.

Order placing cost per order: ₹50

Cost per kg. of raw materials: ₹2

Storage costs: 8% on average inventory

STUDY MAT

Q.2. Compute E.O.Q. and the total variable cost for the following:

NB

PN

Annual Demand = 5,000 units

Unit price = ₹20.00

Order cost = ₹16.00

Storage rate = 2% per annum

Interest rate = 12% per annum

Obsolescence rate = 6% per annum

(ii) Determine the total variable cost that would result for the items if an incorrect price of ₹12.80 is used.

STUDY MAT

Q.3. The annual carrying cost of material 'X' is ₹3.6 per unit and its total carrying cost is ₹9,000 per annum. What would be the Economic order quantity for material 'X'?

NB

PN

PYQ NOV 2007

Q.4. The complete Gardener is deciding on the economic order quantity for two brands of lawn fertilizer. Super Grow and Nature's Own. The following information is collected:

NB

PN

Particulars	Fertilizer	
	Super Grow	Nature's own
Annual Demand	2,000 bags	1,280 bags
Relevant ordering cost per purchase order	₹1,200	₹1,400
Annual relevant carrying cost per bag	₹480/-	₹560/-

Required:

(i) Compute EOQ for Super Grow and Nature's own.

- (ii) For the EOQ, what is the sum of the total annual relevant ordering costs and total annual relevant carrying costs for Super Grow and Nature's own?
- (iii) For the EOQ, compute the number of deliveries per year for Super Grow and Nature's own.

STUDY MAT

- Q.5.** Anil & Company buys its annual requirement of 36,000 units in 6 installments. Each unit costs ₹1 and the ordering cost is ₹25. The inventory carrying cost is estimated at 20% of unit value. Find the total annual cost of the existing inventory policy. How much money can be saved by Economic Order Quantity?

STUDY MAT

EOQ with discount

- Q.6.** RST Limited has received an offer of quantity discount on its order of materials as under:

NB
PN

Price per tonne	Tones number
₹9,600	Less than 50
₹9,360	50 and less than 100
₹9,120	100 and less than 200
₹8,880	200 and less than 300
₹8,640	300 and above

The annual requirement for the material is 500 tonnes. The ordering cost per order is ₹12,500 and the stock holding cost is estimated at 25% of the material cost per annum.

Required:

- (i) Compute the most economical purchase level.
- (ii) Compute EOQ if there are no quantity discounts and the price per tonne is ₹10,500.

PYQ NOV 2004

- Q.7.** JP Limited, manufacturers of a special product, follows the policy of EOQ (Economic Order Quantity) for one of its components. The component's details are as follows:

NB
PN

	(₹)
Purchase Price Per Component	200
Cost of an Order	100
Annual Cost of Carrying one Unit in Inventory	10% of Purchase Price

Total Cost of Inventory and Ordering Per

Annum 4,000

The company has been offered a discount of 2% on the price of the component provided the lot size is 2,000 components at a time.

You are required to:

- Compute the EOQ
- Advise whether the quantity discount offer can be accepted.
- Would your advice differ if the company is offered 5% discount on a single order?

RTP MAY 2016

Q.8. A Company manufactures a special product which requires a component 'Alpha'. The following particulars are collected for the year 2013:

NB
PN

- Annual demand of Alpha: 8,000 unit
- Cost of placing an order: ₹200 per order
- Cost per unit of Alpha: ₹40
- Carrying cost % p.a.: 20%

The company has been offered a quantity discount of 4% on the purchase of 'Alpha', provided the order size is 4,000 components at a time.

Required:

- Compute the economic order quantity.
- Advise whether the quantity discount offer can be accepted.

STUDY MAT

Q.9. DSM Ltd manufactures speed boats which require propeller TP-M4. The following particulars are collected for the year 2023-24:

NB
PN

- Annual demand of TP-M4 12,000 units
- Cost of placing an order 1,200 per order
- Cost per unit of TP-M4 is 1,740/-
- Carrying cost p.a. 12%

The company has been offered a quantity discount of 5 % on the purchase of TP-M4, provided the order size is 6,000 units at a time.

Required to:

- COMPUTE the economic order quantity (EOQ)
- ADVISE whether the quantity discount offer can be accepted.

RTP MAY 2004

Q.10. Reliable India Pvt Ltd is a startup company engaged in manufacturing of Agro Tech product from a raw material, which is purchased at ₹190 per kg. The company incurs a handling cost of ₹1,470 plus, freight of ₹770 per order. The incremental carrying cost of inventory of raw material is ₹3 per kg per month. In addition, the cost of working capital finance on the investment in inventory of raw material is ₹20 per kg per annum. The annual production of the product is 1,50,000 units and 3 units are obtained from one kg. of raw material. Assume 360 days in a year.

NB
PN

Required:

- (i) Calculate the economic order quantity of raw materials.
- (ii) Determine, how frequently company should order for procurement be placed.
- (iii) If the company proposes to rationalize placement of orders on quarterly basis, determine the percentage of discount in the price of raw materials should be negotiated?

RTP MAY 2023

Stock Levels

Q.11. PQR Ltd., manufactures a special product, which requires 'ZED'. The following particulars were collected for the year

NB
PN

2005-06:

- | | |
|--------------------------------|--------------------|
| (i) Monthly demand of Zed: | 7,500 units |
| (ii) Cost of placing an order: | ₹500 |
| (iii) Re-order period: | 5 to 8 weeks |
| (iv) Cost per unit: | ₹60 |
| (v) Carrying cost % p.a.: | 10% |
| (vi) Normal usage: | 500 units per week |
| (vii) Minimum usage: | 250 units per week |
| (viii) Maximum usage: | 750 units per week |

Required:

- (i) Re-order quantity.
- (ii) Re-order level.
- (iii) Minimum stock level.
- (iv) Maximum stock level.
- (v) Average stock level.

PYQ NOV 2006

Q.12. From the details given below, calculate:

NB
PN

- (i) Re-ordering level
- (ii) Maximum level
- (iii) Minimum level
- (iv) Danger level.

Re-ordering quantity is to be calculated on the basis of following information:

Cost of placing a purchase order is ₹20

Number of units to be purchased during the year is 5,000

Purchase price per unit inclusive of transportation cost is ₹50

Annual cost of storage per units is ₹5.

Details of lead time :

Average 10 days, Maximum 15 days, Minimum 6 days.

For emergency purchases 4 days.

Rate of consumption : Average: 15 units per day,

Maximum: 20 units per day.

STUDY MAT

Q.13. A company manufactures 10,000 units of a product per month. The cost of placing an order is Rs. 200. The purchase price of the raw material is Rs. 20 per kg. The re-order period is 4 to 8 weeks. The consumption of raw materials varies from 200 kg to 900 kg per week, the average consumption being 550 kg. The carrying cost of inventory is 20% per annum.

NB
PN

You are required to CALCULATE:

- (i) Re-order quantity
- (ii) Re-order level
- (iii) Maximum level
- (iv) Minimum level
- (v) Average stock level

MTP 1 MAY 2021

Q.14. Re-order quantity of material 'X' is 5,000 kg.; Maximum level 8,000 kg.; Minimum usage 50 kg. per hour; minimum re-order period 4 days; daily working hours in the factory is 8 hours You are required to calculate the re-order level of material 'X'.

NB
PN

PYQ MAY 2010

Q.15. Following details are related to a manufacturing concern:

NB

Re-order Level 1,60,000 units

PN

Economic Order Quantity 90,000 units

Minimum Stock Level 1,00,000 units

Maximum Stock Level 1,90,000 units

Average Lead Time 6 days

Difference between minimum lead time and Maximum lead time 4 days

Calculate:

(i) Maximum consumption per day

(ii) Minimum consumption per day

PYQ NOV 2014, RTP NOV 2023

Q.16. SK Enterprise manufactures a special product "ZE". The following particulars were collected for the year 2004:

NB

Annual consumption 12,000 units (360 days)

PN

Cost per unit ₹1

Ordering cost ₹12 per order

Inventory carrying cost 24%

Normal lead time 15 days

Safety stock 30 days consumption

Required:

(i) Re-order quantity

(ii) Re-order level

(iii) What should be the inventory level (ideally) immediately before the material order is received?

PYQ MAY 2005

Q.17. Primex Limited produces product 'P'. It uses annually 60,000 units of a material 'Rex' costing ₹10 per unit. Other relevant information are:

NB

Cost of placing an order : ₹800 per order

PN

Carrying cost : 15% per annum of average inventory

Re-order period : 10 days

Safety stock : 600 units

The company operates 300 days in a year.

You are required to calculate:

- (i) Economic Order Quantity for material 'Rex'.
- (ii) Re-order Level
- (iii) Maximum Stock Level
- (iv) Average Stock Level

PYQ NOV 2013

Q.18. ZED Company supplies plastic crockery to fast food restaurants in metropolitan city. One of its products is a special bowl, disposable after initial use, for serving soups to its customers. Bowls are sold in pack 10 pieces at a price of ₹50 per pack. The demand for plastic bowl has been forecasted at a fairly steady rate of 40,000 packs every year. The company purchases the bowl direct from manufacturer at ₹40 per pack within a three days' lead time. The ordering and related cost is ₹8/-per order. The storage cost is 10% per cent per annum of average inventory investment.

NB
PN

Required:

- (i) Calculate Economic Order Quantity.
- (ii) Calculate number of orders needed every year.
- (iii) Calculate the total cost of ordering and storage bowls for the year.
- (iv) Determine when should the next order to be placed. (Assuming that)

PYQ MAY 2008

Q.19. A company uses four raw materials A, B, C and D for a particular product for which the following data apply :-

NB
PN

Raw Material	Usage per unit of product (Kg.)	Re-order Quantity (Kg.)	Price per Kg. (₹)	Delivery period (in weeks)			Reorder level (Kg.)	Minimum level
				Minimum	Average	Maximum		
A	12	12,000	12	2	3	4	60,000	?
B	12	8,000	22	5	6	7	70,000	?
C	6	10,000	18	3	5	7	?	25,500
D	5	9,000	20	1	2	3	?	?

Weekly production varies from 550 to 1,250 units, averaging 900 units of the said product. What would be the following quantities:-

- (i) Minimum Stock of A?
- (ii) Maximum Stock of B?
- (iii) Re-order level of C?
- (iv) Average stock level of A?
- (v) Re-order level of D?

(vi) Minimum Stock level of D?

SIMILAR IN STUDY MAT, MTP2 MAY 2021(OLD), MTO2

Q.20. Ananya Ltd. produces a product 'Exe' using a raw material Dee. To produce one unit of Exe, 2 kg of Dee is required. As per the sales forecast conducted by the company, it will be able to sell 10,000 units of Exe in the coming year. The following is the information regarding the raw material Dee:

NB

PN

- (i) The Re-order quantity is 200 kg. less than the Economic Order Quantity (EOQ).
- (ii) Maximum consumption per day is 20 kg. more than the average consumption per day.
- (iii) There is an opening stock of 1,000 kg.
- (iv) Time required to get the raw materials from the suppliers is 4 to 8 days.
- (v) The purchase price is ₹125 per kg.

There is an opening stock of 900 units of the finished product Exe.

The rate of interest charged by bank on Cash Credit facility is 13.76%.

To place an order company has to incur ₹ 720 on paper and documentation work.

From the above information FIND OUT the followings in relation to raw material Dee:

- (a) Re-order Quantity
- (b) Maximum Stock level
- (c) Minimum Stock level
- (d) CALCULATE the impact on the profitability of the company by not ordering the EOQ. [Take 364 days for a year]

MAY 2021(NEW)

Misc. Category

Q.21. Rounak Ltd. is the manufacturer of monitors for PCs. A monitor requires 4 units of Part-M. The following are the details of its operation during 20X8:

NB

PN

Average monthly market demand 2,000 Monitors

Ordering cost ₹1,000 per order

Inventory carrying cost 20% per annum

Cost of Part ₹350 per part

Normal usage 425 parts per week

Minimum usage 140 parts per week

Maximum usage 710 parts per week

Lead time to supply 3-5 weeks

COMPUTE from the above:

- (i) Economic Order Quantity (EOQ). If the supplier is willing to supply quarterly 30,000 units of Part-M at a discount of 5%, is it worth accepting?
- (ii) Reorder level
- (iii) Maximum level of stock
- (iv) Minimum level of stock.

RTP MAY 2019

Q.22. The following data are available in respect of material X for the year ended 31 st March, 2021:

NB		(₹)
PN		
	Opening stock	9,00,000
	Purchases during the year	1,70,00,000
	Closing stock	11,00,000

- (i) Calculate:
 - (a) Inventory turnover ratio, and
 - (b) The number of days for which the average inventory is held.
- (ii) Interpret the ratio calculated as above if the industry inventory turnover rate is 10.

RTP NOV 2018

Q.23. The following details are provided by M/s. SKU Enterprises for the year ended 31st March, 2018:

NB	Particulars	Material-M (₹)	Material-N (₹)
PN			
	Stock as on 01-04-2017	6,00,000	10,00,000
	Stock as on 31-03-2018	4,50,000	7,25,000
	Purchases during the year	9,50,000	18,40,000

You are required to:

MTP OCT 2006

- (i) Calculate Turnover Ratio of both the materials.
- (ii) Advise which of the two materials is fast moving. (Assume 360 days in a year).

Q.24. A company has the option to procure a particular material from two sources: Source I assures that defectives will not be more than 2% of supplied quantity.

Source II does not give any assurance, but on the basis of past experience of

supplies received from it, it is observed that defective percentage is 2.8%. The material is supplied in lots of 1,000 units. Source II supplies the lot at a price, which is lower by ₹100 as compared to Source I. The defective units of material can be rectified for use at a cost of ₹5 per unit.

You are required to find out which of the two sources is more economical.

PYQ MAY 2018

- Q.25.** A re-roller produced 400 metric tons of M.S. bars spending ₹36,00,000 towards materials and ₹6,20,000 towards rolling charges. Ten percent of the output was found to be defective, which had to be sold at 10% less than the price for good production. If the sales realization should give the firm an Overall profit of 12.5% on cost, find the selling price per metric ton of both the categories of bars. The scrap arising during the rolling process fetched a realization of ₹60,000.

PYQ NOV 2005, PYQ NOV 2006

- Q.26.** Raw materials 'AXE' costing ₹150 per kg. and 'BXE' costing ₹90 per kg. are mixed in equal proportions for making product 'A'. The loss of material in processing works out to 25% of the product. The production expenses are allocated at 40% of direct material cost. The end product is priced with a margin of 20% over the total cost. Material 'BXE' is not easily available and substitute raw material 'CXE' has been found for 'BXE' costing ₹75 per kg. It is required to keep the proportion of this substitute material in the mixture as low as possible and at the same time maintain the selling price of the end product at existing level and ensure the same quantum of profit as at present.

You are required to compute the ratio of the mix of the raw materials 'AXE' and 'CXE'.

PYQ NOV 2010

- Q.27.** HBL Limited produces product 'M' which has a quarterly demand of 20,000 units. Each product requires 3 kg. and 4 kg. of material X and Y respectively. Material X is supplied by a local supplier and can be procured at factory stores at any time, hence, no need to keep inventory for material X. The material Y is not locally available, it requires to be purchased from other states in a specially designed truck container with a capacity of 10 tons.

The cost and other information related with the materials are as follows:

Particulars	Material-X	Material-Y
Purchase price per kg. (excluding GST)	₹140	₹640
Rate of GST	18%	18%
Freight per trip (fixed, irrespective of quantity)	-	₹28,000
Loss of materials in transit*	-	2%
Loss in process*	4%	5%

*On purchased quantity

Other information:

- The company has to pay 15% p.a. to bank for cash credit facility.
- Input credit is available on GST paid on materials.

Required:

(i) CALCULATE cost per kg. of material X and Y

RTP MAY2008

(ii) CALCULATE the Economic Order quantity for both the materials.

Q.28. A Ltd. manufactures a product X which requires two raw materials A and B in a ratio of 1:4. The sales department has estimated a demand of 5,00,000 units for the product for the year.

NB
PN

To produce one unit of finished product, 4 units of material A is required.

Stock position at the beginning of the year is as below:

Product- X 12,000 units

Material A 24,000 units

Material B 52,000 units

To place an order the company has to spend Rs.15,000. The company is financing its working

capital using a bank cash credit @13% p.a.

Product X is sold at Rs.1,040 per unit. Material A and B are purchased at Rs.150 and Rs.200 respectively.

Required:

COMPUTE economic order quantity (EOQ):

(i) If purchase order for the both materials is placed separately.

(ii) If purchase order for the both materials is not placed separately.

MTP NOV 2011

Q.29. MM Ltd. has provided the following information about the items in its inventory.

NB
PN

Item Code Number	Units	Unit Cost (₹)
101	25	50
102	300	01
103	50	80
104	75	08
105	225	02
106	75	12

MM Ltd. has adopted the policy of classifying the items constituting 15% or above of Total Inventory Cost as 'A' category, items constituting 6% or less of Total Inventory Cost as 'C' category and the remaining items as 'B' category.

You are required to:

- (i) Rank the items on the basis of % of Total Inventory Cost.
- (ii) Classify the items into A, B and C categories as per ABC Analysis of Inventory Control adopted by MM Ltd.

MTP 1 NOV2019

Q.30. IPL Limited uses a small casting in one of its finished products. The castings are purchased from a foundry. IPL Limited purchases 54,000 castings per year at a cost of ₹800 per casting. The castings are used evenly throughout the year in the production process on a 360-day-per-year basis. The company estimates that it costs ₹9,000 to place a single purchase order and about ₹300 to carry one casting in inventory for a year. The high carrying costs result from the need to keep the castings in carefully controlled temperature and humidity conditions, and from the high cost of insurance.

Delivery from the foundry generally takes 6 days, but it can take as much as 10 days. The days of delivery time and percentage of their occurrence are shown in the following tabulation:

Delivery time (days)	6	7	8	9	10
Percentage of occurrence	75	10	5	5	5

Required:

- (i) Compute the economic order quantity (EOQ).
 - (ii) Assume the company is willing to assume a 15% risk of being out of stock. What would be the safety stock? The re-order point?
 - (iii) Assume the company is willing to assume a 5% risk of being out of stock. What would be the safety stock? The re-order point?
 - (iv) Assume 5% stock-out risk. What would be the total cost of ordering and carrying inventory for one year?
 - (v) Refer to the original data. Assume that using process re-engineering the company reduces its cost of placing a purchase order to only ₹600. In addition, company estimates that when the waste and inefficiency caused by inventories are considered, the true cost of carrying a unit in stock is ₹720 per year.
- (a) Compute the new EOQ.
 - (b) How frequently would the company be placing an order, as compared to the old purchasing policy?

PYQ JULY 2021

Stock ledgers

Q.31. The following information is extracted from the Stores Ledger:

NB
PN

Material X

Opening Stock Nil

Purchases:

Jan. 1 100 @ ₹1 per unit

Jan. 20 100 @ ₹2 per unit

Issues:

Jan. 22 60 for Job W 16

Jan. 23 60 for Job W 17

Complete the receipts and issues valuation by adopting the First-In-First-Out, Last-In-First-Out and the Weighted Average Method. Tabulate the values allocated to Job W 16, Job W 17 and the closing stock under the methods aforesaid and discuss from different points of view which method you would prefer.

PYQ MAY 2004

Q.32. The following are the details of receipt and issue of material 'CXE' in a manufacturing Co. during the month of April 2019:

NB
PN

Date	Particulars	Quantity (kg)	Rate per kg
April 4	Purchase	3,000	₹16
April 8	Issue	1,000	
April 15	Purchase	1,500	₹18
April 20	Issue	1,200	
April 25	Return to supplier out of purchase made on April 15	300	
April 26	Issue	1,000	
April 28	Purchase	500	₹17

Opening stock as on 01-04-2019 is 1,000 kg @ ₹15 per kg.

On 30th April, 2019 it was found that 50 kg of material 'CXE' was fraudulently misappropriated by the store assistant and never recovered by the Company.

Required:

- (i) Prepare a store ledger account under each of the following method of pricing the issue:
 - (a) Weighted Average Method
 - (b) LIFO
- (ii) What would be the value of material consumed and value of closing stock as on 30-04-2019 as per these two methods?

STUDY MAT

Q.33. 'AT' Ltd. furnishes the following store transactions for September, 2011:

NB
PN

- 1-9-11 Opening balance 25 units value ₹162.50
- 4-9-11 Issues Req. No. 85 8 units
- 6-9-11 Receipts from B & Co. GRN No. 26 50 units @ ₹5.75 per unit
- 7-9-11 Issues Req. No. 97 12 units
- 10-9-11 Return to B & Co. 10 units
- 12-9-11 Issues Req. No. 108 15 units
- 13-9-11 Issues Req. No. 110 20 units
- 15-9-11 Receipts from M & Co. GRN. No. 33 25 units @ ₹6.10 per unit
- 17-9-11 Issues Req. No. 121 10 units
- 19-9-11 Received replacement from B & Co. GRN No. 38, 10 units
- 20-9-11 Returned from department, material of M & Co. MRR No. 4, 5 units
- 22-9-11 Transfer from Job 182 to Job 187 in the dept. MTR 6, 5 units
- 26-9-11 Issues Req. No. 146 10 units
- 29-9-11 Transfer from Dept. "A" to Dept. "B" MTR 10 5 units
- 30-9-11 Shortage in stock taking 2 units

Write up the priced stores ledger on FIFO method and discuss how would you treat the shortage in stock taking.

PYQ NOV 2012

Q.34. The following are the details of receipts and issues of a material of stores in a manufacturing company for the period of three months ending 30th June, 2014:

NB
PN

Receipts:

Date	Quantity (kg)	Rate per kg
April 10	1,600	5.00
April 12	2,400	4.90
April 5	1,000	5.10
April 17	1,100	5.20
April 25	800	5.25
April 11	900	5.40
April 24	1,400	5.50

There was 1,500 kg. in stock at April 1, 2014 which was valued at ₹4.80 per kg.

Date	Quantity (kg)
April 4	1,100
April 24	1,600
April 10	1,500
April 26	1,700
April 15	1,500
April 21	1,200

Issues are to be priced on the basis of weighted average method. The stock verifier of the company reported a shortage of 80 kgs. on 31st May, 2014 and 60 kgs. on 30th June, 2014. The shortage is treated as inflating the price of remaining material on account of shortage.

You are required to prepare a Stores Ledger Account.

STUDY MAT

Q.35. The following transactions in respect of material Y occurred during the six months ended 30th June, 2014:

NB
PN

Month	Purchase (units)	Price per unit (₹)	Issued Units
January	200	25	Nil
February	300	24	250
March	425	26	300
April	475	23	550
May	500	25	800
June	600	20	400

Required

The chief accountant argues that the value of closing stock remains the same no matter which method of pricing of material issues is used. Do you agree? Why or why not? Detailed stores ledgers are not required.

MTP 2 NOV 2022

Q.36. Arnav Electronics manufactures electronic home appliances. It follows weighted average Cost method for inventory valuation. Following are the data of component X:

NB
PN

Date	Particulars		
15-12-19	Purchase Order- 008	10,000	9,930
30-12-19	Purchase Order- 009	10,000	9,780
01-01-20	Opening stock	3,500	9,810
05-01-20	GRN*-008 (against the Purchase Order-008)	10,000	-
05-01-20	MRN**-003 (against the Purchase Order- 008)	500	-
06-01-20	Material Requisition-011	3,000	-
07-01-20	Purchase Order- 010	10,000	9,750
10-01-20	Material Requisition-012	4,500	-
12-01-20	GRN-009 (against the Purchase Order-009)	10,000	-
12-01-20	MRN-004 (against the Purchase Order-009)	400	-
15-01-20	Material Requisition-013	2,200	-
24-01-20	Material Requisition-014	1,500	-
25-01-20	GRN-010 (against the Purchase Order-010)	10,000	-
28-01-20	Material Requisition-015	4,000	-
31-01-20	Material Requisition-016	3,000	-

*GRN- Goods Received Note; **MRN- Material Returned Note

Based on the above data, you are required to CALCULATE:

- Re-order level
- Maximum stock level
- Minimum stock level
- PREPARE Store Ledger for the period January 2020 and DETERMINE the value of stock as on 31-01-2020.
- Value of components used during the month of January, 2020.
- Inventory turnover ratio.

SIMILAR IN STUDY MAT

Additional Questions

- Q.37.** SKY Company Ltd., not registered under GST, purchased material 'RPP' from a company, registered under GST. The following information is available for one lot of 5,000 units of material purchased:

NB
PN

Listed price of one lot	₹ 7,50,000
Trade discount	@ 10% on Listed price.
CGST and SGST (Credit Not available)	12% (6% CGST + 6% SGST)
Road Tax paid	₹ 15,000
Freight and Insurance	₹ 51,000
Detention Charges	₹ 15,000
Commission and brokerage on purchases	₹ 30,000
Amount deposited for returnable containers	₹ 90,000
Amount of refund on returning the container	₹ 60,000
Other Expenses	@ 2% of total cost

20% of material shortage is due to normal reasons.

You are required to CALCULATE cost per unit of material purchased to SKY Company Ltd.

RTP MAY 2020

- Q.38** The annual demand for an item of raw material is 48,000 units and the purchase price is ₹ 80 per unit. The cost of processing an order is ₹ 1,350 and the annual cost of storage is ₹ 15 per unit.

NB
PN

- (i) DETERMINE is the optimal order quantity and total relevant cost for the order?
- (ii) If the cost of processing an order is ₹ 800 and all other data remain same, then DETERMINE the differential cost?
- (iii) If the supplier offers bulk purchase of 48,000 units at a price of ₹ 72 and cost of placing the is Nil, SHOULD the order be accepted?

MTP 1 MAY 2022

- Q.39** The yearly production of a company's product which has a steady market is 40,000 units. Each unit of a product requires 1 kg. of raw material. The cost of placing one order for raw material is ₹ 1,000 and the inventory carrying cost is ₹ 20 per annum. The lead time for procurement of raw material is 36 days and a safety stock of 1,000 kg. of raw materials is maintained by the company. The company has been able to negotiate the following discount structure with the raw material supplier:

NB
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NB
PN

Order quantity (kg.)	Discount (₹)
Upto 6,000	NIL
6,001 – 8,000	4,000
8,001 – 16,000	20,000
16,001 – 30,000	32,000
30,001 – 45,000	4,0000

You are REQUIRED to:

- Calculate the re-order point considering 30 days in a month.
- Prepare a statement showing the total cost of procurement and storage of raw material after considering the discount of the company elects to place one, two, four or five orders in the year.
- State the number of orders which the company should place to minimize the costs after taking EOQ also into consideration.

MTP 2 NOV 2021

Q.40 A company produces a product 'AB' by using two raw materials - 'Material Ae' and 'Material Be' in the ratio of 5:3.

A sales volume of 50,000 kgs is estimated for the month of December by the managers expecting the trend will continue for entire year. The ratio of input and output is 8:5.

Other Information about Raw Material Ae is as follows:

NB
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Purchase Price	₹ 150 per kg
Re-order period	2 to 3 days
Carrying Cost	12%

Note: Material Ae is perishable in nature and if not used within 3.5 days of purchase it becomes obsolete.

To place an order for material 'Ae', the company has to incur an administrative cost of ₹ 375 per order. At present, material 'Ae' is purchased in a lot of 7,500 kgs. to avail the discount on purchase. Company works for 25 days in a month and production is carried out evenly.

You are required to CALCULATE:

- Economic Order Quantity (EOQ) for Material Ae;
- Maximum stock level for Material Ae.

MTP 1 NOV 2021

Q.41 The annual demand for an item of raw material is 4,000 units and the purchase price is expected to be Rs. 90 per unit. The incremental cost of processing an order is Rs. 135 and the annual cost of storage is estimated to be Rs. 12 per unit. What is the optimal order quantity and total relevant cost of this order quantity?

Suppose that Rs. 135 as estimated to be the incremental cost of processing an order is incorrect and should have been Rs. 80. All other estimates are correct. What is the difference in cost on account of this error?

Assume at the commencement of the period that a supplier offers 4,000 units at a price of Rs. 86. The materials will be delivered immediately and placed in the stores. Assume that the incremental cost of placing the order is zero and original estimate of Rs. 135 for placing an order for the economic batch is correct. Should the order be accepted?

MTP 1 NOV 2022

Q.42 Banerjee Brothers (BB) supplies surgical gloves to nursing homes and polyclinics in the city. These surgical gloves are sold in pack of 10 pairs at price of ₹ 250 per pack. For the month of April 2018, it has been anticipated that a demand for 60,000 packs of surgical gloves will arise. BB purchases these gloves from the manufacturer at ₹ 228 per pack within a 4 to 6 days' lead time. The ordering and related cost is ₹ 240 per order. The storage cost is 10% p.a. of average inventory investment.

Required:

- Calculate the Economic Order Quantity (EOQ)
- Calculate the number of orders needed every year
- Calculate the total cost of ordering and storage of the surgical gloves.
- Determine when should the next order to be placed. (Assuming that the company does maintain a safety stock and that the present inventory level is 10,033 packs with a year of 360 working days).

MTP 1 NOV 2018

Q.43 MM Ltd. uses 7500 valves per month which is purchased at a price of ₹ 1.50 per unit. The carrying cost is estimated to be 20% of average inventory investment on an annual basis.

The cost to place an order and getting the delivery is ₹ 15. It takes a period of 1.5 months to receive a delivery from the date of placing an order and a safety stock of 3200 valves is desired.

You are required to determine:

- The Economic Order Quantity (EOQ) and the frequency of orders.
- The re-order point.
- The Economic Order Quantity (EOQ) if the valve cost ₹ 4.50 each instead of 1.50 each.

(Assume a year consists of 360 days)

RTP MAY 2018 (OLD)

- Q.44** ACE Ltd. produces a product EMM using a material 'REX'. To produce one unit of EMM 0.80 kg of 'REX' is required. As per the sales forecast conducted by the company it will be able to sell 45,600 units of product EMM in the coming year. There is an opening stock of 3,150 units of product EMM and company desires to maintain closing stock equal to one month's forecasted sale. Following is the information regarding material 'REX':

NB
PN

(i)	Purchase price per kg	₹ 25
(ii)	Cost of placing order	₹ 240 per order
(iii)	Storage cost	2% per annum
(iv)	Interest rate	10% per annum
(v)	Average lead time	8 days
(vi)	Difference between minimum and maximum lead time	6 days
(vii)	Maximum usage	150 kg
(viii)	Minimum usage	90 kg

Opening stock of material 'REX' is 2,100 kg and closing stock will be 10% more than opening stock.

Required:

- Compute the EOQ and total cost as per EOQ.
- Compute the reorder level and maximum level.
- If the company places an order of 7,500 kg of REX at a time, it gets 2% discount, should the offer be accepted?

PYQ NOV 2022

- Q.45** ARS Limited produces the component from a single raw material in economic lots (EOQ) of 2,800 units at a cost of ₹ 8.00 per unit. Average annual demand of the component is 28,000 units. The annual holding and carrying cost is ₹ 0.25 per unit and minimum stock level is set at 450 units.

NB
PN

You are required to calculate:

- Ordering cost per order.
- Average stock level.
- Number of orders.
- If the company plans to reduce the number of orders calculated in (iii) above by 2, by this change, to what extent will the economic order quantity and the ordering cost per order be increased?

PYQ MAY 2019

Q.46 M/s Tanishka Materials Private Limited produces a product which names "ESS". The consumption of raw material for the production of "ESS" is 210 Kgs to 350 Kgs per week.

NB
PN

Other information is as follows:

Procurement Time: 5 to 9 Days

Purchase price of Raw Materials: ₹ 100 per kg

Ordering Cost per Order: ₹ 200

Storage Cost: 1% per month plus ₹ 2 per unit per annum

Consider 365 days a year.

You are required to CALCULATE:

- (a) Economic Order Quantity
- (b) Re-Order Level (ROL)
- (c) Maximum Stock Level
- (d) Minimum Stock Level
- (e) Average Stock Level
- (f) Number of Orders to be placed per year
- (g) Total Inventory Cost
- (h) If the supplier is willing to offer 1% discount on purchase of total annual quantity in two orders, whether offer is acceptable?
- (i) If the answer is no, what should be the counteroffer w.r.t. percentage of discount?

PYQ DEC 2021

Q.47 Tesco cycles Ltd. used about 3,60,000 cycle locks per annum and the usage is fairly constant at 30,000 per month. The cycle lock costs ₹ 240 each at wholesale rate and carrying cost is estimated to be 10% of the annual average inventory value. The cost to place an order is ₹ 1200. It takes 45 days to receive delivery from the date of order. In order to avoid any kind of disruption in assembly line, safety stock of 6,500 cycle locks is always maintained by Tesco Cycles Ltd.

NB
PN

(Assume 360 days in a year).

Compute:

- (i) E.O.Q.
- (ii) The re-order level.
- (iii) The company has been offered a quantity discount of 2% on the purchase of cycle locks provided the order size is 30,000 units at a time. Advise whether quantity discount offer can be accepted?

RTP NOV 2022

Q.48 ABC Limited manufactures a product 'AM25' using material 'CEE'.

The following information is available regarding material 'CEE' :

NB
PN

Purchase price per unit	₹ 300
Cost of placing an order	₹ 150
Carrying cost per unit per annum	6% of purchase price
Consumption of material 'CEE' per annum	1,94,400 units
Lead time	Average 6 days, Maximum 8 days, Minimum 4 days

Maximum consumption of material 'CEE' per day is 200 kg more than the average consumption per day.

Required:

Calculate the following in relation to material 'CEE':

- Economic Order Quantity.
- Reorder Level
- Maximum Stock Level. (Assume 360 days in a vyear)

PYQ MAY 2024

Q.49 An automobile company purchases 27,000 spare parts for its annual requirements. The cost per order is ₹ 240 and the annual carrying cost of average inventory is 12.5%. Each spare part costs ₹ 50.

NB
PN

At present, the order size is 3,000 spare parts.

(Assume that number of days in a year = 360 days)

Find out:

- How much the company's cost would be saved by opting EOQ model?
- The Re-order point under EOQ model if lead time is 12 days.
- How frequently should orders for procurement be placed under EOQ model?

PYQ NOV 2023

Progress Sheet

	Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐
Question 2	☐	☐	☐
Question 3	☐	☐	☐
Question 4	☐	☐	☐
Question 5	☐	☐	☐
Question 6	☐	☐	☐
Question 7	☐	☐	☐
Question 8	☐	☐	☐
Question 9	☐	☐	☐
Question 10	☐	☐	☐
Question 11	☐	☐	☐
Question 12	☐	☐	☐
Question 13	☐	☐	☐
Question 14	☐	☐	☐
Question 15	☐	☐	☐
Question 16	☐	☐	☐
Question 17	☐	☐	☐
Question 18	☐	☐	☐
Question 19	☐	☐	☐
Question 20	☐	☐	☐
Question 21	☐	☐	☐
Question 22	☐	☐	☐
Question 23	☐	☐	☐
Question 24	☐	☐	☐
Question 25	☐	☐	☐

	Class Work	1 st Practice	2 nd Practice
Question 26	☐	☐	☐
Question 27	☐	☐	☐
Question 28	☐	☐	☐
Question 29	☐	☐	☐
Question 30	☐	☐	☐
Question 31	☐	☐	☐
Question 32	☐	☐	☐
Question 33	☐	☐	☐
Question 34	☐	☐	☐
Question 35	☐	☐	☐
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Question 40	☐	☐	☐
Question 41	☐	☐	☐
Question 42	☐	☐	☐
Question 43	☐	☐	☐
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Question 45	☐	☐	☐
Question 46	☐	☐	☐
Question 47	☐	☐	☐
Question 48	☐	☐	☐
Question 49	☐	☐	☐
Question 50	☐	☐	☐



EMPLOYEE COSTS & DIRECT EXPENSES

Incentive Schemes

Q.1. Calculate the earnings of a worker under Halsey System. The relevant data is as below: Time Rate (per hour) ₹60

NB

PN

Time allowed	8 hours
Time taken	6 hours
Time saved	2 hours

STUDY MAT

Q.2. Calculate the earnings of a worker under Rowan System. The relevant data is as below: Time Rate (per hour) ₹60

NB

PN

Time allowed	8 hours
Time taken	6 hours
Time saved	2 hours

STUDY MAT

Q.3. You are given the following information of a worker:

NB

PN

- (i) Name of worker : Mr. Roger
- (ii) Ticket No. : 002
- (iii) Work started : 1-4-14 at 8 a.m.
- (iv) Work finished : 5-4-14 at 12 noon
- (v) Work allotted : Production of 2,160 units
- (vi) Work done and approved : 2,000 units
- (vii) Time and units allowed : 40 units per hour
- (viii) Wage rate : ₹25 per hour
- (ix) Mr. Roger worked 9 hours a day.

You are required to calculate the remuneration of Mr. Roger on the following basis:

- (i) Halsey plan and
- (ii) Rowan plan

PYQ MAY 2011

Q.4. Mr. Michael executes a piece of work in 120 hours as against 150 hours allowed to him. His hourly rate is ₹10 and he gets a dearness allowance @ ₹30 per day of 8 hours worked in addition to his wages. You are required to calculate total wages received by Mr. Michael under the following incentive schemes:

NB

PN

- (i) Rowan Premium Plan, and
- (ii) Emerson's Efficiency Plan

PYQ NOV 2011

Q.5. Two workmen, Andrew and Baker, produce the same product using the same material. Andrew is paid bonus according to Halsey plan, while Baker is paid bonus according to Rowan plan. The time allowed to manufacture the product is 100 hours. Andrew has taken 60 hours and Baker has taken 80 hours to complete the product. The normal hourly rate of wages of workman Andrew is ₹24 per hour. The total earnings of both the workers are same. Calculate normal hourly rate of wages of workman Baker.

PYQ MAY 2009

Q.6. Two workmen, 'A' and 'B', produce the same product using the same material. Their normal wage rate is also the same. 'A' is paid bonus according to the Rowan system, while 'B' is paid bonus according to the Halsey system. The time allowed to make the product is 50 hours. 'A' takes 30 hours while 'B' takes 40 hours to complete the product. The factory overhead rate is ₹5 per man-hour actually worked. The factory cost for the product for 'A' is ₹3,490 and for 'B' it is ₹3,600.

Required:

- Compute the normal rate of wages;
- Compute the cost of materials cost;
- Prepare a statement comparing the factory cost of the products as made by the two workmen.

RTP MAY 2007

Q.7. The management of a company wants to formulate an incentive plan for the workers with a view to increase productivity. The following particulars have been extracted from the books of company

Piece Wage rate ₹10

Weekly working hours 40

Hourly wages rate ₹40 (guaranteed)

Standard/normal time per unit 15 minutes.

Actual output for a week:

Worker A: 176 pieces

Worker B: 140 pieces

Differential piece rate: 80% of piece rate when output below normal and 120% of piece rate when output above normal.

Under Halsey scheme, worker gets a bonus equal to 50% of Wages of time saved.

Calculate:

- Earning of workers under Halsey's and Rowan's premium scheme.
- Earning of workers under Taylor's differential piece rate system and Emerson's efficiency plan.

PYQ MAY 2012

Q.8. A skilled worker is paid a guaranteed wage rate of ₹120 per hour. The standard time allowed for a job is 6 hours. He took 5 hours to complete the job. He is paid wages under Rowan Incentive Plan.

NB
PN

- Calculate his effective hourly rate of earnings under Rowan Incentive Plan.
- If the worker is placed under Halsey Incentive Scheme (50%) and he wants to maintain the same effective hourly rate of earnings, calculate the time in which he should complete the job.

PYQ MAY 2023

Q.9. Standard Time for a job is 90 hours. The hourly rate of guaranteed wages is ₹50. Because of the saving in time a worker A gets an effective hourly rate of wages of ₹60 under Rowan premium bonus system. For the same saving in time, calculate the hourly rate of wages a worker B will get under Halsey premium bonus system assuring 40% to worker.

NB
PN

PYQ NOV 2009

Q.10. A skilled worker in XYZ Ltd. is paid a guaranteed wage rate of ₹30 per hour. The standard time per unit for a particular product is 4 hours. Mr. P, a machine man, has been paid wages under the Rowan Incentive Plan and he had earned an effective hourly rate of ₹37.50 on the manufacture of that particular product.

NB
PN

What could have been his total earnings and effective hourly rate, had he been put on Halsey Incentive Scheme (50%)?

STUDY MAT

Q.11. Mr. X had been allotted a work which had to be completed within 80 hours. He took 74 hours to complete the work. The company pays incentive bonus of 10% on the hourly rate if standard time is achieved and a further incentive bonus of 2% on hourly rate for each 1% in excess of 100% efficiency is payable. The normal wage rate is ₹30 per hour. Calculate the effective wage rate per hour worked and total wages to be paid to Mr. X.

NB
PN

RTP MAY 2013

Q.12. Jigyasa Boutiques LLP. (JBL) takes contract on job works basis. It works for various fashion houses and retail stores. It has employed 26 workers and pays them on time rate basis. On an average an employee is allowed 2 hours for boutique work on a piece of garment. In the month of March 2014, two workers Margaret and Jennifer were given 30 pieces and 42 pieces of garments respectively for boutique work. The following are the details of their work:

NB
PN

	Margaret	Jennifer
Work assigned	30 pcs.	42 pcs.
Time taken	28 hours	40 hours

are paid bonus as per Halsey System. The existing rate of wages is ₹50 per hour. As per the new wages agreement the workers will be paid ₹55 per hour w.e.f. 1st April 2014. At the end of the month March 2014, the accountant of the company has calculated wages to these two workers taking ₹55 per hour.

- (i) From the above information calculate the amount of loss that the company has incurred due to incorrect rate selection.
- (ii) What would be the loss incurred by the JBL due to incorrect rate selection if it had followed Rowan scheme of bonus payment.
- (iii) Amount that could have been saved if Rowan scheme of bonus payment was followed.
- (iv) Do you think Rowan scheme of bonus payment is suitable for JBL?

PYQ MAY 2021

Q.13. The existing Incentive system of Alpha Limited is as under:

NB
PN

Normal working week	5 days of 8 hours each plus 3 late shifts of 3 hours each
Rate of Payment	Day work: ₹160 per hour Late shift: ₹225 per hour
Average output per operator for 49-hours week i.e. including 3 late shifts	120 articles

In order to increase output and eliminate overtime, it was decided to switch on to a system of payment by results. The following information is obtained:

Time-rate (as usual) :	₹160 per hour
Basic time allowed for 15 articles :	5 hours
Piece-work rate :	Add 20% to basic piece-rate
Premium Bonus :	Add 50% to time.

Required:

- (i) Prepare a Statement showing hours worked, weekly earnings, number of articles produced and labour cost per article for one operator under the following systems:
 - (a) Existing time-rate
 - (b) Straight piece-work
 - (c) Rowan system
 - (d) Halsey premium system

Assume that 135 articles are produced in a 40-hour week under straight piece work, Rowan Premium System, and Halsey Premium System above and worker earns half the time saved under Halsey Premium System.

PYQ NOV 2005

Q.14. The time allowed for a job is 8 hours. The hourly rate is ₹8. Prepare a statement showing:

NB
PN

- The bonus earned
- The total earnings of employee and
- Hourly earnings.

Under the Halsey System with 50% bonus for time saved and Rowan System for each hour saved progressively.

STUDY MAT

Q.15. ADV Pvt. Ltd. manufactures a product which requires skill and precision in work to get quality products. The company has been experiencing high labour cost due to slow speed of work. The management of the company wants to reduce the labour cost but without compromising with the quality of work. It wants to introduce a bonus scheme but is indifferent between the Halsey and Rowan scheme of bonus.

NB
PN

For the month of November 2019, the company budgeted for 24,960 hours of work. The workers are paid ₹80 per hour.

Required:

- CALCULATE and suggest the bonus scheme where the time taken (in %) to time allowed to complete the works is (a) 100% (b) 75% (c) 50% & (d) 25% of budgeted hours.

RTP NOV 2009

Q.16. Wage negotiations are going on with the recognized employees' union, and the management wants you as the as an executive of the company to formulate an incentive scheme with a view to increase productivity.

NB
PN

The case of three typical workers A, B and C who produce respectively 180, 120 and 100 units of the company's product in a normal day of 8 hours is taken up for study.

Assuming that day wages would be guaranteed at ₹75 per hour and the piece rate would be based on a standard hourly output of 10 units, calculate the earnings of each of the three workers and the employee cost per 100 pieces under (i) Day wages, (ii) Piece rate, (iii) Halsey scheme, and (iv) The Rowan scheme.

Also calculate under the above schemes the average cost of labour for the company to produce 100 pieces.

STUDY MAT

Q.17. The following particulars have been compiled in respect of three workers, which are under consideration of the management.

	I	II	III
Actual hours worked	380	100	540
Hourly rate of wages (in ₹)	40	50	60
Production in units			
- Product - X	210	--	60
- Product - Y	360	-	1350
- Product - Z	460	250	-
Standard time allowed per unit of each product is:	X	Y	Z
Minutes	15	20	30

For the purpose of piece rate, each minute is valued at ₹ 1/-

You are required to calculate the wages of each worker under:

- Guaranteed hourly rate basis
- Piece work earning basis, but guaranteed at 75% of basic pay
(Guaranteed hourly rate if his earnings are less than 50% of basic pay.)
- Premium bonus basis where the worker received bonus based on Rowan scheme.

RTP MAY 2019

Q.18. The standard time allowed for a certain piece of work is 300 hours. Normal wages is ₹ 60 per hour.

The bonus system applicable to the work is as follows:

Percentage of time saved to time allowed (slab rate)	Bonus
(i) Up to the first 20% of time allowed	25% of the corresponding saving in time.
(ii) For and within the next 30% of time allowed	40% of the corresponding saving in time.
(iii) For and within the next 30% of time allowed	30% of the corresponding saving in time.
iv) For and within the next 20% of time allowed	10% of the corresponding saving in time.

Calculate the total earnings of a worker over the piece of work and his earnings per hour when he takes.

- 320 hours,
- 150 hours, and
- 30 hours respectively.

PYQ JAN 2021, MTP 1 MAY 2022

Q.19. ZED Limited is working by employing 50 skilled workers, it is considering the introduction of incentive scheme-either Halsey scheme (with 50% bonus) or Rowan scheme of wage payment for increasing the labour productivity to cope up the increasing demand for the product by 40%. It is believed that proposed incentive scheme could bring about an average 20% increase over the present earnings of the workers; it could act as sufficient incentive for them to produce more.

Because of assurance, the increase in productivity has been observed as revealed by the figures for the month of April, 2014.

Hourly rate of wages (guaranteed)	₹30
Average time for producing one unit by one worker at the previous performance (This may be taken as time allowed)	1.975 hours
Number of working days in the month	24
Number of working hours per day of each worker	8
Actual production during the month	6,120 units

Required:

- Calculate the effective rate of earnings under the Halsey scheme and the Rowan scheme.
- Calculate the savings to the ZED Limited in terms of direct labour cost per piece.
- Advise ZED Limited about the selection of the scheme to fulfill their assurance.

PYQ MAY 2024

Q.20. The finishing shop of a company employs 60 direct workers. Each worker is paid ₹400 as wages per week of 40 hours. When necessary, overtime is worked up to a maximum of 15 hours per week per worker at time rate plus one-half as premium. The current output on an average is 6 units per man hour which may be regarded as standard output. If bonus scheme is introduced, it is expected that the output will increase to 8 units per man hour. The workers will, if necessary, continue to work overtime up to the specified limit although no premium on incentives will be paid.

The company is considering introduction of either Halsey Scheme or Rowan Scheme of wages incentive system. The budgeted weekly output is 19,200 units. The selling price is ₹11 per unit and the direct material cost is ₹8 per unit. The variable overheads amount to ₹0.50 per direct labour hour and the fixed overhead is ₹9,000 per week.

Prepare a statement to show the effect on the company's weekly profit of the proposal to introduce (a) Halsey Scheme, and (b) Rowan Scheme

MTP MAY 2004

Group Bonus Schemes & Rate of pay

Q.21. Calculate the Employee hour rate of a worker X from the following data: Basic pay ₹10,000 p.m. D.A. ₹3,000 p.m. Fringe benefits ₹1,000 p.m.

NB
PN

Number of working days in a year 300. 20 days are availed off as holidays on full pay in a year. Assume a day of 8 hours.

STUDY MAT

Q.22. A worker is paid ₹10,000 per month and a dearness allowance of ₹2,000 p.m. Worker contribution to provident fund is @ 10% and employer also contributes the same amount as the employee. The Employees State Insurance Corporation premium is 6.5% of wages of which 1.75% is paid by the employees. It is the firm's practice to pay 2 months' wages as bonus each year.

NB
PN

The number of working days in a year are 300 of 8 hours each. Out of these the worker is entitled to 15 days leave on full pay. Calculate the wage rate per hour for costing purposes.

STUDY MAT

Q.23. Following data have been extracted from the books of M/s. ABC Private Limited:

NB
PN

(i)	Salary (each employee, per month)	₹ 30,000
(ii)	Bonus	25% of salary
(iii)	Employer's contribution to PF, ESI etc.	15% of salary
(iv)	Total cost at employees' welfare activities	₹ 6,61,500 per annum
(v)	Total leave permitted during the year	30 days
(vi)	No. of employees	175
(vii)	Normal idle time	70 hours per annum
(viii)	Abnormal idle time (due to failure of power supply)	50 hours
(ix)	Working days per annum	310 days of 8 hours

You are required to calculate:

1. Annual cost of each employee
2. Employee cost per hour
3. Cost of abnormal idle time, per employee

PYQ NOV 2018

Q.24. GZ Ltd. pays the following to a skilled worker engaged in production works. The following are the employee benefits paid to the employee:

NB
PN

(a)	Basic salary per day	₹ 1,000
(b)	Dearness allowance (DA)	20% of basic salary
(c)	House rent allowance	16% of basic salary
(d)	Transport allowance	₹ 50 per day of actual work
(e)	Overtime	Twice the hourly rate (considers basic and DA), only if works more than 9 hours a day otherwise no overtime allowance. If works for more than 9 hours a day then overtime is considered after 8th hours.
(f)	Work of holiday and Sunday	Double of per day basic rate provided works atleast 4 hours. The holiday and Sunday basic is eligible for all allowances and statutory deductions.
(g)	Earned leave & Casual leave	These are paid leave.
(h)	Employer's contribution to Provident fund	12% of basic and DA
(i)	Employer's contribution to Pension fund	7% of basic and DA

The company normally works 8-hour a day and 26-day in a month. The company provides 30 minutes lunch break in between.

During the month of August 2020, Mr.Z works for 23 days including 15th August and a Sunday and applied for 3 days of casual leave. On 15th August and Sunday he worked for 5 and 6 hours respectively without lunch break.

On 5th and 13th August he worked for 10 and 9 hours respectively.

During the month Mr. Z worked for 100 hours on Job no.HT200.

You are required to CALCULATE:

- Earnings per day
- Effective wages rate per hour of Mr. Z.
- Wages to be charged to Job no.HT200.

RTP MAY 2004

Q.25. A, B and C were engaged on a group task for which a payment of ₹72,500 was to be made. A's time basis wages are ₹800 per day, B's ₹600 per day and C's ₹500 per day. A worked for 25 days; B worked for 30 days; and C for 40 days. Calculate the share of bonus to be distributed among the workers and total earnings thereof.

NB
PN

MTP NOV 2006

Q.26. Both direct and indirect employees of a department in a factory are entitled to production bonus in accordance with a group incentive scheme, the outline of which is as follows:

NB
PN

- (a) For any production in excess of the standard rate fixed at 16,800 tons per month (of 28 days) a general incentive of ₹1,500 per ton is paid in aggregate. The total amount payable to each separate group is determined on the basis of an assumed percentage of such excess production being contributed by it, namely @ 65% by direct employee, @ 15% by inspection staff, @ 12% by maintenance staff and @ 8% by supervisory staff.
- (b) Moreover, if the excess production is more than 20% above the standard, direct employees also get a special bonus @ ₹500 per ton for all production in excess of 120% of standard.
- (c) Inspection staff are penalized @ ₹2,000 per ton for rejection by customer in excess of 2% of production.
- (d) Maintenance staff are also penalized @ ₹2,000 per hour for breakdown.

From the following particulars for a month, compute production bonus earned by each group:

- (a) Actual working days : 25
- (b) Production : 21,000 tons
- (c) Rejection by customer : 500 tons
- (d) Machine breakdown : 40 hours

PYQ NOV 2010

Idle time/Overtime & it's treatment

Q.27. In a factory working six days in a week and eight hours each day, a worker is paid at the rate of ₹100 per day basic plus D.A. @ 120% of basic. He is allowed to take 30 minutes off during his hours shift for meals-break and a 10 minutes recess for rest. During a week, his card showed that his time was chargeable to:

NB
PN

- Job X 15 hrs.
- Job Y 12 hrs.
- Job Z 13 hrs.

The time not booked was wasted while waiting for a job. In Cost Accounting, how would you allocate the wages of the workers for the week?

STUDY MAT

Q.28. In a factory, the basic wage rate is ₹100 per hour and overtime rates are as follows:

NB	Before and after normal working hours	175% of basic wage rate
PN	Sundays and holidays	225% of basic wage rate
	During the previous year, the following hours were worked	
	- Normal time	1,00,000 hours
	- Overtime before and after working hours	20,000 hours
	Overtime on Sundays and holidays	<u>5,000 hours</u>
	Total	<u>1,25,000 hours</u>

The following hours have been worked on job 'Z'

Normal	1,000 hours
Overtime before and after working hrs.	100 hours.
Sundays and holidays	25 hours.
Total	1,125 hours

You are required to calculate the labour cost chargeable to job 'Z' and overhead in each of the following instances:

- Where overtime is worked regularly throughout the year as a policy due to the workers' shortage.
- Where overtime is worked irregularly to meet the requirements of production.
- Where overtime is worked at the request of the customer to expedite the job.

STUDY MAT

Q.29. Calculate the earnings of A and B from the following particulars for a month and allocate the employee cost to each job X, Y and Z:

NB		A	B
PN			
	Basic Wages (₹)	10,000	16,000
	Dearness Allowance	50%	50%
	Contribution to provident Fund (on basic wages)	8%	8%
	Contribution to Employee's State Insurance (on basic wages)	2%	2%
	Overtime (Hours)	10	-

The normal working hours for the month are 200. Overtime is paid at double the total of normal wages and dearness allowance. Employer's contribution to state Insurance and Provident Fund are at equal rates with employees' contributions. The two workers were employed on jobs X, Y and Z in the following proportions:

Jobs	X	Y	Z
Worker A	40%	30%	30%
Worker B	50%	20%	30%

Overtime was done on job Y.

STUDY MAT

Q.30. Jigyasa Ltd. pays a basic wage of ₹125 per hour to its production workers. The company works 6 days a week in a single shift of 8:00 AM. to 4:30 PM. The company also pays overtime to its workers apart from basic wages for work beyond its normal working hours. The overtime rule is as under:

NB
PN

- No over-time is paid for any work upto 5:30 PM.
- ₹62.50 per hour for any work done after 5:30 PM.
- The Maximum over-time payment is restricted to ₹375 for a day, However, workers are paid ₹80 as diet allowance for work done beyond 8:30 PM.
- On Sunday or any holiday, workers are paid ₹375 provided they work atleast for 4 hours.

The extract of attendance for three workers is as follows:

	Worker- A	Worker- B	Worker- C
Monday	8:00 AM – 6:30 PM	8:00 AM – 7:30 PM	8:00 AM – 9:30 PM
Tuesday (Holiday)	8:00 AM – 5:30 PM	8:00 AM – 12:30 PM	Absent
Wednesday	8:00 AM – 10:30 PM	8:00 AM – 5:30 PM	8:00 AM – 11:30 PM
Thursday	8:00 AM – 4:30 PM	8:00 AM – 9:30 PM	8:00 AM – 8:30 PM
Friday	8:00 AM – 11:00 PM	8:00 AM – 4:30 PM	8:00 AM – 4:30 PM
Saturday	Absent	8:00 AM – 5:30 PM	8:00 AM – 7:30 PM
Sunday	Absent	8:00 AM – 1:30 PM	8:00 AM – 4:30 PM

Required:

- Calculate the amount of overtime and diet allowance payable to each worker.
- Calculate the amount and accounting treatment of overtime and diet allowance in each case:
 - Worker A and C were involved in a specific job work assigned to them.
 - Overtime was due to under-estimation of sales demand provided by the sales department.
 - Overtime was due to make up a shortfall in production due to sudden demand.

PYQ MAY 2004

Labour Turnover & Loss of profit

Q.31. Following information are available from the cost records of BMR Limited,
CALCULATE Labour turnover rate and Labour flux rate:

NB

PN

No. of Employees as on 01.04.2021 = 9,400

No. of Employees as on 31.03.2022 = 10,600

During the year, 160 Employees left while 640 Employees were discharged and 1,500 Employees were recruited during the year; of these, 400 Employees were recruited because of exits and the rest were recruited in accordance with expansion plans.

RTP MAY 2023

Q.32. Accountant of your company had computed labour turnover rates for the quarter ended 30th September, 2013 as 14%, 8% and 6% under Flux method, Replacement method and Separation method respectively. If the number of workers replaced during 2nd quarter of the financial year 2013-14 is 36,

NB

PN

Find the following:

(a) The number of workers recruited and joined; and

(b) The number of workers left and discharged.

PYQ NOV 2012

Q.33. R Ltd. has computed labour turnover rates for the quarter ended 31st March, 2022 as 20%, 10% and 5% under flux method, replacement method and separation method respectively. If the number of workers replaced during that quarter is 50,

NB

PN

FIND OUT (i) Workers recruited and joined

(ii) Workers left and discharged and

(iii) Average number of workers on roll.

MTP 2 NOV 2022

Q.34. Human Resources Department of A Ltd. computed labour turnover by replacement method at 3% for the quarter ended June 2015. During the quarter, fresh recruitment of 40 workers was made. The number of workers at the beginning and end of the quarter was 990 and 1,010 respectively.

NB

PN

You are required to calculate the labour turnover rate by Separation Method and Flux Method.

PYQ MAY 2011

Q.35. HR Ltd. is progressing in its legal industry. One of its trainee executives, Mr. H, in the Personnel department has calculated labour turnover rate 24.92% for the last year using Flux method.

NB
PN

Following is the data provided by the Personnel department for the last year:

Following is some data provided by the Personnel department for the last year:

Employees	At the beginning	Joined	Left	At the end
Records clerk	810	1,620	90	2,340
Human Resource Manager	?	30	90	60
Legal Secretary	?	90	---	?
Staff Attorney ? 30 30	?	30	30	?
Associate Attorney	?	30	---	45
Senior Staff Attorney	6	---	---	18
Senior Records clerk	12	---	---	51
Litigation attorney	?	---	---	?
Employees transferred from the Subsidiary Company				
Senior Staff Attorney	---	12	---	---
Senior Records clerk	---	39	---	---
Employees transferred to the Subsidiary Company				
Litigation attorney	---	---	90	---
Associate Attorney	---	---	15	---

At the beginning of the year there were total 1,158 employees on the payroll of the company. The opening strength of the Legal Secretary, Staff Attorney and Associate Attorney were in the ratio of 3 : 3 : 2.

The company has decided to abandon the post of Litigation attorney and consequently all the Litigation attorneys were transferred to the subsidiary company.

The company and its subsidiary are maintaining separate set of books of account and separate Personnel Department.

You are required to:

- CALCULATE Labour Turnover rate using Replacement method and Separation method.
- VERIFY the Labour turnover rate calculated under Flux method by Mr. H

RTP NOV 2022

Q.36. The management of B.R Ltd. is worried about their increasing employee turnover in the factory and before analyzing the causes and taking remedial steps, it wants to have an idea of the profit foregone as a result of employee turnover in the last year. Last year sales amounted to ₹83,03,300 and P/V ratio was 20 per cent. The total number of actual hours worked by the direct employee force was 4.45 lakhs. As a result of the delays by the Personnel Department in filling vacancies due to employee turnover, 1,00,000 potentially productive hours were lost. The actual direct employee hours included 30,000 hours attributable to training new recruits, out of which half of the hours were unproductive.

The costs incurred consequent on employee turnover revealed, on analysis, the following: Settlement cost due to leaving ₹43,820 Recruitment costs ₹26,740 Selection costs ₹12,750 Training costs ₹30,490

Assuming that the potential production lost as a consequence of employee turnover could have been sold at prevailing prices, find the profit foregone last year on account of employee turnover.

STUDY MAT

Q.37. Super Ltd, a manufacturing company is facing the problem of high labour turnover in the factory. Before analysing the causes and taking remedial steps, the management of the company wants to ascertain the profit lost for the year 2022-23 on account of labour turnover. For this purpose, it has given you the following information:

- (i) Sales for the last year 2022-23 was ₹2,16,80,000 and P/V ratio was 15%.
- (ii) The total number of actual hours worked by the direct labour force was 5,00,000 hours. The actual direct labour hours included 60,000 hours attributable to training new recruits, out of which 40% of the hours were unproductive.
- (iii) Due to delays by the Personnel Department in filling vacancies on account of labour turnover, 95,000 potential productive hours (excluding unproductive training hours) were lost.
- (iv) 1,500 units of the output produced during training period were defective. Cost of rectification of defective units was ₹40 per unit.
- (v) Settlement cost of the workers leaving the organization was ₹2,37,880.
- (vi) Recruitment and Selection cost was ₹1,40,000.
- (vii) Cost of Training and Induction was ₹1,61,950.

Assuming that the potential production lost as a consequence of labour turnover could have been sold at prevailing prices, find the profit lost for the year 2022-23 on account of labour turnover.

PYQ MAY 2024

Additional Questions

Q.38. A job can be executed either through workman A or B. A takes 32 hours to complete the job while B finishes it in 30 hours. The standard time to finish the job is 40 hours. The hourly wage rate is same for both the workers. In addition workman A is entitled to receive bonus according to Halsey plan (50%) sharing while B is paid bonus as per Rowan plan. The works overheads are absorbed on the job at ₹ 7.50 per labour hour worked. The factory cost of the job comes to ₹ 2,200 irrespective of the workman engaged.

FIND out the hourly wage rate and cost of raw materials input. Also SHOW cost against each element of cost included in factory cost.

MTP 1 SEP 2024

Q.39. Using the details given below, you are required to calculate the earnings of workers Rio and Rayan and subsequently allocate these earnings to the three Jobs A, B and C.

NB
PN

		Rio	Rayan
(a)	Basic Wages	Rs. 100	Rs. 100
(b)	Dearness Allowance	50%	50%
(c)	Provident Fund (on basic wages)	8%	8%
(d)	Employee's State Insurance (on basic wages)	2%	2%
(e)	Overtime	10 hrs.	-
(f)	Idle time and leave	-	16 hrs.

For your calculations, you may assume the following:

- (i) Normal working hours for a month are 200 hours.
- (ii) Overtime is paid at double the normal wages plus dearness allowance.
- (iii) Employer's contributions to State Insurance and Provident Fund are at equal rate with the employee's contributions.
- (iv) The month contains 25 working days and one paid holiday.

The two workers were employed on jobs A, B and C in the following proportions:

Job	A	B	C
Worker A	80	60	60
Worker B	100	40	40
Overtime was done on job Y.			

RTP MAY 2007

Q.40. Calculate total monthly remuneration of three workers Ram, Shyam and Mohan from the following data:

NB
PN

- Standard production per month per worker 2,000 units. Actual production during the month – Ram 1700 units, Shyam 1500 units and Mohan 1,900 units.
- Piece-work rate is Rs. 2 per unit (actual production).
- Additional production bonus is Rs. 100 for each percentage of actual production exceeding 80 per cent actual production over standard (example: 79 per cent nil, 80 per cent nil, 81 per cent Rs. 100, 82 per cent Rs. 200, and so on).
- Dearness allowance fixed at Rs. 300 per month.

MTP NOV 2012

Q.41. A worker took 60 hours to complete a job in a factory. The normal rate of wages is ₹80 per hour. The worker is entitled to receive bonus according to the Halsey Premium Plan. Factory overhead is recovered on the job at ₹60 per man hour actually worked. The factory cost of the job is ₹37,280 and material cost of the job is ₹28,400.

NB
PN

Required:

- Calculate the standard time for completing the job and effective hourly rate under the Halsey Premium plan.
- Calculate the effective rate of earnings per hour if wages would have been paid under the Rowan Plan.

PYQ NOV 2023

Q.42. A skilled worker, in PK Ltd., is paid a guaranteed wage rate of ₹15.00 per hour in a 48- hour week. The standard time to produce a unit is 18 minutes. During a week, a skilled worker -Mr. 'A' has produced 200 units of the product. The Company has taken a drive for cost reduction and wants to reduce its labour cost.

NB
PN

You are required to:

- Calculate wages of Mr. 'A' under each of the following methods:
 - Time rate,
 - Piece -rate with a guaranteed weekly wage,
 - Halsey Premium Plan
 - Rowan Premium Plan
- Suggest which bonus plan

PYQ NOV 2022

Q.43. SMC Company Limited is producing a particular design of toys under the following existing incentive system:

NB
PN

Normal working hours in the week	48 hours
Late shift hours in the week	12 hours
Rate of payment Normal working:	₹ 150 per hour
Late shift:	₹ 300 per hour

Average output per operator for 60 hours per week (including late shift hours): 80 toys. The company's management has now decided to implement a system of labour cost payment with either the Rowan Premium Plan or the Halsey Premium Plan in order to increase output, eliminate late shift overtime, and reduce the labour cost.

The following information is obtained:

The standard time allotted for ten toys is seven and half hours.

Time rate: ₹150 per hour (as usual).

Assuming that the operator works for 48-hours in a week and produces 100 toys, you are required to calculate the weekly earnings for one operator under -

- The existing Time Rate,
- Rowan Premium Plan and,
- Halsey Premium Plan (50%).

PYQ MAY 2023

Q.44. A total of 108 labour hours have been put in a particular job card for repair work engaging a semi-skilled and skilled labour (Mr. Deep and Mr. Sam respectively).

NB
PN

The hours devoted by both the workers individually on daily basis for this particular job are given below:

Monday	Tuesday	Wednesday	Thursday	Friday
10.5	8.0	10.5	9.5	10.5

The skilled labour also worked on Saturday for 10 hours.

Sunday is a weekly holiday and each worker has to work for 8 hours on all week days and 5 hours on Saturdays; the workers are however paid full wages for Saturday (8 hours for 5 hours worked).

Semi-skilled and skilled worker is paid ordinary wage @ ₹ 400 and ₹ 600 respectively per day of 8 hours labour. Further, the workers are also paid dearness allowance @ 20%.

Extra hours worked over and above 8 hours are also paid at ordinary wage rate however, overtime premium of 100% of ordinary wage rate is paid if a worker works for more than 9 hours in a day AND 48 hours in a week.

You are required to COMPUTE the wages payable to Mr. Deep (Semi-skilled) and Mr. Sam (Skilled).

RTP MAY 2022

Progress Sheet

	Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐
Question 2	☐	☐	☐
Question 3	☐	☐	☐
Question 4	☐	☐	☐
Question 5	☐	☐	☐
Question 6	☐	☐	☐
Question 7	☐	☐	☐
Question 8	☐	☐	☐
Question 9	☐	☐	☐
Question 10	☐	☐	☐
Question 11	☐	☐	☐
Question 12	☐	☐	☐
Question 13	☐	☐	☐
Question 14	☐	☐	☐
Question 15	☐	☐	☐
Question 16	☐	☐	☐
Question 17	☐	☐	☐
Question 18	☐	☐	☐
Question 19	☐	☐	☐
Question 20	☐	☐	☐
Question 21	☐	☐	☐
Question 22	☐	☐	☐

	Class Work	1 st Practice	2 nd Practice
Question 23	☐	☐	☐
Question 24	☐	☐	☐
Question 25	☐	☐	☐
Question 26	☐	☐	☐
Question 27	☐	☐	☐
Question 28	☐	☐	☐
Question 29	☐	☐	☐
Question 30	☐	☐	☐
Question 31	☐	☐	☐
Question 32	☐	☐	☐
Question 33	☐	☐	☐
Question 34	☐	☐	☐
Question 35	☐	☐	☐
Question 36	☐	☐	☐
Question 37	☐	☐	☐
Question 38	☐	☐	☐
Question 39	☐	☐	☐
Question 40	☐	☐	☐
Question 41	☐	☐	☐
Question 42	☐	☐	☐
Question 43	☐	☐	☐
Question 44	☐	☐	☐

4

OVERHEADS

Distribution Summary

- Q.1.** XL Ltd., has three production departments and four service departments. The expenses for these departments as per Primary Distribution Summary are as follows:

NB
PN

Production Departments:	(₹)	(₹)
A	30,00,000	
B	26,00,000	
C	24,00,000	80,00,000
Service Departments:	(₹)	(₹)
Stores	4,00,000	
Time-keeping and Accounts	3,00,000	
Power	1,60,000	
Canteen	1,00,000	9,60,000

The following information is also available in respect of production departments:

Particulars	Dept. A	Dept. B	Dept. C
Horse power of Machine	300	300	200
Number of workers	20	15	15
Value of stores requisition in (₹)	2,50,000	1,50,000	1,00,000

Apportion the costs of service departments over the production departments.

STUDY MAT

- Q.2.** Suppose the expenses of two production departments A and B and two service departments X and Y are as under:

NB
PN

Particulars	Amount (₹)	Apportionment Basis		
		Y	A	B
X	2,00,000	25%	40%	35%
Y	1,50,000	-	40%	60%
A	3,00,000			
B	3,20,000			

STUDY MAT

- Q.3.** SNS Trading Company has three Main Departments and two Service Departments. The data for each department is given below:

NB

PN

Departments	Expenses (in ₹)	Area in (Sq. Mtr)	Number of Employees
Main Department:			
Purchase Department	5,00,000	12	800
Packing Department	8,00,000	15	1700
Distribution Department	3,50,000	7	700
Service Departments:			
Maintenance Department	6,40,000	4	200
Personnel Department	3,20,000	6	250

The cost of Maintenance Department and Personnel Department is distributed on the basis of 'Area in Square Metres' and 'Number of Employees' respectively.

You are required to:

- Prepare a Statement showing the distribution of expenses of Service Departments to the Main Departments using the "Step Ladder method" of Overhead Distribution.
- Compute the Rate per hour of each Main Department, given that, the Purchase Department, Packing Department and Distribution Department works for 12 hours a day, 24 hours a day and 8 hours a day respectively. Assume that there are 365 days in a year and there are no holidays.

PYQ JULY 2021

- Q.4.** Pretz Ltd. is a manufacturing company having two production departments, 'A' & 'B' and two service departments 'X' & 'Y'. The following is the budget for March, 2022:

NB

PN

Particulars	Total (₹)	A (₹)	B (₹)	X (₹)	Y (₹)
Direct material		2,00,000	4,00,000	4,00,000	2,00,000
Direct wages		10,00,000	4,00,000	2,00,000	4,00,000
Factory rent	9,00,000				
Power (Machine)	5,10,000				
Depreciation	2,00,000				
General Lighting	3,00,000				
Perquisites	4,00,000				

Additional information:

Area (Sq. ft.)	500	250	250	500
Capital value of assets (₹ lakhs)	40	80	20	20
Light Points	10	20	10	10
Machine hours	1,000	2,000	1,000	1,000
Horse power of machines	50	40	15	25

A technical assessment of the apportionment of expenses of service departments is as under:

NB

PN

Particulars	A	B	X	Y
Service Dept. 'X' (%)	55	25	-	20
Service Dept. 'Y' (%)	60	35	5	-

You are required to:

- PREPARE a statement showing distribution of overheads to various departments.
- PREPARE a statement showing re-distribution of service departments expenses to production departments using-
 - Simultaneous equation method
 - Trial and error method
 - Repeated Distribution Method.

RTP MAY 2022

Q.5. The following account balances and distribution of indirect charges are taken from the accounts of a manufacturing concern for the year ending on 31st March, 2014:

NB

PN

Item	Total Amount	Production Departments			Service Departments	
		X	Y	X	A	B
Indirect Material	1,25,000	20,000	30,000	45,000	25,000	5,000
Indirect Labour	2,60,000	45,000	50,000	70,000	60,000	35,000
Superintendent's Salary	96,000	-	-	96,000	-	-
Fuel & Heat	15,000					
Power	1,80,000					
Rent & Rates	1,50,000					
Insurance	18,000					
Meal Charges	60,000					
Depreciation	2,70,000					

The following departmental data are also available:

Item	Production Departments			Service Departments	
	X	Y	X	A	B
Area (Sq. ft.)	4,400	4,000	3,000	2,400	1,200
Capital Value of Assets (₹)	4,00,000	6,00,000	5,00,000	1,00,000	2,00,000
Kilowatt Hours	3,500	4,000	3,000	1,500	-
Radiator Sections	20	40	60	50	30
No. of Employees	60	70	120	30	20

Expenses charged to the service departments are to be distributed to other departments by the following percentages:

Particulars	A	B	C	X	Y
Department A (%)	30	30	20	-	20
Department B (%)	25	40	25	10	-

Prepare an overhead distribution statement to show the total overheads of production departments after re-apportioning service departments' overhead by using simultaneous equation method. Show all the calculations to the nearest rupee.

PYQ NOV 2012

- Q.6.** M/s. NOP Limited has its own power plant and generates its own power. Information regarding power requirements and power used are as follows:

NB
PN

	Production Dept.		Service Dept.	
	A	B	X	Y
	(Horse power hours)			
Needed capacity production	20,000	25,000	15,000	10,000
Used during the quarter ended September 2018	16,000	20,000	12,000	8,000

During the quarter ended September 2018, costs for generating power amounted to ₹ 12.60 lakhs out of which ₹ 4.20 lakhs was considered as fixed cost.

Service department X renders services to departments A, B, and Y in the ratio of 6:4:2 whereas department Y renders services to department A and B in the ratio of 4: 1. The direct labour hours of department A and B are 67500 hours and 48750 hours respectively.

Required:

- 1 Prepare overheads distribution sheet.
- 2 Calculate factory overhead per labour hour for the dept. A and dept. B.

PYQ NOV 2018

- Q.7.** PM Ltd. has three Production Departments P1, P2, P3 and two Service Departments S1 and S2 details pertaining to which are as under:

NB
PN

Particulars	P ₁	P ₂	P ₃	S ₁	S ₂
Direct wages (₹)	60,000	40,000	60,000	30,000	3,900
Working hours	3,070	4,475	2,419	-	-
Value of machines (₹)	12,00,000	16,00,000	20,00,000	1,00,000	1,00,000
H.P. of machines	60	30	50	10	-
Light points	10	15	20	10	5
Floor space (sq. ft.)	2,000	2,500	3,000	2,000	500

The following figures extracted from the accounting records are relevant:

Particulars	(₹)
Rent and Rates	1,00,000
General Lighting	12,000
Indirect Wages	38,780
Power	30,000
Depreciation on Machines	2,00,000
Sundries	1,93,900

The expenses of the service departments are allocated as under:

	P ₁	P ₂	P ₃	S ₁	S ₂
S ₁	20%	30%	40%	-	10%
S ₂	40%	20%	30%	10%	-

DETERMINE the total cost of product X which is processed for manufacture in Departments P₁, P₂ and P₃ for 4, 5 and 3 hours respectively, given that its Direct Material Cost is ₹ 1,000 and Direct Labour Cost is ₹ 600.

MTP 1 SEP 2024

- Q.8.** The following account balances and distribution of indirect charges are taken from the accounts of a manufacturing concern for the year ending on 31st March 2021:

NB
PN

Item	Total Amount	Production Departments			Service Departments	
	(Rs.)	X (Rs.)	Y (Rs.)	X (Rs.)	A (Rs.)	B (Rs.)
Indirect Material	2,50,000	40,000	60,000	90,000	50,000	10,000
Indirect Labour	5,20,000	90,000	1,00,000	1,40,000	1,20,000	70,000
Supervisor's Salary	1,92,000	-	-	1,92,000	-	-
Fuel & Heat	30,000					
Power	3,60,000					
Rent & Rates	3,00,000					
Insurance	36,000					
Canteen Charges	1,20,000					
Depreciation	5,40,000					

The following departmental data are also available:

	Production Departments			Service Departments	
	X	Y	X	A	B
Area (Sq. ft.)	4,400	4,000	3,000	2,400	1,200
Capital Value of Assets (Rs.)	40,00,000	60,00,000	50,00,000	10,00,000	20,00,000
Kilowatt Hours	3,500	4,000	3,000	1,500	-
Radiator Sections	20	40	60	50	30
No. of Employees	60	70	120	30	20

Expenses charged to the service departments are to be distributed to other departments by the following percentages:

	X	Y	Z	A	B
Department A (%)	30	30	20	-	20
Department B (%)	25	40	25	10	-

PREPARE an overhead distribution statement to show the total overheads of production departments after re-apportioning service departments' overhead by using simultaneous equation method. Show all the calculations to the nearest rupee.

PYQ NOV 12, MTP 2 NOV 21

- Q.9.** Arnav Ltd. has three production departments M, N and O and two service departments P and Q. The following particulars are available for the month of September, 2013:

NB PN	Particulars	(₹)
	Lease rental	35,000
	Power & Fuel	4,20,000
	Wages to factory supervisor	6,400
	Electricity	5,600
	Depreciation on machinery	16,100
	Depreciation on building	18,000
	Payroll expenses	21,000
	Canteen expenses	28,000
	ESI and Provident Fund Contribution	58,000

Followings are the further details available:

Particular	M	N	O	P	Q
Floor space (square meter)	1,200	1,000	1,600	400	800
Light points (nos.)	42	52	32	18	16
Cost of machines (₹)	12,00,000	10,00,000	14,00,000	4,00,000	6,00,000
No. of employees (nos.)	48	52	45	15	25
Direct Wages (₹)	1,72,800	1,66,400	1,53,000	36,000	53,000
HP of Machines	150	180	120	-	-
Working hours (hours)	1,240	1,600	1,200	1,440	1,440

The expenses of service department are to be allocated in the following manner:

Particular	M	N	O	P	Q
P	30%	35%	25%	-	10%
Q	40%	25%	20%	15%	-

You are required to calculate the overhead absorption rate per hour in respect of the three production departments.

RTP MAY 2014

- Q.10.** A company has three production departments (M1, M2 and A1) and three service department, one of which Engineering service department, servicing the M1 and M2 only. The relevant information are as follows:

NB
PN

Particulars	Product X	Product X
M ₁	10 Machine hours	4 Machine hours
M ₂	14 Direct Labour hours	6 Machine hours
A ₁	14 Machine hours	18 Direct Labour hours

The annual budgeted overhead cost for the year are:

Particulars	Indirect Wages (₹)	Consumable Supplies (₹)
M ₁	46,520	12,600
M ₂	41,340	18,200
A ₁	16,220	4,200
Stores	8,200	2,800
Engineering Service	5,340	4,200
General Service	7,520	3,200

- Depreciation on Machinery 39,600
- Insurance of Machinery 7,200
- Insurance of Building 3,240 (Total building insurance cost for M1 is one third of annual premium)

- Power 6,480
- Light 5,400
- Rent 12,675 (The general service dept. is located in a building owned by the company. It is valued at 6,000 and is charged into cost at notional value of 8% per annum. This cost is additional to the rent shown above)

The value of issues of materials to the production departments are in the same proportion as shown above for the Consumable supplies.

The following data are also available:

Department	Book value Ma- chinery (₹)	Area (Sq. ft.)	Effec- tive H.P. hours %	Production Direct Labour hour	Capacity Machine hour
M ₁	1,20,000	5,000	50	2,00,000	40,000
M ₂	90,000	6,000	35	1,50,000	50,000
A ₁	30,000	8,000	05	3,00,000	
Stores	12,000	2,000			
Engg. Service	36,000	2,500	10		
General Service	12,000	1,500			

Required:

- Prepare a overhead analysis sheet, showing the bases of apportionment of overhead to departments.
- Allocate service department overheads to production department ignoring the apportionment of service department costs among service departments.
- Calculate suitable overhead absorption rate for the production departments.
- Calculate the overheads to be absorbed by two products, X and Y.

PYQ MAY 2007

- Q.11.** E-books is an online book retailer. The Company has four departments. The two sales departments are Corporate Sales and Consumer Sales. The two support – departments are Administrative (Human Resources Accounting) and Information Systems each of the sales departments conducts merchandising and marketing operations independently.

NB

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The following data are available for October, 2013:

Departments	Revenues	Number of Employees	Processing time used (in minutes)
Corporate Sales	₹ 16,67,750	42	2,400
Consumer Sales	₹ 8,33,875	28	2,000
Administrative	--	14	400
Information system	--	21	1,400

Cost incurred in each of four departments for October, 2013 are as follow:

Corporate Sales	12,97,751
Consumer Sales	6,36,818
Administrative	94,510
Information Systems	3,04,720

The company uses number of employees on a basis to allocate Administrative costs and processing time as a basis to allocate Information System Costs.

Required:

- Allocate the support department costs to the sales departments using the direct method.
- Rank the support departments based on percentage of their services rendered to othersupport departments. Use this ranking to allocate support costs based on the step-downallocation method.
- How could you have ranked the support departments differently?

Allocate the support department costs to two sales departments using the reciprocal allocation method.

RTP NOV 2010

Q.12. V Ltd. manufactures luggage trolleys for airports. The factory, in which the company undertakes all of its production, has two production departments- 'Fabrication' and 'Assembly' , and two service departments- 'Stores' and 'Maintenance'.

The following information have been extracted from the company's budget for the financial year ended 31st March, 2019:

Particulars	Rs.
Allocated Overhead Costs	
Fabrication Department	15,52,000
Assembly Department	7,44,000
Stores Department	2,36,000
Maintenance Department	1,96,000
Other Overheads	
Factory rent	15,28,000

Factory building insurance	1,72,000
Plant & machinery insurance	1,96,000
Plant & Machinery Depreciation	2,65,000
Subsidy for staffs' canteen	4,48,000

Direct Costs	Rs.	Rs.
Fabrication Department:		
Material	63,26,000	
Labour	8,62,000	71,88,000
Assembly Department:		
Material	1,42,000	
Labour	13,06,000	14,48,000

The following additional information is also provided:

	Fabrication Department	Assembly Department	Stores Department	Maintenance Department
Floor area (square meters)	24,000	10,000	2,500	3,500
Value of plant & machinery (Rs.)	16,50,000	7,50,000	75,000	1,75,000
No. of stores requisitions	3,600	1,400	-	-
Maintenance hours required	2,800	2,300	400	-
No. of employees	120	80	38	12
Machine hours	30,00,000	60,000		
Labour hours	70,000	26,00,000		

Required:

- PREPARE a table showing the distribution of overhead costs of the two service departments to the two production departments using step method; and
- CALCULATE the most appropriate overhead recovery rate for each department.
- Using the rates calculated in part (ii) above, CALCULATE the full production costs of the following job order:

Job number IGI2019

Direct Materials	Rs. 2,30,400
Direct Labour:	
Fabrication Department	240 hours @ Rs. 50 per hour
Assembly Department	180 hours @ Rs. 50 per hour
Machine hours required:	
Fabrication Department	210 hours
Assembly Department	180 hours

MTP1 DEC 2019

Machine hour rate

Q.13. A machine costing ₹ 10 lakhs, was purchased on 1-4-2014. The expected life of the machine is 10 years. At the end of this period its scrap value is likely to be ₹ 10,000. The total cost of all the machines including new one was ₹ 90 lakhs. The other information is given as follows:

- (i) Working hours of the machine for the year was 4,200 including 200 non-productive hours.
- (ii) Repairs and maintenance for the new machine during the year was ₹ 5,000.
- (iii) Insurance Premium was paid for all the machine ₹ 9,000.
- (iv) New machine consumes 8 units of electricity per hour, the rate per unit being ₹3.75
- (v) The new machine occupies 1/10th area of the department. Rent of the department is ₹2,400 per month.

Depreciation is charged on straight line basis. Compute machine hour rate for the new machine.

PYQ MAY 2012, MTP 1 DEC 2021

Q.14. The following particulars refer to process used in the treatment of material subsequently, incorporated in a component forming part of an electrical appliance:

NB

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- (i) The original cost of the machine used (Purchased in June 2023) was ₹ 10,000. Its estimated life is 10 years, the estimated scrap value at the end of its life is ₹ 1,000, and the estimated working time per year (50 weeks of 44 hours) is 2,200 hours of which machine maintenance etc., is estimated to take up 200 hours. No other loss of working time expected. Setting up time, estimated at 100 hours, is regarded as productive time. (Holiday to be ignored).
- (ii) Electricity used by the machine during production is 16 units per hour at cost of a 9 paise per unit. No current is taken during maintenance or setting up.
- (iii) The machine required a chemical solution which is replaced at the end of week at a cost of ₹ 20 each time.
- (iv) The estimated cost of maintenance per year is ₹ 1,800.
- (v) Two attendants control the operation of machine together with five other identical machines. Their combined weekly wages, insurance and the employer's contribution to holiday pay amount ₹ 120.
- (vi) Departmental and general works overhead allocated to this machine for the current year amount to ₹ 3,000.

You are required to CALCULATE the machine hour rate of operating the machine.

MTP 2 MAY 2021, RTP NOV 2023, MTP 1 SEP 2024

Q.15. From the details furnished below you are required to compute a comprehensive machine-hour rate:

NB
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Original purchase price of the machine (subject to depreciation at 10% per annum on original cost)	₹12,96,000
Normal working hours for the month (The machine works for only 75% of normal capacity)	200 hours
Wages to Machine-man	₹ 800 per day (of 8 hours)
Wages to Helper (machine attendant)	₹ 500 per day (of 8 hours)
Power cost for the month for the time worked	₹ 1,30,000
Supervision charges apportioned for the machine centre for the month	₹ 18,000
Electricity & Lighting (fixed in nature) for the month	₹ 9,500
Repairs & maintenance (machine) including consumable stores per month	₹ 17,500
Insurance of Plant & Building (apportioned) for the year	₹ 18,000
Other general expense per annum	₹ 18,000

The workers are paid a fixed dearness allowance of ₹ 4,500 per month. Production bonus payable to workers in terms of an award is equal to 10% of basic wages and dearness allowance. Add 10% of the basic wage and dearness allowance against leave wages and holidays with pay to arrive at a comprehensive labour-wage for debit to production.

RTP SEP 2024

Q.16. A machine shop cost centre contains three machines of equal capacities. To operate these three machines nine operators are required i.e. three operators on each machine. Operators are paid ₹20 per hour. The factory works for fortyeight hours in a week which includes 4 hours set up time. The work is jointly done by operators. The operators are paid fully for the forty eight hours. In additions they are paid a bonus of 10 per cent of productive time. Costs are reported for this company on the basis of thirteen four-weekly period. The company for the purpose of computing machine hour rate includes the direct wages of the operator and also recoups the factory overheads allocated to the machines. The following details of factory overheads applicable to the cost centre are available:

NB
PN

- Depreciation 10% per annum on original cost of the machine. Original cost of the each machine is ₹52,000.
- Maintenance and repairs per week per machine is ₹60.
- Consumable stores per week per machine are ₹75.
- Power : 20 units per hour per machine at the rate of 80 paise per unit.
- Apportionment to the cost centre : Rent per annum ₹5,400, Heat and Light per annum ₹9,720, foreman's salary per annum ₹12,960 and other miscellaneous expenditure per annum ₹18,000.

Required:

- (i) Calculate the cost of running one machine for a fourweek period.
- (ii) Calculate machine hour rate.

PYQ NOV 2007

Q.17. A work-shop has 8 identical machines operated by 6 operators. The machine cannot work without an operator wholly engaged on it. The original cost of all the 8 machines works out to ₹ 64,00,000.

NB
PN

The following particulars are furnished for a six months' period:

Normal available hours per operator	1,248
Absenteeism (without pay) hours per operator	18
Leave (with pay) hours per operator	20
Normal unavoidable idle time-hours per operator	10
Production bonus estimated	10% on wages
Power consumed	₹ 80,500
Supervision and Indirect Labour	₹ 33,000
Lighting and Electricity	₹ 12,000
Average rate of wages per day of 8 hours per operator	₹ 200

The following particulars are given for a year:

Insurance	₹ 7,20,000
Sundry work Expenses	₹ 1,00,000
Management Expenses allocated	₹ 10,00,000
Depreciation	10% on the original cost
Repairs and Maintenance (including consumables): 5% of the value of all the machines.	

Prepare a statement showing the comprehensive machine hour rate for the machine shop.

MTP1 NOV 2022

Q.18. In a factory, a machine is considered to work for 208 hours in a month. It includes maintenance time of 8 hours and set up time of 20 hours.

The expense data relating to the machine are as under: Cost of the machine is ₹5,00,000. Life 10 years. Estimated scrap value at the end of life is ₹20,000.

NB
PN

Particulars	(₹)
Repairs and Maintenance per annum	60,480
Consumables per annum	47,250
Rent of building per annum (machine of reference occupies 1/6th area)	72,000
Supervisor's salary per month (common to 3 machines)	6,000
Wages of operator per month per machine	2,500

General lighting charges per month allocated to the machine	1,000
Power 25 units per hour at 25 per unit	

Power is required for productive purposes only. Set up time, though productive, does not require power. The Supervisor and Operator are permanent. Repairs and maintenance and consumable stores vary with the running of the machine.

Required:

Calculate a two-tier machine hour rate for (a) set up time, and (b) running time

MTP MAY 2006

Q.19. Sree Ajeet Ltd. having fifteen different types of automatic machines furnishes information as under for 20X8-20X9

NB

PN

- (i) Overhead expenses: Factory rent ₹1,80,000 (Floor area 1,00,000 sq. ft.), Heat and gas ₹60,000 and supervision ₹1,50,000.
- (ii) Wages of the operator are ₹200 per day of 8 hours. Operator attends to one machine when it is under set up and two machines while they are under operation.

In respect of machine B (one of the above machines) the following particulars are furnished:

- (i) Cost of machine ₹1,80,000, Life of machine- 10 years and scrap value at the end of its life ₹10,000
- (ii) Annual expenses on special equipment attached to the machine are estimated as ₹12,000
- (iii) Estimated operation time of the machine is 3,600 hours while set up time is 400 hours per annum
- (iv) The machine occupies 5,000 sq. ft. of floor area.
- (v) Power costs ₹5 per hour while machine is in operation.

ESTIMATE the comprehensive machine hour rate of machine B. Also find out machine costs to be absorbed in respect of use of machine B on the following two work orders

	Work order- 1	Work order-2
Machine set up time (Hours)	15	30
Machine operation time (Hours)	100	190

RTP MAY 2012

Q.20. You are given the following information of the three machines of a manufacturing department of X Ltd.:

NB
PN

Particulars	Preliminary estimates of expenses			
	Total	(per annum)		
		Machines		
		P	Q	R
		₹	₹	₹
Depreciation	20,000	7,500	7,500	5,000
Spare parts	10,000	4,000	4,000	2,000
Power	40,000			
Consumable stores	10,000	4,000	3,000	3,000
Insurance of machinery	8,000			
Indirect labour	20,000			
Building maintenance expenses	20,000			
Annual interest on capital outlay	60,000	25,000	25,000	10,000
Monthly charge for rent and rates	10,000			
Salary of foreman (per month)	20,000			
Salary of Attendant (per month)	5,000			

(The foreman and the attendant control all the three machines and spend equal time on them.)

The following additional information is also available:

Particulars	Machines		
	P	Q	R
Estimated Direct Labour Hours	1,00,000	1,50,000	1,50,000
Ratio of K.W. Rating	3	2	3
Floor space (sq. ft.)	40,000	40,000	20,000

There are 14 holidays besides Sundays in the year, of which two were on Saturdays. The manufacturing department works 8 hours in a day but Saturdays are half days. All machines work at 85% capacity throughout the year and 2% is reasonable for breakdown.

You are required to :

CALCULATE predetermined machine hour rates for the above machines after taking into consideration the following factors:

- An increase of 15% in the price of spare parts.

- An increase of 25% in the consumption of spare parts for machine 'Q' & 'R' only.
- 20% general increase in wages rates.
- An 10% decrease in the consumption of consumable stores.

PYQ MAY 2011

Q.21 USP Ltd. is the manufacturer of 'double grip motorcycle tyres'. In the manufacturing process, it undertakes three different jobs namely, Vulcanising, Brushing and Striping. All of these jobs require the use of a special machine and also the aid of a robot when necessary. The robot is hired from outside and the hire charges paid for every six months is ₹ 2,70,000. An estimate of overhead expenses relating to the special machine is given below:

NB
PN

- Rent for a quarter is ₹ 18,000.
- The cost of the special machine is ₹ 19,20,000 and depreciation is charged @10% per annum on straight line basis.
- Other indirect expenses are recovered at 20% of direct wages.

The factory manager has informed that in the coming year, the total direct wages will be ₹ 12,00,000 which will be incurred evenly throughout the year.

During the first month of operation, the following details are available from the job book:

Number of hours the special machine was used

Jobs	Without the aid of the robot	With the of the robot
Vulcanising	500	400
Brushing	1000	400
Striping	-	1200

You are required to :

- Compute the Machine Hour Rate for the company as a whole for a month (A) when the robot is used and (B) when the robot is not used.
- Compute the Machine Hour Rate for the individual jobs i.e. Vulcanising, Brushing and Striping.

PYQ NOV 2022

Accounting treatment of under/over absorbed overheads

- Q.22.** X Ltd. recovers overheads at a pre-determined rate of ₹50 per man-day. The total factory overheads incurred and the man-days actually worked were ₹79 lakhs and 1.5 lakhs days respectively. During the period 30,000 units were sold. At the end of the period 5,000 completed units were held in stock but there was no opening stock of finished goods. Similarly, there was no stock of uncompleted units at the beginning of the period but at the end of the period there were 10,000 uncompleted units which may be treated as 50% complete.

NB

PN

On analyzing the reasons, it was found that 60% of the unabsorbed overheads were due to defective planning and the balance were attributable to increase in overhead cost.

How would unabsorbed overheads be treated in cost accounts?

PYQ NOV 2011

- Q.23.** The cost variance report was being discussed at a review meeting where in Cost Accountant of the company reported under-absorption of production overheads. The following information was available from the cost records of the company at the end of financial year 2023-24:

NB

PN

- Actual production overheads incurred were ₹ 4,50,000 which included ₹ 42,000 on account of 'written off obsolete stores.
- 18,000 units were produced during the year out of which 10,000 units were sold and 8,000 units of finished goods were in stock.
- There were also 5,000 units in progress which may be reckoned as 40% complete.
- The actual machine hours worked during the period were 43,000.

ABC Ltd. absorbs the production overheads at a predetermined rate of ₹ 8 per machine hour.

On investigation, it has been found that 20% of the under-absorption of production overheads was due to defective planning and the rest was attributable to normal increase in costs of indirect materials and indirect labour.

You are required to:

- (i) Calculate the amount of under-absorption of production overheads during the year 2023-24; and
- (ii) Show the treatment of under-absorption of production overheads in cost accounts.

PYQ MAY 2024

Q.24. PQR manufacturers – a small scale enterprise produces a single product and has adopted a policy to recover the production overheads of the factory by adopting a single blanket rate based on machine hours. The budgeted production overheads of the factory are ₹10,08,000 and budgeted machine hours are 96,000.

NB
PN

For a period of first six months of the financial year 20132014, following information were extracted from the books:

Actual Production Overheads : 6,79,000

Amount included in the production overheads:

Paid as per court's order : 45,000

Expenses of previous year booked in the current year : 10,000

Paid to workers for strike period under an award : 42,000

Obsolete stores written off : 18,000

Production and sales data of the concern for the first six months are as under:

Production:

Finished goods : 22,000 units

Work-in-progress (50% complete in every respect) : 16,000 units

Sale:

Finished goods : 18,000 units

The actual machine hours worked during the period were 48,000 hours. It is revealed from the analysis of information that $\frac{1}{4}$ of the under-absorption was due to defective production policies and the balance was attributable to increase in costs.

You are required:

- (i) to determine the amount of under absorption of production overheads for the period,
- (ii) to show the accounting treatment of under-absorption of production overheads, and
- (iii) to apportion the unabsorbed overheads over the items.

RTP MAY 2018

Q.25. Your company uses a historical cost system and applies overheads on the basis of "pre- determined" rates. The following are the figure from the Trial Balance as at 30th September, 2013: -

NB
PN

Manufacturing overheads ₹4,26,544 Dr.

Manufacturing overheads applied ₹3,65,904 Cr.

Work-in-progress ₹1,41,480 Dr.

Finished goods stocks ₹2,30,732 Dr.

Cost of goods sold ₹8,40,588 Dr.

Give two methods for the disposal of the unabsorbed overheads and show the profit implications of each method.

RTP NOV 2009

- Q.26.** A light engineering factory fabricates machine parts to customers. The factory commenced fabrication of 12 Nos. machine parts to customers' specifications and the expenditure incurred on the job for the week ending 21st August, 20X1 is given below:

NB

PN

Particulars	(₹)	(₹)
Direct materials (all items)		780.00
Direct labour (manual) 20 hours @ ₹15 per hour		300.00
Machine facilities : Machine No. I : 4 hours @ ₹45	180.00	
Machine No. II : 6 hours @ ₹65	390.00	570.00
Total		1,650.00
Overheads @ ₹8 per hour on 20 manual hours		160.00
Total cost		1,810.00

The overhead rate of ₹8 per hour is based on 3,000 man hours per week; similarly, the machine hour rates are based on the normal working of Machine Nos. I and II for 40 hours out of 45 hours per week.

After the close of each week, the factory levies a supplementary rate for the recovery of full overhead expenses on the basis of actual hours worked during the week.

During the week ending 21st August, 20X1, the total labor hours worked was 2,400 and Machine Nos. I and II had worked for 30 hours and 32.5 hours respectively.

Prepare a Cost Sheet for the job for the fabrication of 12 Nos. machine parts duly levying the supplementary rates.

STUDY MAT

- Q.27.** A Ltd has calculated a predetermined overhead rate of Rs.22 per machine hour for its Quality Check (QC) department. This rate has been calculated for the budgeted level of activity and is considered as appropriate for absorbing overheads. The following overhead expenditures at various activity levels had been estimated.

NB

PN

Total overheads	Number of machine hours
Rs.3,38,875	14,500
Rs.3,47,625	15,500
Rs.3,56,375	16,500

You are required to:

- CALCULATE the variable overhead absorption rate per machine hour.
- CALCULATE the estimated total fixed overheads.
- CALCULATE the budgeted level of activity in machine hours.
- CALCULATE the amount of under/over absorption of overheads if the actual machine hours were 14,970 and actual overheads were Rs.3,22,000.

- (v) ANALYSE the arguments for and against using departmental absorption rates as opposed to a single or blanket factory wide rate.

MTP1 MAY 2020, MTP 2 NOV 2022

Q.28. A machine was purchased from a manufacturer who claimed that his machine could produce 36.5 tonnes in a year consisting of 365 days. Holidays, break-down, etc., were normally allowed in the factory for 65 days. Sales were expected to be 25 tonnes during the year and the plant actually produced 25.2 tonnes during the year. You are required to state the following figures:

NB
PN

- (a) Rated Capacity.
- (b) Practical Capacity.
- (c) Normal Capacity.
- (d) Actual Capacity.

PYQ NOV 2008

Q.29. In the current quarter, a company has undertaken two jobs. The data relating to these jobs are as under:

NB
PN

Particulars	Job 1102	Job 1108
Selling price	₹1,07,325	₹1,57,920
Profit as percentage on cost	8%	12%
Direct Materials	₹37,500	₹54,000
Direct Wages	₹30,000	₹42,000

It is the policy of the company to charge Factory overheads as percentage on direct wages and Selling and Administration overheads as percentage on Factory cost.

The company has received a new order for manufacturing of a similar job. The estimate of direct materials and direct wages relating to the new order are ₹64,000 and ₹50,000 respectively. A profit of 20% on sales is required.

You are required to compute

- (i) The rates of Factory overheads and Selling and Administration overheads to be charged.
- (ii) The Selling price of the new order.

MTP MAY 2006

- Q.30.** In a manufacturing company factory overheads are charged as fixed percentage basis on direct labour and office overheads are charged on the basis of percentage of factory cost. The following information are available related to the year ending 31st March, 2014 :

NB
PN

Particulars	Product A	Product B
Direct Materials	₹19,000	₹15,000
Direct Labour	₹15,000	₹25,000
Sales	₹60,000	₹80,000
Profit	25% on cost	25% on sales price

You are required to find out:

- The percentage of factory overheads on direct labour.
- The percentage of office overheads on factory cost.

PYQ MAY 2010

- Q.31.** In an engineering company, the factory overheads are recovered on a fixed percentage basis on direct wages and the administrative overheads are absorbed on a fixed percentage basis on factory cost.

NB
PN

The company has furnished the following data relating to two jobs undertaken by it in a period:

Particulars	Job 101 (₹)	Job 101 (₹)
Direct materials	54,000	37,500
Direct wages	42,000	30,000
Selling price	1,66,650	1,28,250
Profit percentage on Total Cost	10%	20%

Require:

- Computation of percentage recovery rates of factory overheads and administrative overheads.
- Calculation of the amount of factory overheads, administrative overheads and profit for each of the two jobs.

Using the above recovery rates fix the selling price of job 103. The additional data bein:

Direct materials	₹24,000
Direct wages	₹20,000
Profit percentage on selling price	12-½%

STUDY MAT

- Q.32.** Mix Soap Pvt. Ltd., manufactures three brands of soap – Luxury, Herbal and Beauty. The following information has been obtained for the period from June 1 to June 30, 2021 relating to three brands:

NB
PN

	Luxury	Herbal	Beauty
Actual Production (units)	6,750	14,000	77,500
Wages paid (Rs.)	7,500	18,750	1,15,000
Raw materials consumed (Rs.)	20,000	47,000	2,40,000
Selling price per unit (Rs.)	25	15	8

Other data are:

Factory overheads	Rs. 80,000
General & administration overheads (equal for all) Selling overheads	Rs. 48,000 20% of Works cost

If the company limits the manufacture to just one brand of soap adopting a single brand production, then monthly production will be:

	Units
Luxury	5,000
Herbal	15,000
Beauty	30,000

Further, factory overheads are to be allocated to each brand on the basis of the units which could have been produced when single brand production was in operation.

You are required to:

- FIND out the Factory overhead rate for all the brands.
- PREPARE a cost statement for the month of June showing the various elements of cost and also the profit earned. (10 Marks)

MTP 2 MAY 2021

- Q.33.** Department. When the plans were prepared for the power plant, top management decided that its practical capacity should be 1,50,000 machine hours. Annual budgeted practical capacity fixed costs are ₹9,00,000 and budgeted variable costs are ₹4 per machine-hour. The following data are available:

NB
PN

Particulars	Cutting Department	Weilding Department	Total
Actual Usage in 2012-13 (Machine hours)	60,000	40,000	1,00,000
Practical capacity for each department (Machine hours)	90,000	60,000	1,50,000

Required:

- (i) Allocate the power plant's cost to the cutting and the welding department using a singlerate method in which the budgeted rate is calculated using practical capacity and costs are allocated based on actual usage.
- (ii) Allocate the power plant's cost to the cutting and welding departments, using the dual-rate method in which fixed costs are allocated based on practical capacity and variable costs are allocated based on actual usage.
- (iii) Allocate the power plant's cost to the cutting and welding departments using the dual- rate method in which the fixed-cost rate is calculated using practical capacity, but fixed costs are allocated to the cutting and welding department based on actual usage. Variable costs are allocated based on actual usage.
- (iv) Comment on your results in requirements (i), (ii) and (iii).

PYQ MAY 2013

Q.34. M.L. Auto Ltd. is a manufacturer of auto components and the details of its expenses for the year 2014 are given below: (₹)

NB	(i)	Opening Stock of Material	1,50,000
PN	(ii)	Closing Stock of Material	2,00,000
	(iii)	Purchase of Material	18,50,000
	(iv)	Direct Labour	9,50,000
	(v)	Factory Overhead	3,80,000
	(vi)	Administrative Overhead	2,50,400

During 2015, the company has received an order from a car manufacturer where it estimates that the cost of material and labour will be ₹8,00,000 and ₹4,50,000 respectively. M.L. Auto Ltd. charges factory overhead as a percentage of direct labour and administrative overhead as a percentage of factory cost based on previous year's cost. Cost of delivery of the components at customer's premises is estimated at ₹45,000.

You are required to:

- (i) Calculate the overhead recovery rates based on actual costs for 2014.
- (ii) Prepare a detailed cost statement for the order received in 2015 and the price to be quoted if the company wants to earn a profit of 10% on sales.

RTP NOV 2023, RTP MAY 2021, RTP MAY 2022

- Q.35.** A company which sells four products, some of them unprofitable, proposes discontinuing the sale of one of them. The following information is available regarding income, costs and activity for the year ended 31st March, 20X2:

NB
PN

Particulars	Products			
	A	B	C	D
Sales (₹)	30,00,000	50,00,000	25,00,000	45,00,000
Cost of sales (₹)	20,00,000	45,00,000	21,00,000	22,50,000
Area of storage (Sq.ft.)	50,000	40,000	80,000	30,000
Number of parcels sent	1,00,000	1,50,000	75,000	1,75,000
Number of invoices sent	80,000	1,40,000	60,000	1,20,000

Selling and Distribution overheads and the basis of allocation are:

Particulars	(₹)	Basis of allocation to products
Fixed Costs		
Rent & Insurance	3,00,000	Square feet
Depreciation	1,00,000	Parcel
Salesmen's salaries & expenses	6,00,000	Sales Volume
Administrative wages and salaries	5,00,000	No. of invoices
Variable Costs :		
Packing wages & materials	₹ 2 per parcel	
Commission	4% of sales	
Stationery	₹ 1 per invoice	

You are required to prepare Costing Profit & Loss Statement, showing the percentage of profit or loss to sales for each product.

STUDY MAT

- Q.36.** A Ltd., manufactures two products A and B. The manufacturing division consists of two production departments P_1 and P_2 and two service departments S_1 and S_2 .

Budgeted overhead rates are used in the production departments to absorb factory overheads to the products. The rate of Department P_1 is based on direct machine hours, while the rate of Department P_2 is based on direct labour hours. In applying overheads, the pre-determined rates are multiplied by actual hours.

For allocating the service department costs to production departments, the basis adopted is as follows:

Cost of Department S_1 to Department P_1 and P_2 equally, and

Cost of Department S_2 to Department P_1 and P_2 in the ratio of 2 : 1 respectively.

The following budgeted and actual data are available:

Annual profit plan data:

Factory overheads budgeted for the year:

Departments	P ₁	25,50,000	S ₁	6,00,000
	P ₂	21,75,000	S ₂	4,50,000

Budgeted output in units: Product A 50,000; B 30,000.

Budgeted raw-material cost per unit : Product A ₹120; Product B ₹150.

Budgeted time required for production per unit:

Department P ₁ :	Product A :	1.5 machine hours
	Product B :	1.0 machine hour
Department P ₂ :	Product A :	2 Direct labour hours
	Product B :	2.5 Direct labour hours

Average wage rates budgeted in Department P2 are: Product A - ₹72 per hour and Product B – ₹75 perhour. All materials are used in Department P1 only.

Actual data: (for the month of July, 20X1)

Units actually produced : Product A : 4,000 units

Product B : 3,000 units Actual direct machine hours worked in Department P1: On product A 6,100 hours, Product B 4,150 hours.

Actual direct labour hours worked in Department P2: on product A 8,200 hours, Product B 7,400 hours.

Costs actually incurred:	Product A	Product B
Raw materials	4,89,000	4,56,000
Wages	5,91,900	5,52,000

Overheads:			
Department P ₁	2,31,000	S ₁	60,000
P ₂	2,04,000	S ₂	48,000

You are required to:

- Compute the pre-determined overhead rate for each production department.
- Prepare a performance report for July, 20X1 that will reflect the budgeted costs and actual costs.

STUDY MAT, MTP 2 NOV 2020

Additional Questions

Q.37. A cost centre in a factory furnishes the following working conditions:

NB	Normal working week	40 hours
PN	Number of machines	15
	Normal weekly loss of hours on maintenance, etc.	4 hours per machine
	Estimated annual overhead	Rs. 1,55,520
	Estimated direct wage rate	Rs. 3 per hour
	Number of weeks worked per year	48
	Actual results in respect of a 4-week period are:	
	Overhead incurred	Rs. 15,000
	Wages incurred	Rs. 7,000
	Machine-hours produced	2,200

You are required to:

- (i) Calculate the overhead rate per machine-hour, and
- (ii) Calculate the amount of under or over-absorption of both wages and overhead.

RTP MAY 2008

Q.38. Allurgy Ltd. is into metallic tools manufacturing. It has four production departments.

The work performed in every department is fairly uniform, thus the manager of the company created a policy to recover the production overheads of the entire company by adopting a single blanket rate. The relevant data for a month are given below:

Departments	Direct Materials (₹)	Direct Wages (₹)	Factory Overheads (₹)	Direct Labour Hours	Machine Hours
Budget:					
Operating	64,35,000	7,92,000	35,64,000	1,98,000	7,92,000
Assembly	11,73,000	24,15,000	9,66,000	6,90,000	69,000
Quality Control	5,10,000	10,50,000	4,20,000	3,00,000	30,000
Packing	9,90,000	6,93,000	12,37,500	4,95,000	-
Actual:					
Operating	77,22,000	9,50,400	38,61,000	2,37,600	9,50,400
Assembly	9,38,400	18,63,000	5,79,600	6,21,000	75,900
Quality Control	4,08,000	8,10,000	2,52,000	2,70,000	33,000
Packing	11,88,000	8,91,000	13,36,500	5,94,000	-

Additional details relating to one of the jobs during the month are also provided below:

Job No. 157

Departments	Direct Materials (₹)	Direct Wages (₹)	Direct Labour Hours	Machine Hours
Operating	11,880	2,376	594	1,782
Assembly	4,140	2,484	828	207
Quality Control	1,800	1,080	360	90
Packing	2,970	594	396	-

During Quality Control phase of this particular Job, the company incurred certain additional expenditure of ₹ 495 on direct wages as there were certain production that was not as perfect as the saleable product. The defective units were normal in nature and after rectification have been brought to the required degree of perfection.

The company adds 25% on the factory cost to cover administration overheads and profit.

You are required to figure out the following:

- COMPUTE the overhead absorption rate as per the blanket rate based on the percentage of total factory overheads to total factory wages and determine the selling price of the Job No. 157.
- The new manager thinks that the machinery is used to a varying degree in the different departments. Thus, it is not appropriate to follow one blanket rate for the whole company. Therefore, suggest an alternative method of absorption of the factory overheads and CALCULATE the overhead rates based on the method so suggested.
- DETERMINE the selling price of Job 157 based on the overhead rates calculated in (b) above.
- CALCULATE the department-wise under or over recovery of overheads based on the company's current policy and the method suggested in (b) above.

MTP2 SEP 2024

Q.39. SE Limited manufactures two products- A and B. The company had budgeted factory overheads amounting to ₹ 36,72,000 and budgeted direct labour hour of 1,80,000 hours. The company uses pre-determined overhead recovery rate for product costing purposes.

NB
PN

The department-wise break-up of the overheads and direct labour hours were as follows:

Departments	Budgeted overheads	Budgeted direct labour hours	Rate per direct labour hour
Department Pie	₹ 25,92,000	90,000 hours	₹ 28.80
Department Qui	₹ 10,80,000	90,000 hours	₹ 12.00
Total	₹ 36,72,000	1,80,000 hours	

Additional Information:

Each unit of product A requires 4 hours in department Pie and 1 hour in department Qui. Also, each unit of product B requires 1 hour in department Pie and 4 hours in department Qui.

This was the first year of the company's operation. There was no WIP at the end of the year. However, 1,800 and 5,400 units of Products A and B were on hand at the end of the year.

The budgeted activity has been attained by the company. You are required to:

- DETERMINE the production and sales quantities of both products 'A' and 'B' for the above year.
- ASCERTAIN the effect of using a pre-determined overhead rate instead of department-wise overhead rates on the company's income due to its effect on stock value.
- CALCULATE the difference in the selling price due to the use of pre-determined overhead rate instead of using department-wise overhead rates. Assume that the direct costs (material and labour costs) per unit of products A and B were ₹ 25 and ₹ 40 respectively and the selling price is fixed by adding 40% over and above these costs to cover profit and selling and administration overhead.

RTP NOV 2022

Q.40. Calculate Machine Hour Rate from the following particulars :

NB
PN

Cost of Machine	—	₹ 25,00,000
Salvage Value	—	₹ 1,25,000
Estimated life of the machine	—	25,000 Hours
Working Hours (per annum)	—	3,000 Hours
Hours required for maintenance	—	400 Hours
Setting-up time required	—	8% of actual working hours

Additional Information:

- Power 25 units @ ₹ 5 per unit per hour.
- Cost of repairs and maintenance ₹26,000 per annum.
- Chemicals required for operating the machine ₹ 2,600 per month.
- Overheads chargeable to the machine ₹ 18,000 per month.

- (v) Insurance Premium (per annum) 2% of the cost of machine
 (vi) No. of operators — 02 (looking after three other machines also)
 (vii) Salary per operator per month ₹18,500

PYQ NOV 2013, PYQ MAY 2019

- Q.41.** A manufacturing company having strength of 50 workers planned for 300 working days of 8 hours each. Based on earlier year's trend, it is estimated that average absenteeism per worker would be 10 days in addition to eligibility of 20 days annual leave. The budgeted overheads amounted to ₹ 15,12,000.

NB

PN

During the year, factory worked for 2 extra days to meet the production targets. The actual average absenteeism per worker was 8 days. Out of 50 workers, 20 took the annual leave of 20 days and the remaining took 15 days leave. 450 hours were lost due to machine breakdown. Overtime worked on production during the year amounted to 650 hours. Actual overheads amounted to ₹ 15,92,600.

You are required to:

- (i) Calculate overhead absorption rate based on direct labour hours.
 (ii) Determine the under or over absorption of overheads during the year.

PYQ JULY 2021

- Q.42.** From the following information, calculate the Total cost of Product A and B using the ABC analysis:

NB

PN

	Product A	Product B
Units	5,000	5,000
Number of purchase orders placed	100	220
Number of deliveries received	70	200
Ordering Cost	₹ 4,00,000	
Delivery Cost	₹ 1,35,000	

- A. A = ₹ 47,500; B = ₹ 1,27,500
 B. A = ₹ 2,67,500; B = ₹ 2,67,500
 C. A = ₹ 1,60,00; B = ₹ 3,75,000
 D. A = ₹ 1,47,500; B = ₹ 1,47,500

RTP MAY 2010

Q.43. HCP Ltd. is a manufacturing company having two production departments, P and Q and two service departments, R and S. The budgeted cost information for the month of October 2023 is furnished below:

NB
PN

		Production Departments		Service Departments	
	(₹)	P (₹)	Q (₹)	R (₹)	S (₹)
Indirect material	1,77,500	94,750	49,750	18,270	14,730
Indirect Labour	1,55,000	35,000	75,000		
Factory Rent	75,000				
Depreciation on machinery	37,500				
Power	96,000				
Security Expenses for Factory Premises	24,000				
Insurance- machinery	12,000				
Supervisor Expenses	48,000				
Additional information					
Floor Area (Sq. meters)		1250	750	200	300
Net book value of machinery (₹)		21,00,000	5,00,000	1,00,000	3,00,000
H.P. of machines		800	200	80	120
Machine hours		4,000	1,000	600	800
Number of employees		10	30	6	4
Labour hours		2,000	6,000	1,200	600

The overhead costs of the two service department are distributed using step method in the same order viz. R and S respectively on the following basis:

Department R Number of employees

Department S Machine hours

Required:

- Prepare a statement showing distribution of overheads to various departments, clearly showing the basis of distribution.
- Calculate the total budgeted overheads for both production departments after the service departments have been re-apportioned to them.
- Calculate the most appropriate overhead absorption rate for each of the production department.

PYQ NOV 2023

Progress Sheet

	Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐
Question 2	☐	☐	☐
Question 3	☐	☐	☐
Question 4	☐	☐	☐
Question 5	☐	☐	☐
Question 6	☐	☐	☐
Question 7	☐	☐	☐
Question 8	☐	☐	☐
Question 9	☐	☐	☐
Question 10	☐	☐	☐
Question 11	☐	☐	☐
Question 12	☐	☐	☐
Question 13	☐	☐	☐
Question 14	☐	☐	☐
Question 15	☐	☐	☐
Question 16	☐	☐	☐
Question 17	☐	☐	☐
Question 18	☐	☐	☐
Question 19	☐	☐	☐
Question 20	☐	☐	☐
Question 21	☐	☐	☐
Question 22	☐	☐	☐

	Class Work	1 st Practice	2 nd Practice
Question 23	☐	☐	☐
Question 24	☐	☐	☐
Question 25	☐	☐	☐
Question 26	☐	☐	☐
Question 27	☐	☐	☐
Question 28	☐	☐	☐
Question 29	☐	☐	☐
Question 30	☐	☐	☐
Question 31	☐	☐	☐
Question 32	☐	☐	☐
Question 33	☐	☐	☐
Question 34	☐	☐	☐
Question 35	☐	☐	☐
Question 36	☐	☐	☐
Question 37	☐	☐	☐
Question 38	☐	☐	☐
Question 39	☐	☐	☐
Question 40	☐	☐	☐
Question 41	☐	☐	☐
Question 42	☐	☐	☐
Question 43	☐	☐	☐



ACTIVITY BASED COSTING

- Q.1.** Alpha Limited has decided to analyze the profitability of its five new customers. It buys bottled water at ₹ 90 per case and sells to retail customers at a list price of ₹108 per case.

NB
PN

Particulars	Customers				
	A	B	C	D	E
Cases sold	4,680	19,688	1,36,800	71,550	8,775
List Selling Price	₹108	₹108	₹108	₹108	₹108
Actual Selling Price	₹108	₹106.20	₹99	₹104.40	₹97.20
Number of Purchase orders	15	25	30	25	30
Number of Customer visits	2	3	6	2	3
Number of deliveries	10	30	60	40	20
Kilometers travelled per delivery	20	6	5	10	30
Number of expedited deliveries	0	0	0	0	1

Its five activities and their cost drivers are:

Activity	Cost Driver Rate
Order Taking	750 per purchase order
Customer Visits	600 per customer visit
Deliveries	5.75 per delivery Km travelled
Product handling	3.75 per case sold
Expected deliveries	2,250 per expected delivery

Required:

1. Compute the customer-level operating income of each of five retail customers now being examined (A, B, C, D and E). Comment on the results.
2. What insights are gained by reporting both the list selling price and the actual selling price for each customer?

STUDY MAT

- Q.2.** KD Ltd. is following Activity based costing. Budgeted overheads, cost drivers and volume are as follows:

NB
PN

Cost pool	Budgeted overheads (₹)	Cost driver	Budgeted volume
Material procurement	18,42,000	No. or orders	1,200
Material handling	8,50,000	No. of movement	1,240
Maintenance	24,56,000	Maintenance hours	17,550
Set-up	9,12,000	No. of set-ups	1,450
Quality control	4,42,000	No. of inspection	1,820

The company has produced a batch of 7,600 units, its material cost was ₹24,62,000 and wages ₹4,68,500. Usage activities of the said batch are as follows:

Material orders	56
Material movements	84
Maintenance hours	1,420 hours
Set-ups	60
No. of inspections	18

Required:

- CALCULATE cost driver rates.
- CALCULATE the total and unit cost for the batch

MTP NOV 2004

- Q.3.** PQR Ltd. is engaged in the production of three products P, Q and R. The company calculates Activity Cost Rates on the basis of Cost Driver capacity which is provided as below:

NB
PN

Activity	Cost Driver	Cost Driver Capacity	Cost (₹)
Direct Labour hours	Labour hours	30,000 Labour hours	3,00,000
Production runs	No. of Production runs	600 Production runs	1,80,000
Quality Inspections	No. of Inspection	8000 Inspections	2,40,000

The consumption of activities during the period is as under:

Activity / Products	P	Q	R
Direct Labour hours	10,000	8,000	6,000
Production runs	200	180	160
Quality Inspection	3,000	2,500	1,500

You are required to:

- Compute the costs allocated to each Product from each Activity.
- Calculate the cost of unused capacity for each Activity.
- A potential customer has approached the company for supply of 12,000 units of a new product. 'S' to be delivered in lots of 1500 units per quarter. This will involve an initial design cost of ₹30,000 and per quarter production will involve the following

Direct Material	₹ 18,000
Direct Labour hours	1,500 hours
No. of Production runs	15
No. of Quality Inspection	250

Prepare cost sheet segregating Direct and Indirect costs and compute the Sales value per quarter of product 'S' using ABC system considering a markup of 20% on cost.

PYQ JULY 2021

- Q.4.** ABC Ltd. is engaged in production of three types of Fruit Juices: Apple, Orange and Mixed Fruit.

NB

PN

The following cost data for the month of March 2020 are as under:

Particulars	Apple	Orange	Mixed Fruit
Units produced and sold	10,000	15,000	20,000
Material per unit (₹)	8	6	5
Direct Labour per unit (₹)	5	4	3
No. of Purchase Orders	34	32	14
No. of Deliveries	110	64	52
Shelf Stocking Hours	110	160	170

Overheads incurred by the company during the month are as under:

	(₹)
Ordering costs	64,000
Delivery costs	1,58,200
Shelf Stocking costs	87,560

Required:

- Calculate cost driver's rate.
- Calculate total cost of each product using Activity Based Costing.

PYQ NOV 2020

- Q.5.** G-2020 Ltd. is a manufacturer of a range of goods.

The cost structure of its different products is as follows:

NB

PN

Particulars	Product		
	A	B	C
Direct Materials	50	40	40
Direct Labour @ ₹10/ hour	30	40	50
Production Overheads	30	40	50
Total Cost	110	120	140
Quantity Produced	10,000	20,000	30,000

The company was absorbing overheads on the basis of direct labour hours. A newly appointed management accountant has suggested that the company should

introduce ABC system and has identified cost drivers and cost pools as follows:

Activity Cost Pool	Cost Driver	Associated Cost (₹)
Stores Receiving	Purchase Requisitions	2,96,000
Inspection	Number of production runs	8,94,000
Dispatch	Orders executed	2,10,000
Machine setup	Number of setups	12,00,000

The following information is also supplied:

Details	Product A	Product B	Product C
No. of setups	360	390	450
No. of Orders Executed	180	270	300
No. of Production Runs	750	1,050	1,200
No. of Purchase Requisitions	300	450	500

Required:

Calculate the activity-based production cost of all three products.

RTP MAY 2018

- Q.6.** SMP Pvt. Ltd. manufactures three products using three different machines. At present the overheads are charged to products using labour hours. The following statement for the month of September 2019, using the absorption costing method has been prepared:

NB
PN

Particulars	Product X (using machine A)	Product Y (using machine B)	Product Z (using machine C)
Production units	45,000	52,500	30,000
Material cost per unit (₹)	350	460	410
Wages per unit @ ₹80 per hour	240	400	560
Overhead cost per unit (₹)	240	400	560
Total cost per unit (₹)	830	1,260	1,530
Selling price (₹)	1,037.50	1,575	1,912.50

The following additional information is available relating to overhead cost drivers.

Cost driver	Product X	Product Y	Product Z	Total
No. of machine set-ups	40	160	400	600
No. of purchase orders	400	800	1,200	2,400
No. of customers	1,000	2,200	4,800	8,000

Actual production and budgeted production for the month is same. Workers are paid at standard rate. Out of total overhead costs, 30% related to machine set-ups, 30% related to customer order processing and customer complaint management,

while the balance proportion related to material ordering.

Required:

- COMPUTE overhead cost per unit using activity based costing method.
- DETERMINE the selling price of each product based on activity-based costing with the same profit mark-up on cost.

RTP MAY 2003

Q.7. JH Plastics Limited manufactures three products S, M and L. To date, simple traditional absorption costing system has been used to allocate overheads to products. Total production overheads are allocated on the basis of machine hours. The machine hour rate for allocating production overheads is ₹ 240 per machine hour under the traditional absorption costing system. Selling prices are calculated by adding mark up of 40% of the product cost. Information related to products for the most recent year is as under :

NB
PN

	Products		
	S	M	L
Units produced and sold	7,500	12,500	9,000
Direct material cost per unit (₹)	158	179	250
Direct labour cost per unit (₹)	40	45	60
Machine hours per unit	0.30	0.45	0.50
Number of Machine setups	120	120	160
Number of purchase orders	90	135	125
Number of inspections	100	160	140

The management wishes to introduce activity-based method (ABC) system of attributing production overheads to products and has identified major cost pools for production overheads and their associated cost drivers as follows:

Cost pool	Amount	Cost driver
Purchasing Department Cost	₹ 7,00,000	Number of Purchase orders
Machine setup Cost	₹ 9,00,000	Number of Machine setups
Quality Control Cost	₹ 6,56,000	Number of inspections
Machining Cost	₹ 5,64,000	Machine hours

Required:

- Calculate the total cost per unit and selling price per unit for each of the three products using:
 - The traditional costing approach currently used by JH Plastics Limited;
 - Activity based costing (ABC) approach.
- Calculate the difference in selling price per unit as per (a) and (b) above and show which product is under-priced or over-priced. as an application base, calculate the amount of cost distortion (under-costed or over-costed) for each equipment.

PYQ NOV 2023

- Q.8.** Family Store wants information about the profitability of individual product lines: Soft drinks, Fresh produce and Packaged food. Family store provides the following data for the year 20X7-X8 for each product line:

NB

PN

	Soft drinks	Fresh produce	Packaged food
Revenues	₹39,67,500	₹1,05,03,000	₹60,49,500
Cost of goods sold	₹30,00,000	₹75,00,000	₹45,00,000
Cost of bottles returned	₹60,000	₹0	₹0
Number of purchase orders placed	360	840	360
Number of deliveries received	300	2,190	660
Hours of shelf-stocking time	540	5,400	2,700
Items sold	1,26,000	11,04,000	3,06,000

Family store also provides the following information for the year 20X7-X8:

Activity	Description of activity	Total Cost	Cost-allocation base
Bottles returns	Returning of empty bottles	₹60,000	Direct tracing to soft drink line
Ordering	Placing of orders for purchases	₹7,80,000	1,560 purchase orders
Delivery	Physical delivery and receipt of goods	₹12,60,000	3,150 deliveries
Shelf stocking	Stocking of goods on store shelves and ongoing restocking	₹8,64,000	8,640 hours of shelfstocking time
Customer Support	Assistance provided to customers including check-out	₹15,36,000	15,36,000 items sold

Required:

- Family store currently allocates support cost (all cost other than cost of goods sold) to product lines on the basis of cost of goods sold of each product line. CALCULATE the operating income and operating income as a % of revenues for each product line.
- If Family Store allocates support costs (all costs other than cost of goods sold) to product lines using and activity based costing system, CALCULATE the operating income and operating income as a % of revenues for each product line.

STUDY MAT

Q.9. PCP Limited belongs to the apparel industry. It specializes in the distribution of fashionable garments. It buys from the industry and resells the same to the following two different supermarkets:

(i) Supermarket A dealing in Adults' garments (Age group 15 - 30)

(ii) Supermarket B dealing in Kids' garments (Age group 5 - 10)

The following data for the month of April in respect of PCP Limited has been reported:

NB
PN

Particular	Supermarket A (₹)	Supermarket B (₹)
Average revenue per delivery	1,69,950	57,750
Average cost of goods sold per delivery	1,65,000	55,000
Number of deliveries	660	1,650

In the past, PCP Limited has used gross margin percentage to evaluate the relative profitability of its supermarket segments.

The company plans to use activity -based costing for analysing the profitability of its supermarket segments.

The April month's operating costs (other than cost of goods sold) of PCP Limited are ₹ 16,55,995. These operating costs are assigned to five activity areas. The cost in each area and Activity analysis including cost driver for the month of April are as follows:

Activity Area	Total costs (₹)	Cost Driver
Store delivery	3,90,500	Store deliveries
Cartons dispatched to store	4,15,250	Cartons dispatched to a store per delivery
Shelf-stocking at customer store	64,845	Hours of shelf-stocking
Line-item ordering	3,45,400	Line-items per purchase order
Customer purchase order processing	4,40,000	Purchase orders by customers

Other data for the month of April include the following:

Particular	Supermarket A	Supermarket B
Total number of store deliveries	1,100	2,805
Average number of cartons shipped per store delivery	250	50
Average number of hours of shelf-stocking per store delivery	6	1.5
Average number of line items per order	14	12
Total number of orders	770	1,980

Required:

- COMPUTE gross-margin percentage for each of its supermarket segments and compute PCP Limited's operating income.
- COMPUTE the operating income of each supermarket segments using the activitybased costing information.

RTP MAY 2022, MTP1 NOV 2023

Q.10. ABC Ltd. is a multiproduct company, manufacturing three products A, B and C. The budgeted costs and production for the year ending 31st March, 20X8 are as follows:

NB
PN

Particulars	A	B	C
Production quantity (Units)	4,000	3,000	1,600
Resources per Unit:			
-Direct Materials (Kg.)	4	6	3
-Direct Labour (Minutes)	30	45	60

The budgeted direct labour rate was ₹10 per hour, and the budgeted material cost was ₹2 per kg. Production overheads were budgeted at ₹99,450 and were absorbed to products using the direct labour hour rate. ABC Ltd. followed an Absorption Costing System. ABC Ltd. is now considering to adopt an Activity Based Costing system.

The following additional information is made available for this purpose. Budgeted overheads were analyzed into the following:

Particulars	(₹)
Material handling	29,100
Storage costs	31,200
Electricity	39,150

The cost drivers identified were as follows:

Material handling	Weight of material handled
Storage costs	Number of batches of material
Electricity	Number of Machine operations

Data on Cost Drivers was as follows:

Particulars	A	B	C
For complete production:			
Batches of material	10	5	15
Per unit of production:			
Number of Machine operators	6	3	2

You are requested to:

1. Prepare a statement for management showing the unit costs and total costs of each product using the absorption costing method.
2. Prepare a statement for management showing the product costs of each product using the ABC approach.
3. What are the reasons for the different product costs under the two approaches?

STUDY MAT

Q.11. BABYSOFT is a global brand created by Bio-organic Ltd. The company manufactures three range of beauty soaps i.e. BABYSOFT- Gold, BABYSOFT- Pearl, and BABYSOFT- Diamond. The budgeted costs and production for the month of December, 2019 are as follows:

NB
PN

	BABYSOFT- Gold		BABYSOFT- Pearl		BABYSOFT- Diamond	
Production of soaps (Units)	4,000		3,000		2,000	
Resources per Unit:	Qty	Rate	Qty	Rate	Qty	Rate
- Essential Oils	60 ml	₹ 200 / 100 ml	55 ml	₹ 300 / 100 ml	65 ml	₹ 300 / 100 ml
- Cocoa Butter	20 g	₹ 200 / 100 g	20 g	₹ 200 / 100 g	20 g	₹ 200 / 100 g
- Filtered Water	30 ml	₹ 15 / 100 ml	30 ml	₹ 15 / 100 ml	30 ml	₹ 15 / 100 ml
- Chemicals	10 g	₹ 30 / 100 g	12 g	₹ 50 / 100 g	15 g	₹ 60 / 100 g
- Direct Labour	30 minutes	₹ 10 / hour	40 minutes	₹ 10 / hour	40 minutes	₹ 10 / hour

Bio-organic Ltd. followed an Absorption Costing System and absorbed its production overheads, to its products using direct labour hour rate, which were budgeted at ₹ 1,98,000.

Now, Bio-organic Ltd. is considering adopting an Activity Based Costing system. For this, additional information regarding budgeted overheads and their cost drivers is provided below:

Particulars	(₹)	Cost drivers
Forklifting cost	58,000	Weight of material lifted
Supervising cost	60,000	Direct labour hours
Utilities	80,000	Number of Machine operations

The number of machine operators per unit of production are 5, 5, and 6 for

BABYSOFT- Gold, BABYSOFT- Pearl, and BABYSOFT- Diamond respectively.

(Consider (i) Mass of 1 litre of Essential Oils and Filtered Water equivalent to 0.8 kg and 1 kg respectively (ii) Mass of output produced is equivalent to the mass of input materials taken together.)

You are requested to:

- (i) PREPARE a statement showing the unit costs and total costs of each product using the absorption costing method.
- (ii) PREPARE a statement showing the product costs of each product using the ABC approach.
- (iii) STATE what are the reasons for the different product costs under the two approaches?

STUDY MAT,MTP1 NOV 2020

Q.12. ABY Ltd. manufactures four products, namely A, B, C and D using the same plant and process. The following information relates to production period December, 2020:

NB
PN

Particulars	A	B	C	G
Output in units	1,440	1,200	960	1,008
Cost per unit:				
Direct Materials	Rs. 84	Rs. 90	Rs. 80	Rs. 96
Direct Labour	Rs. 20	Rs. 18	Rs. 14	Rs. 16
Machine hours per unit	4	3	2	1

The four products are similar and are usually produced in production runs of 48 units per batch and are sold in batches of 24 units. Currently, the production overheads are absorbed using machine hour rate. The production overheads incurred by the company for the period December, 2020 are as follows:

	(Rs.)
Machine department costs:	
Rent, depreciation and supervision	2,52,000
Set-up Costs	80,000
Store receiving costs	60,000
Inspection	40,000
Material handling and dispatch	10,368

During the period December, 2020, the following cost drivers are to be used for allocation of overheads cost:

Cost	Cost driver
Set-up Costs	Number of production runs (batches)
Stores receiving	Requisition raised
Inspection	Number of production runs (batches)
Material handling and dispatch	Orders executed

It is also determined that:

- (i) Machine department costs should be apportioned among set-up, stores receiving and inspection activities in proportion of 4 : 3 : 2.
- (ii) The number of requisitions raised on stores is 50 for each product. The total number of material handling and dispatch orders executed during the period are 192 and each order being for a batch size of 24 units of product.

Required:

- (i) CALCULATE the total cost of each product, if all overhead costs are absorbed on machine- hour rate basis.
- (ii) CALCULATE the total cost of each product using activity-based costing.

PYQ MQY 2004

Additional Questions

Q.13. The following budgeted information relates to Pinku Ltd. for the year 2024:

NB
PN

	Products		
	A	B	C
Production and Sales (units)	1,00,000	80,000	60,000
	(₹)	(₹)	(₹)
Selling price per unit	90	180	140
Direct cost per unit	50	90	95
	Hours	Hours	Hours
Machine department (machine hours per unit)	3	4	5
Assembly department (direct labour hours per unit)	6	4	3

The estimated overhead expenses for the year 2024 will be as below:

Machine Department ₹ 73,60,000

Assembly Department ₹ 55,00,000

Overhead expenses are apportioned to the products on the following basis:

Machine Department On the basis of machine hours

Assembly Department On the basis of labour hours

After a detailed study of the activities the following cost pools and their respective cost drivers are found:

Cost Pool	Amount (₹)	Cost Driver	Quantity
Machining services	64,40,000	Machine hours	9,20,000 hours
Assembly services	44,00,000	Direct labour hours	11,00,000 hours
Set-up costs	9,00,000	Machine set-ups	9,000 set-ups
Order processing	7,20,000	Customer orders	7,200 orders
Purchasing	4,00,000	Purchase orders	800 orders

As per an estimate the activities will be used by the three products:

	Products		
	A	B	C
Machine set-ups	4,500	3,000	1,500
Customer orders	2,200	2,400	2,600
Purchase orders	300	350	150

Prepare a product-wise profit statement using Activity-based method.

MTP2 MAY 2021 (OLD+NEW)

Q.14. Equate bank offers 3 products, viz., deposits, Loans and Credit Cards. The bank has selected 4 activities for a detailed budgeting exercise, following activity-based costing methods.

NB

PN

The bank wants to know the product wise total cost per unit for the selected activities, so that prices may be fixed accordingly.

The following information is made available to formulate the budget:

Activity	Present Cost (₹)	Estimation for the budget period
ATM Services:		
(a) Machine Maintenance	5,20,000	All fixed, no change.
(b) Rents	2,60,000	Fully fixed, no change.
(c) Currency Replenishment Cost	1,30,000	Expected to double during budget period.
	9,10,000	
Computer Processing	6,50,000	Half this amount is fixed, and no change is expected. The variable portion is expected to increase to three times the current level.
Issuing Statements	23,40,000	Presently, 3.90 lakh statements are made. In the budget period, 6.5 lakh statements are expected. For every single increase of statement, one rupee is the budgeted increase.
Computer Inquiries	2,60,000	Estimated to increase by 80% during the budget period.

The activity drivers and their budgeted quantifies are given below:

Activity Drivers	Deposits	Loans	Credit Cards
No. of ATM Transactions	1,95,000	---	65,000
No. of Computer Processing Transactions	19,50,000	2,60,000	3,90,000
No. of Statements to be issued	4,55,000	65,000	1,30,000
Telephone Minutes	4,68,000	2,34,000	2,34,000

The bank budgets a volume of 76,180 deposit accounts, 16,900 loan accounts, and 18,200 Credit Card Accounts.

Required:

- CALCULATE the budgeted rate for each activity.
- PREPARE the budgeted cost statement activity wise.
- COMPUTE the budgeted product cost per account for each product using (i) and (ii) above.

MTP 1 MAY 2024

Q.15. Icecold a FMCG Company manufactures and sells three flavors of ice cream:

Dark chocolate, Chocolate, and Butterscotch. The batch size for the ice cream is limited to 1,000 ice cream based on the size of the fridge and ice cream molds owned by the company. Based on budgetary projections, the information listed below is available:

NB

PN

	Dark chocolate	Chocolate	Butterscotch
Projected sales in units	500,000	800,000	600,000
PER UNIT data:			
Selling price	₹ 80	₹ 75	₹ 60
Direct materials	₹ 20	₹ 15	₹ 14
Direct labor	₹ 4	₹ 2	₹ 2
Hours per 1000-unit batch:			
Direct labor hours	20	10	10
Fridge hours	1	1	1
Packaging hours	0.5	0.5	0.5

Total overhead costs and activity levels for the year are estimated as follows:

Activity	Overhead costs	Activity levels
Direct labor		2,400 hours
Fridge	₹ 2,10,00,000	1,900 fridge hours
Packaging	₹ 1,50,00,000	950 packaging hours
	₹ 3,60,00,000	

Required:

- With the help of ABC system, for the Chocolate ice cream:
 - Compute the activity-cost-driver rate
 - Compute the estimated overhead costs per thousand ice cream.
 - Compute the estimated operating profit per thousand ice cream.
- With the help of traditional system (with direct labor hours as the overhead allocation base), for the Chocolate ice cream, compute the estimated operating profit per thousand ice cream.

PYQ NOV 2010

- Q.16.** SMD Limited manufactures four products namely A, B, C and D using the same production and process facilities. The company has been following conventional method of costing and wishes to shift to activity-based costing system.

NB

PN

The data pertaining to four products are:

Product	Units produced	Material per unit (₹)	Labour hours per unit	Machine hours per unit
A	1,500	140	1	3
B	2,500	90	3	2
C	10,000	180	2	6
D	6,000	150	1.5	4

The following activity volumes are associated to the production process for the relevant period -

	Number of Inspections	Number of Material Movements	Number of set-ups
A	200	15	100
B	250	20	125
C	900	100	600
D	650	85	400

The cost data also states that:

- Direct Labour cost: ₹ 60 per hour
- Machine hour rate: ₹ 280 per hour
- Production overheads are absorbed on machine hour basis.
- For activity-based costing, a thorough, analysis of the production process revealed that:

Costs relating to set-ups and inspection bears the equal percentage while costs relating to machinery accounts for 20% of the production overhead.

Costs relating to material handling stands at 50% of costs relating to machinery.

You are required to:

- Prepare a statement showing the unit costs and total costs of each product using the absorption costing method.
- Prepare a statement showing the unit costs and total costs of each product using activity - based costing system.

MTP 1 SEP 2024

- Q.17.** L Limited manufactures three products P, Q and R which are similar in nature and are usually produced in production runs of 100 units. Product P and R require both machine hours and assembly hours, whereas product Q requires only machine hours. The overheads incurred by the company during the first quarter are as under:

NB
PN

	₹
Machine Department expenses	18,48,000
Assembly Department expenses	6,72,000
Setup costs	90,000
Stores receiving cost	1,20,000
Order processing and dispatch	1,80,000
Inspect and Quality control cost	36,000

The data related to the three products during the period are as under:

	P	Q	R
Units produced and sold	15,000	12,000	18,000
Machine hours worked	30,000 hrs.	48,000 hrs.	54,000 hrs.
Assembly hours worked (direct labour hours)	15,000 hrs.	-	27,000 hrs.
Customers' orders executed (in numbers)	1,250	1,000	1,500
Number of requisitions raised on the stores	40	30	50

Prepare a statement showing details of overhead costs allocated to each product type using activity-based costing.

MTP 1 NOV 2022

Q.18. Star Limited manufacture three products using the same production methods. A conventional product costing system is being used currently. Details of the three products for a typical period are:

NB
PN

Product	Labour Hrs. per unit	Machine Hrs. per unit	Materials per Unit ¹	Volume in Units
AX	1.00	2.00	35	7,500
BX	0.90	1.50	25	12,500
CX	1.50	2.50	45	25,000

Direct Labour costs ₹ 20 per hour and production overheads are absorbed on a machine hour basis. The overhead absorption rate for the period is ₹ 30 per machine hour.

Management is considering using Activity Based Costing system to ascertain the cost of the products. Further analysis shows that the total production overheads can be divided as follows:

Particulars	%
Cost relating to set-ups	40
Cost relating to machinery	10
Cost relating to material handling	30
Costs relating to inspection	20
Total production overhead	100

The following activity volumes are associated with the product line for the period as a whole. Total activities for the period:

Product	No. of set-ups	No. of movements of Materials	No. of inspections
AX	350	200	200
BX	450	280	400
CX	740	675	900
Total	1,540	1,155	1,500

Required:

- Calculate the cost per unit for each product using the conventional method.
- Calculate the cost per unit for each product using activity based costing method.

RTP NOV 2023

¹ Material cost per unit

Q.19. The profit margin of BABY Hairclips Company were over 20% of sales producing BROWN and BLACK hairclips.

NB
PN

During the last year, GREEN hairclips had been introduced at 10% premium in selling price after the introduction of YELLOW hairclips earlier five years back at 10/3% premium. However, the manager of the company is disheartened with the sales figure for the current financial year as follows:

Traditional Income Statement

(in ₹)

	Brown	Black	Yellow	Green	Total
Sales	1,50,00,000	1,20,00,000	27,90,000	3,30,000	3,01,20,000
Material Costs	50,00,000	40,00,000	9,36,000	1,10,000	1,00,46,000
Direct Labour	20,00,000	16,00,000	3,60,000	40,000	40,00,000
Overhead (3 times of direct labour)	60,00,000	48,00,000	10,80,000	1,20,000	1,20,00,000
Total Operating Income	20,00,000	16,00,000	4,14,000	60,000	40,74,000
Return on Sales (in%)	13.3%	13.3%	14.8%	18.2%	13.5%

It is a known fact that customers are ready to pay premium amount for YELLOW and GREEN hairclips for their attractiveness; and the percentage returns are also high on new products.

At present, all of the Plant's indirect expenses are allocated to the products at 3 times of the direct labour expenses. However, the manager is interested in allocating indirect expenses on the basis of activity cost to reveal real earner.

He provides support expenses category-wise as follows:

Support Expenses	(₹)
Indirect Labour	40,00,000
Labour Incentives	32,00,000
Computer Systems	20,00,000
Machinery depreciation	16,00,000
Machine maintenance	8,00,000
Energy for machinery	4,00,000
Total	1,20,00,000

He provides following **additional information** for accomplishment of his interest:

Incentives to be allocated @ 40% of labour expenses (both direct and indirect). Indirect labours are involved mainly in three activities. About half of indirect labour is involved in handling production runs. Another 40% is required just for the physical changeover from one color hairclip to another because YELLOW hairclips require substantial labour for preparing the machine as compared to other colour hairclips. Remaining 10% of the time is spend for maintaining records of the products in four parts.

Another amount spent on computer system of ₹ 20,00,000 is for maintenance of documents relating to production runs and record keeping of the four products. In aggregate, approx.. 80% of the amount expend is involved in the production run activity and approx.. 20% is used to keep records of the products in four parts.

Other overhead expenses i.e. machinery depreciation, machine maintenance and energy for machinery are incurred to supply machine capacity to produce all the hairclips (practical capability of 20,000 hours).

Activity Cost Drivers:

Particulars	Brown	Black	Yellow	Green	Total
Sales Volume (units)	1,00,000	80,000	18,000	2,000	2,00,000
Selling Price (₹)	150	150	155	165	
Material cost (₹)	50	50	52	55	
Machine hours per unit (Hrs)	0.10	0.10	0.10	0.10	20,000
Production runs	100	100	76	24	300
Setup time per run (Hrs)	4	1	6	4	

You are required to –

- CALCULATE operating income and operating income as per percentage of sales using activity-based costing system.
- STATE the reasons for different operating income under traditional income system and activity-based costing system.

RTP NOV 2023

Q.20. Luxury Designer Pvt. Ltd. is a manufacturing company, which manufactures readymade designer shirts. It has four customers: two wholesale category customers and two retail category customers. It has developed the following Activity- Based Costing system:

NB
PN

Activity	Cost Driver Rate (₹)
Order Processing	1,260 per purchase order
Customer Visits	1,500 per customer visit
Regular Delivery	30 per delivery Km. travelled
Expedited Delivery	4,490 per expedited delivery

List selling price per shirt is ₹ 1,000 and average cost per shirt is ₹ 600. CEO of Luxury Designer Pvt. Ltd. wants to evaluate the profitability of each of the four customers for the year 2023, to explore opportunities for increasing profitability of his Company in the next year 2024. The following data in context of four customers are available for 2023:

	Wholesale Customers		Retail Customers	
	WC-1	WC-2	RC-1	RC-2
Number of Purchase orders	50	65	224	245
Number of Customer visits	10	13	25	22
Regular Deliveries	46	52	175	198
Kilometers travelled per delivery	20	15	10	25
Expedited Deliveries	5	16	50	62
Average Number of Shirts per Shirt	215	110	18	15
Average Selling Price per Shirt	₹ 700	₹ 800	₹ 900	₹ 950

You are required to:

Calculate the customer-level operating income and operating income as a % of revenues in 2023 and rank them on the basis of relative profitability.

RTP NOV 2022

Progress Sheet

	Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐
Question 2	☐	☐	☐
Question 3	☐	☐	☐
Question 4	☐	☐	☐
Question 5	☐	☐	☐
Question 6	☐	☐	☐
Question 7	☐	☐	☐
Question 8	☐	☐	☐
Question 9	☐	☐	☐
Question 10	☐	☐	☐

	Class Work	1 st Practice	2 nd Practice
Question 11	☐	☐	☐
Question 12	☐	☐	☐
Question 13	☐	☐	☐
Question 14	☐	☐	☐
Question 15	☐	☐	☐
Question 16	☐	☐	☐
Question 17	☐	☐	☐
Question 18	☐	☐	☐
Question 19	☐	☐	☐
Question 20	☐	☐	☐

6

COST SHEET

- Q.1.** The following extracts of costing information relate to commodity A for the year 31.3.2004.

NB
PN

Particulars	Amt. (Rs.)
Purchase of Raw Material	48,000
Direct Wages	40,000
Stock on 1-4-2003	8,000
of Raw Material	
of Finished Goods 1,600 quintals	6,400
Stock on 31-3-2004	
of Raw Material	6,800
of Finished Goods 3,200 quintals	?
Work on cost (factory overhead)	16,800
Work-in-Progress :	
1st April 2003	1,920
31st March 2004	6,400
Office and Administrative Overheads	3,200
Sales (Finished Product)	1,20,000

Advertising, discount allowed and selling cost is Re. 0.40 per quintal. During the year 25,600 quintals of commodity were produced. Prepare Cost Sheet. **MTP NOV 2005**

- Q.2.** X Ltd furnishes the following information to enable you to prepare the cost sheet.

NB
PN

Production Overheads - Rs. 80,000

Material Purchased – Rs. 5,00,000

Administrative Overheads – Rs. 1,00,000

Inventory Details:

Particulars	Opening (Rs.)	Closing (Rs.)
Materials	1,50,000	1,20,000
Work in Progress	80,000	95,000
Finished Goods	2,04,000	?

The firm had a stock of 12000 units in the opening inventory. It sold 64,000 units at Rs. 28.50 per unit. It has 8000 units in its closing inventory. Labour Costs incurred amounted to Rs. 3,85,000. The cost of sales amounted to Rs. 14,01,000. Sale of Waste amounted to Rs. 2000. **RTP MAY 2003**

- Q.3.** The following information is available from the books of a company manufacturing luxury ceiling fans. Production and sales during the year ending 31st March, 2002 was 1000 Units.

NB
PN

Particulars	Rs.
Direct Materials	2,00,000
Direct Wages	1,50,000
Factory Expenses	1,37,500
Administration Expenses	60,000
Selling Expenses	7,30,000

The following estimates have been made for 2002/2003:

1. Production and sales will be 1,500 units.
2. Materials prices per unit will increase by 25% but due to economy in consumption the cost per unit will reduce by 12%.
3. The wage rate per unit will increase by 20%
4. Factory expenses of Rs. 50,000 are fixed. The remaining factory expenses will be in the same proportion to materials consumed and wages as in the previous year.
5. The total administration expenses will increase by 66-2/3%
6. Selling expenses will be Rs. 90,000
7. The profit desired is 20% on sales.

Prepare a cost statement showing maximum possible break-up of cost per unit and total cost for 2001-02 and 2002/2003, Profit per unit and total Profit for 2001-02 and 2002/2003.

PYQ MAY 2012

- Q.4.** A factory can produce 60,000 units per annum at its optimum (100%) capacity. The estimated cost of production is as under:

NB
PN

Direct Labour hours	Rs.3 per unit
Direct Labour	Rs.2 per unit.
Indirect Expenses:	
Fixed	Rs.1,50,000 per annum
Variable	Rs.5 per unit
Semi-variable	Rs. 50,000 per annum upto 50% capacity and an extra expense of Rs. 10,000 for every 25% increase in capacity or part thereof.

The factory produces only against orders and not for own stock.

If the production programme of the factory is as indicated below, and the management desires to ensure a profit of Rs. 1,00,000 for the year, work out the average selling price at which each unit should be quoted.

First 3 months of the year - 50% of capacity.

Remaining 9 months - 80% of capacity.

Ignore selling, distribution and administration overheads.

SIMILAR MTP 2 NOV 2021

Q.5. M/s Areeba Private Limited has a normal production capacity of 36,000 units of toys per annum. The estimated costs of production are as under:

NB
PN

- i. Direct Material Rs. 40 per unit
- ii. Direct Labour Rs. 30 per unit (subject to a minimum of Rs. 48,000 p.m.)
- iii. Factory Overheads:
 - (a) Fixed Rs. 3,60,000 per annum
 - (b) Variable Rs. 10 per unit
 - (c) Semi-variable Rs. 1,08,000 per annum up to 50% capacity and additional Rs. 46,800 for every 20% increase in capacity or any part thereof.
- iv. Administrative Overheads Rs. 5, 18,400 per annum (fixed)
- v. Selling overheads are incurred at Rs. 8 per unit.
- vi. Each unit of raw material yields scrap which is sold at the rate of Rs. 5 per unit.
- vii. In year 2019, the factory worked at 50% capacity for the first three months but it was expected that it would work at 80% capacity for the remaining nine months.
- viii. During the first three months, the selling price per unit was Rs. 145.

You are required to:

- i. Prepare a cost sheet showing Prime Cost, Works Cost, Cost of Production and Cost of Sales.
- ii. Calculate the selling price per unit for remaining nine months to achieve the total annual profit of Rs. 8,76,600.

PYQ MAY 2019

Q.6. PJ Ltd manufactures hockey sticks. It sells the products at ₹ 500 each and makes a profit of ₹ 125 on each stick. The Company is producing 5,000 sticks annually by using 50% of its machinery capacity.

NB
PN

The cost of each stick is as under:

Direct Material	₹150
Direct Wages	₹50
Works Overhead	₹125 (50% fixed)
Selling Expenses	₹50 (25% variable)

The anticipation for the next year is that cost will go up as under:

Fixed Charges	10%
Direct Wages	20%
Direct Material	5%

There will not be any change in selling price.

There is an additional order for 2,000 sticks in the next year.

Calculate the lowest price that can be quoted so that the Company can earn the same profit as it has earned in the current year?

PYQ NOV 2019

Q.7. Aloe Ltd. has the capacity to produce 2,00,000 units of a product every month. Its works cost at varying levels of production is as under:

NB
PN

Level	Works cost per unit (₹)
10%	400
20%	390
30%	380
40%	370
50%	360
60%	350
70%	340
80%	330
90%	320
100%	310

Its fixed administration expenses amount to ₹ 3,60,000 and fixed marketing expenses amount to ₹4,80,000 per month respectively. The variable distribution cost amounts to ₹30 per unit.

It can sell 100% of its output at ₹ 500 per unit provided it incurs the following further expenditure:

- It gives gift items costing ₹30 per unit of sale;
- It has lucky draws every month giving the first prize of ₹60,000; 2nd prize of ₹50,000, 3rd prize of ₹40,000 and ten consolation prizes of ₹5,000 each to customers buying the product.
- It spends ₹2,00,000 on refreshments served every month to its customers;
- It sponsors a television programme every week at a cost of ₹ 20,00,000 per month.

It can market 50% of its output at ₹560 by incurring expenses referred from (ii) to (iv) above and 30% of its output at ₹600 per unit without incurring any of the expenses referred from (i) to (iv) above.

PREPARE a cost sheet for the month showing total cost and profit at 30%, 50% and 100% capacity level & COMPARE its profit.

MTP NOV 2020

Q.8. The Cost structure of an article, the selling price of which is Rs. 45,000 is as follows:

NB
PN

Direct Materials	50%
Direct Labour	20%
Overheads	30%

An increase of 15% in the cost of materials and of 25% in the cost of labour is anticipated. These increased costs in relation to the present selling price would cause a 25% decrease in the amount of present profit per article.

You are required:

- To prepare a statement of profit per article at present, and
- The revised selling price to produce the same percentage of Profit to Sales as before

RTP NOV 2008

Q.9. Xim Ltd. manufactures two types of boxes 'Super' and 'Normal'. The cost data for the year ended 31st March, 2021 is as follows:

NB
PN

	₹
Direct Materials	12,00,000
Direct Wages	6,72,000
Production Overhead	2,88,000
Total	21,60,000

There was no work-in-progress at the beginning or at the end of year. It is further ascertained that:

- Direct materials cost per unit in 'Super' was twice as much of direct material in 'Normal'.
- 2% cash discount was received for payment made within 30 days to the creditors of Direct materials.
- Direct wages per unit for 'Normal' were 60% of those of 'Super'.
- Production overhead per unit was at same rate for both the types of boxes.
- Administration overhead was 200% of direct labour for each type.
- Selling cost was ₹ 1 per 'Super' type.
- Production and sales during the year were as follows:

Production		Sales	
Type	No. of units	Type	No. of units
Super	60,000	Super	54,000
Normal	1,80,000		

8. Selling price was ₹ 30 per unit for 'Super'.
9. Company was also involved in a copyright infringement case related to the manufacturing process of 'Super' production. As per the verdict, it had to pay penalty of ₹ 50,000.

PREPARE Cost Sheet of Xim Ltd. for 'Super' showing:

- (i) Cost per unit and Total Cost
- (ii) Profit per unit and Total Profit

MTP1 NOV 2021

New Cost Sheet format

Q.10. From the following data of Appu Ltd., CALCULATE (i) Material Consumed; (ii) Prime Cost and (iii) Cost of production.

NB
PN

	Particulars	Rs.
(i)	Repair & maintenance paid for plant & machinery	9,80,500
(ii)	Insurance premium paid for inventories	26,000
(iii)	Insurance premium paid for plant & machinery	96,000
(iv)	Raw materials purchased	64,00,000
(v)	Opening stock of raw materials	2,88,000
(vi)	Closing stock of raw materials	4,46,000
(vii)	Wages paid	23,20,000
(viii)	Value of opening Work-in-process	4,06,000
(ix)	Value of closing Work-in-process	6,02,100
(x)	Quality control cost for the products in manufacturing process	86,000
(xi)	Research & development cost for improvement in production process	92,600
(xii)	Administrative cost for:	
	- Factory & production	9,00,000
	- Others	11,60,000
(xiii)	Amount realised by selling scrap generated during the manufacturing process	9,200
(xiv)	Packing cost necessary to preserve the goods for further processing	10,200
(xv)	Salary paid to Director (Technical)	8,90,000

RTP SEP 2024

Q.11. DFG Ltd. manufactures leather bags for office and school purpose. The following information is related with the production of leather bags for the month of September 2019.

NB
PN

- Leather sheets and cotton cloths are the main inputs, and the estimated requirement per bag is two meters of leather sheets and one meter of cotton cloth. 2,000 meter of leather sheets and 1,000 meter of cotton cloths are purchased at ₹3,20,000 and ₹15,000 respectively. Freight paid on purchases is ₹8,500.
- Stitching and finishing need 2,000 man hours at ₹80 per hour.
- Other direct cost of ₹10 per labour hour is incurred.

- (iv) DFG has 4 machines at a total cost of ₹22,00,000. Machine has a life of 10 years with a scrap value of 10% of the original cost. Depreciation is charged on straight line method.
- (v) The monthly cost of administrative and sales office staffs are ₹45,000 and ₹72,000 respectively. DFG pays ₹1,20,000 per month as rent for a 2400 sq. feet factory premises. The administrative and sales office occupies 240 sq. feet and 200 sq. feet respectively of factory space.
- (vi) Freight paid on delivery of finished bags is ₹18,000.
- (vii) During the month 35 kg. of leather and cotton cuttings are sold at ₹150 per kg.
- (viii) There is no opening and closing stocks for input materials. There is 100 bags in stock at the end of the month.

Required:

PREPARE a cost sheet following functional classification for the month of September 2019.

PYQ NOV 2012

Q. 12 The following data relates to manufacturing of a standard product during the month of March, 2021:

Particulars	Amount (₹)
Stock of Raw material as on 01-03-2021	80,000
Work in Progress as on 01-03-2021	50,000
Purchase of Raw material	2,00,000
Carriage Inwards	20,000
Direct Wages	1,20,000
Cost of special drawing	30,000
Hire charges paid for Plant	24,000
Return of Raw Material	40,000
Carriage on return	6,000
Expenses for participation in Industrial exhibition	8,000
Legal charges	2,500
Salary to office staff	25,000
Maintenance of office building	2,000
Depreciation on Delivery van	6,000
Warehousing charges	1,500
Stock of Raw material as on 31-03-2021	30,000
Stock of Work in Progress as on 31-03-2021	24,000

- Store overheads on materials are 10% of material consumed
- Factory overheads are 20% of the Prime cost.

- 10% of the output was rejected and a sum of ₹ 5,000 was realized on sale of scrap.
- 10% of the finished product was found to be defective and the defective products were rectified at an additional expenditure which is equivalent to 20% of proportionate direct wages.
- The total output was 8000 units during the month.

You are required to prepare a Cost Sheet for the above period showing the:

- Cost of Raw Material consumed.
- Prime Cost
- Work Cost
- Cost of Production
- Cost of Sales

STUDY MAT, PYQ JULY 2021

Q.13. XYZ a manufacturing firm, has revealed following information for September, 2019:

NB
PN

	1st September (₹)	30th September (₹)
Raw Materials	2,42,000	2,92,000
Works-in-progress	2,00,000	5,00,000

The firm incurred following expenses for a targeted production of 1,00,000 units during the month :

	₹
Consumable Stores and spares of factory	3,50,000
Research and development cost for process improvements	2,50,000
Quality control cost	2,00,000
Packing cost (secondary) per unit of goods sold	2
Lease rent of production asset	2,00,000
Administrative Expenses (General)	2,24,000
Selling and distribution Expenses	4,13,000
Finished goods (opening)	Nil
Finished goods (closing)	5000 units

Defective output which is 4% of targeted production, realizes ₹ 61 per unit.

Closing stock is valued at cost of production (excluding administrative expenses)

Cost of goods sold, excluding administrative expenses amounts to ₹ 78,26,000.

Direct employees cost is 1/2 of the cost of material consumed.

Selling price of the output is ₹ 110 per unit.

You are required to :

- Calculate the Value of material purchased
- Prepare cost sheet showing the profit earned by the firm.

PYQ NOV 2019

Q.14. The following details are available from the books of R Ltd. for the year ending 31st March 2020:

NB
PN

Particulars	Amount (₹)
Purchase of raw materials	84,00,000
Consumable materials	4,80,000
Direct wages	60,00,000
Carriage inward	1,72,600
Wages to foreman and store keeper	8,40,000
Other indirect wages to factory staffs	1,35,000
Expenditure on research and development on new production technology	9,60,000
Salary to accountants	7,20,000
Employer's contribution to EPF & ESI	7,20,000
Cost of power & fuel	28,00,000
Production planning office expenses	12,60,000
Salary to delivery staffs	14,30,000
Income tax for the assessment year 2019-20	2,80,000
Fees to statutory auditor	1,80,000
Fees to cost auditor	80,000
Fees to independent directors	9,40,000
Donation to PM-national relief fund	1,10,000
Value of sales	2,82,60,000
Position of inventories as on 01-04-2019:	
- Raw Material	6,20,000
- W-I-P	7,84,000
- Finished goods	14,40,000
Position of inventories as on 31-03-2020:	
- Raw Material	4,60,000
- W-I-P	6,64,000
- Finished goods	9,80,000

From the above information PREPARE a cost sheet for the year ended 31st March 2020.

RTP NOV 2006

Q.15. RTA Ltd. has the following expenditures for the year ended 31 st December, 2020:

Sl. No.		Amount (₹)	Amount (₹)
(i)	Raw materials purchased		5,00,00,000
(ii)	Freight inward		9,20,600
(iii)	Wages paid to factory workers		25,20,000
(iv)	Royalty paid for production		1,80,000
(v)	Amount paid for power & fuel		3,50,000
(vi)	Job charges paid to job workers		3,10,000
(vii)	Stores and spares consumed		1,10,000
(viii)	Depreciation on office building		50,000
(ix)	Repairs & Maintenance paid for:		
	- Plant & Machinery	40,000	
	- Sales office building	20,000	60,000
(x)	Insurance premium paid for:		
	- Plant & Machinery	28,200	
	- Factory building	18,800	47,000
(xi)	Expenses paid for quality control check activities		18,000
(xii)	Research & development cost paid for improvement in production process		20,000
(xiii)	Expenses paid for pollution control and engineering & maintenance		36,000
(xiv)	Salary paid to Sales & Marketing mangers		5,60,000
(xv)	Salary paid to General Manager		6,40,000
(xvi)	Packing cost paid for:		
	- Primary packing necessary to maintain quality	46,000	
	- For re-distribution of finished goods	80,000	1,26,000
(xvii)	Fee paid to independent directors		1,20,000
(xviii)	Performance bonus paid to sales staffs		1,20,000
(xix)	Value of stock as on 1st January, 2020:		
	- Raw materials	10,00,000	
	- Work-in-process	8,60,000	
	- Finished goods	12,00,000	30,60,000
(xx)	Value of stock as on 31stDecember, 2020:		
	- Raw materials	8,40,000	
	- Work-in-process	6,60,000	
	- Finished goods	10,50,000	25,50,000

Amount realized by selling of scrap and waste generated during manufacturing process – ₹ 48,000/-

From the above data you are requested to PREPARE Statement of Cost for RTA Ltd. for the year ended 31st December, 2020, showing (i) Prime cost, (ii) Factory cost, (iii) Cost of Production, (iv) Cost of goods sold and (v) Cost of sales.

MTP MAY 2004

Q.16. Impact Ltd. provides you the following details of its expenditures for the year ended 31st March, 2021:

NB
PN

S. No.	Particulars	Amount (₹)	Amount (₹)
(i)	Raw materials purchased		5,00,00,000
(ii)	GST paid under Composition scheme		10,00,000
(iii)	Freight inwards		5,20,600
(iv)	Trade discounts received		10,00,000
(v)	Wages paid to factory workers		15,20,000
(vi)	Contribution made towards employees' PF & ESIS		1,90,000
(vii)	Production bonus paid to factory workers		1,50,000
(viii)	Fee for technical assistance		1,12,000
(ix)	Amount paid for power & fuel		2,62,000
(x)	Job charges paid to job workers		4,50,000
(xi)	Stores and spares consumed		1,10,000
(xii)	Depreciation on:		
	Factory building	64,000	
	Office building	46,000	
	Plant & Machinery	86,000	1,96,000
(xiii)	Salary paid to supervisors		1,20,000
(xiv)	Repairs & Maintenance paid for:		
	Plant & Machinery	58,000	
	Sales office building	50,000	
	Vehicles used by directors	20,600	1,28,600
(xv)	Insurance premium paid for:		
	Plant & Machinery	31,200	
	Factory building	28,100	59,300
(xvi)	Expenses paid for quality control check activities		25,000
(xvii)	Research & development cost paid for improvement in production process		48,200

(xviii)	Expenses paid for administration of factory work		1,38,000
(xix)	Salary paid to functional managers:		
	Production control	4,80,000	
	Finance & Accounts	9,60,000	
	Sales & Marketing	12,00,000	26,40,000
(xx)	Salary paid to General Manager		13,20,000
(xxi)	Packing cost paid for:		
	Primary packing necessary to maintain quality	1,06,000	
	For re-distribution of finished goods	1,12,000	2,18,000
(xxii)	Interest and finance charges paid (for usage of non- equity fund)		
3,50,000			
(xxiii)	Fee paid to auditors		1,80,000
(xxiv)	Fee paid to legal advisors		1,20,000
(xxv)	Fee paid to independent directors		2,40,000
(xxvi)	Payment for maintenance of website for online sales		1,80,000
(xxvii)	Performance bonus paid to sales staffs		2,40,000
(xxviii)	Value of stock as on 1st April, 2020:		
	Raw materials	9,00,000	
	Work-in-process	4,00,000	
	Finished goods	7,00,000	20,00,000
(xxix)	Value of stock as on 31st March, 2021:		
	Raw materials	5,60,000	
	Work-in-process	2,50,000	
	Finished goods	11,90,000	20,00,000

Amount realized by selling of waste generated during manufacturing process –
₹ 66,000/-

From the above data, you are required to PREPARE Statement of cost of Impact Ltd. for the year ended 31st March, 2021, showing (i) Prime cost, (ii) Factory cost, (iii) Cost of Production, (iv) Cost of goods sold and (v) Cost of sales.

MTP MAY 2005

Additional Questions

Q.17. Following information relate to a manufacturing concern for the year ended 31st March, 2023:

	₹
Raw Material (opening)	2,28,000
Raw Material (closing)	3,05,000
Purchases of Raw Material	43,50,000
Freight Inwards	1,20,000
Direct wages paid	12,56,000
Direct wages-outstanding at the end of the year	1,50,000
Factory Overheads	20% of prime cost
Work-in-progress (opening)	1,92,500
Work-in-progress (closing)	1,40,700
Administrative Overheads (related to production)	1,73,000
Distribution Expenses	₹ 16 per unit
Finished Stock (opening) - 1,320 Units	6,08,500
Sale of scrap of material	7,000

The firm produced 14,350 units of output during the year. The stock of finished goods at the end of the year is valued at cost of production. The firm sold 14,903 units at a price of ₹579 per unit during the year.

PREPARE cost sheet of the firm.

PYQ NOV 2010

Q.18. ABC Ltd is engaged in producing electronic equipments. It has furnished following details related to its products produced during a month:

NB
PN

	Units	Amount (₹)
Opening stock	10,000	5,00,00,000
Purchases	4,90,000	25,20,00,000
Closing stock	17,500	85,00,000
Works-in-progress		
Opening	20,000	1,20,00,000
Closing	10,000	60,50,000
Direct employees' wages, allowances etc.		5,50,50,000
Primary packaging cost (per unit)		140
R&D expenses & Quality control expenses		1,90,00,000

Cost Sheet

Guards' salaries		20,00,000
Directors' salaries		60,00,000
Consumable stores, depreciation on plant related to factory overhead		3,42,00,000
Product inspection (before primary packaging)		22,00,000
Rearrangement design of factory machine		75,00,000
Administrative overheads related to production		3,45,00,000
Selling expenses		3,94,50,000
Royalty paid for production		3,10,50,000
Cost of web-site (for online sale) maintenance		60,75,000
Gifts & Snacks		30,50,000
GST (credit allowed)		5,50,00,000
AMC cost of CCTV		10,00,000
Hiring of cars for the transportation of employees and guests		25,00,000
Audit and Legal Fees		29,00,000
Secondary packaging cost (per unit)		20

Distribution of the following costs:
Guard's salaries to Factory, Office and Distribution in the ratio 7: 2:1.
Hiring of cars is only for selling and distribution
AMC of CCTV to Factory, Office and Selling in the ratio 6 : 2 : 2.

The company paid EPF of 12% over above basic pay. However, Guards will not receive any incentive or EPF.

It has lucky draws every month giving the first prize of ₹ 1,00,000; 2nd prize of ₹ 50,000, 3rd prize of ₹ 20,000 and three consolation prizes of ₹ 10,000 each to customers buying the product.

It also sponsors a television programme every week at a cost of ₹ 20,00,000 per month.

The hiring of cars attracts GST under RCM @5% without credit.

There was a normal scrap of 2,000 units of direct material which realized ₹ 350 per unit. The entire finished product was sold at a profit margin of 25% on sales.

You are required to PREPARE a cost sheet

MTP 2 SEP 2024

Q.19. Following information obtained from the records of a Manufacturing Company for the month of March:

NB

PN

Direct labour cost ₹ 25,000 being 150% of works overheads.

Cost of goods sold excluding administrative expenses ₹ 75,000.

Inventory accounts showed the following opening and closing balances:

	March 1 (₹)	March 31 (₹)
Raw materials	11,600	15,370
Work-in-progress	15,225	21,025
Finished goods	25,520	27,550

Other information is as follows:

	₹
Selling expenses	6,125
General and administration expenses	4,375
Sales for the month	1,05,250

Required to:

- FIND out the value of materials purchased.
- PREPARE a cost statement showing the various elements of cost and also the profit earned.

MTP MAY 2010

Q.20. The following data relate to the manufacture of a product 'VD-100*' during the month of October 2023:

Good units produced	12,600
Units Sold	11,800
Direct wages	₹ 8,82,000
Administrative Overheads	₹ 4,72,000
Selling price per unit	₹ 416

Each unit produced requires 2 kg. of material 'Z'. Cost of material 'Z' is ₹ 72 per kg. 10% of the production has been scrapped as bad and fetches ₹ 45 per unit. Factory overheads are 80% of wages. Selling and distribution overheads are ₹ 54 per unit sold. There is no opening or closing stock of material and work in progress.

You are required to find out total cost of sales and profit for the month of October 2023.

PYQ NOV 2023

Q.21. The following information is available from SN Manufacturing Limited's for the month of April 2023.

NB
PN

	April 1	April 30
Opening and closing inventories data:		
Stock of finished goods	2,500 units	?
Stock of raw materials	₹ 42,500	₹ 38,600
Work-in progress	₹ 42,500	₹ 42,800
Other data are:		
Raw materials Purchased		₹ 6,95,000
Carriage inward		₹ 36,200
Direct wages paid		₹ 3,22,800
Royalty paid for production		₹ 35,800
Purchases of special designs, moulds and patterns (estimated life 12 Production cycles)		₹ 1,53,600
Power, fuel and haulage (factory)		₹ 70,600
Research and development costs for improving the production process (amortized)		₹ 31,680
Primary packing cost (necessary to maintain quality)		₹ 6920
Administrative Overhead		₹ 46,765
Salary and wages for supervisor and foremen		₹ 28,000

Other information:

- Opening stock of finished goods is to be valued at ₹ 8.05 per unit.
- During the month of April, 1,52,000 units were produced and 1,52,600 units were sold. The closing stock of finished goods is to be valued at the relevant month's cost of production. The company follows the FIFO method.
- Selling and distribution expenses are to be charged at 20 paise per unit.
- Assume that one production cycle is completed in one month.

Required:

- Prepare a cost sheet for the month ended on April 30, 2023, showing the various elements of cost (raw material consumed, prime cost, factory cost, cost of production, cost of goods sold, and cost of sales).
- Calculate the selling price per unit if profit is charged at 20 percent on sales.

PYQ MAY 2023

Q.22. XYZ Ltd. is engaged in the manufacturing of toys. It can produce 4,20,000 toys at its 70% capacity on per annum basis. Company is in the process of determining sales price for the financial year 2020-21. It has provided the following information:

NB
PN

Direct Material ₹ 60 per unit

Direct Labour ₹ 30 per unit

Indirect Overheads:

Fixed ₹ 65,50,000 per annum

Variable ₹ 15 per unit

Semi-variable ₹ 5,00,000 per annum up to 60% capacity and ₹ 50,000 for every 5% increase in capacity or part thereof up to 80% capacity and thereafter ₹ 75,000 for every 10% increase in capacity or part thereof.

Company desires to earn a profit of ₹ 25,00,000 for the year. Company has planned that the factory will operate at 50% of capacity for first six months of the year and at 75% of capacity for further three months and for the balance three months, factory will operate at full capacity.

You are required to :

- (1) Determine the average selling price at which each of the toy should be sold to earn the desired profit.
- (2) Given the above scenario, advise whether company should accept an offer to sell each Toy at:
 - (a) ₹ 130 per Toy
 - (b) ₹ 129 per Toy

PYQ JAN 2021

Q.23. A Ltd. produces a single product X. During the month of December 2021, the company has produced 14,560 tonnes of X. The details for the month of December 2021 are as follows:

NB
PN

- (i) Materials consumed ₹ 15,00,000
- (ii) Power consumed 13,000 Kwh @ ₹ 7 per Kwh
- (iii) Diesels consumed 1,000 litres @ ₹ 93 per litre
- (iv) Wages & salary paid – ₹ 64,00,000
- (v) Gratuity & leave encashment paid – ₹ 44,20,000
- (vi) Hiring charges paid for HEMM - ₹ 13,00,000
- (vii) Hiring charges paid for cars used for official purpose – ₹ 80,000
- (viii) Reimbursement of diesel cost for the cars – ₹ 20,000

- (ix) The hiring of cars attracts GST under RCM @5% without credit.
- (x) Maintenance cost paid for weighing bridge (used for weighing of final goods at the time of despatch) – ₹ 7,000
- (xi) AMC cost of CCTV installed at weighing bridge (used for weighing of final goods at the time of despatch) and factory premises is ₹ 6,000 and ₹ 18,000 per month respectively.
- (xii) TA/ DA and hotel bill paid for sales manager- ₹ 16,000
- (xiii) The company has 180 employees works for 26 days in a month.

Required:

- (a) PREPARE a Cost sheet for the month of December 2021.
- (b) COMPUTE Earnings per manshift (EMS) and Output per manshift (OMS) for the month of December 2021.

RTP MAY 2022, RTP NOV 2023

Q.24. CT Limited is engaged in producing medical equipment. It has furnished following details related to its products produced during a month:

NB
PN

	Units	Amount (₹)
Raw materials		
Opening stock	1,000	90,00,000
Purchases	49,000	44,10,00,000
Closing stock	1,750	1,57,50,000
Works-in-progress		
Opening	2,000	1,75,50,000
Closing	1,000	94,50,000
Direct employees' wages, allowances etc.		6,88,50,000
Primary packaging cost (per unit)		1,440
R&D expenses & Quality control expenses		2,10,60,000
Consumable stores, depreciation on plant		3,42,00,000
Administrative overheads related to production		3,15,00,000
Selling expenses		4,84,30,800
Royalty paid for production		3,64,50,000
Cost of web-site (for online sale) maintenance		60,75,000
Secondary packaging cost (per unit)		225

There was a normal scrap of 250 units of direct material which realized ₹ 5,400 per unit. The entire finished product was sold at a profit margin of 20% on sales.

You are required to PREPARE a cost sheet showing:

- (i) Prime cost
- (ii) Gross works cost
- (iii) Factory costs
- (iv) Cost of production
- (v) Profit
- (vi) Sales

RTP NOV 2022

Progress Sheet

	Class Work	1 st Practice	2 nd Practice		Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐	Question 13	☐	☐	☐
Question 2	☐	☐	☐	Question 14	☐	☐	☐
Question 3	☐	☐	☐	Question 15	☐	☐	☐
Question 4	☐	☐	☐	Question 16	☐	☐	☐
Question 5	☐	☐	☐	Question 17	☐	☐	☐
Question 6	☐	☐	☐	Question 18	☐	☐	☐
Question 7	☐	☐	☐	Question 19	☐	☐	☐
Question 8	☐	☐	☐	Question 20	☐	☐	☐
Question 9	☐	☐	☐	Question 21	☐	☐	☐
Question 10	☐	☐	☐	Question 22	☐	☐	☐
Question 11	☐	☐	☐	Question 23	☐	☐	☐
Question 12	☐	☐	☐	Question 24	☐	☐	☐



COST ACCOUNTING SYSTEMS

Non Integrated Accounting

Q.1. As on 31st March, 20X3, the following balances existed in a firm's Cost Ledger:

NB
PN

	Dr. (₹)	Cr. (₹)
Stores Ledger Control A/c	3,01,435	
Work-in-Process Control A/c	1,22,365	
Finished Stock Ledger Control A/c	2,51,945	
Manufacturing Overhead Control A/c		10,525
Cost Ledger Control A/c		6,65,220
	6,75,745	6,75,745

During the next three months following items arose:

	(₹)
Finished Product (at cost)	2,10,835
Manufacturing Overhead incurred	91,510
Raw Materials Purchased	1,23,000
Factory Wages	50,530
Indirect Labour	21,665
Cost of Sales	1,85,890
Material issued to production	1,27,315
Sales returned at cost	5,380
Material returned to suppliers	2,900
Manufacturing overhead charged to production	77,200

You are required to pass the Journal Entries; write up the accounts and schedule the balances, stating what each balance represents.

STUDY MAT

Q.2. As of 31st March, 2014, the following balances existed in a firm's cost ledger, which is maintained separately on a double entry basis:

NB
PN

	Debit (₹)	Credit (₹)
Stores Ledger Control A/c	3,00,000	-
Work-in-Progress Control A/c	1,50,000	-
Finished Goods Control A/c	2,50,000	-
Manufacturing Overhead Control A/c	-	15,000
Cost Ledger Control A/c	-	6,85,000
	7,00,000	7,00,000

During the next quarter, the following items arose:

	(₹)
Finished Product (at cost)	2,25,000
Manufacturing Overhead Incurred	85,000
Raw Material Purchased	1,25,000
Factory Wages	40,000
Indirect Labour	20,000
Cost of Sales	1,75,000
Materials issued to production	1,35,000
Sales returned (at cost)	9,000
Materials returned to suppliers	13,000
Manufacturing overhead charged to production	85,000

You are required to prepare the Cost Ledger Control A/c, Stores Ledger Control A/c, Work-in-Progress Control A/c, Finished Stock Ledger Control A/c, Manufacturing Overhead Control A/c, Wages Control A/c, Cost of Sales A/c and the Trial Balance at the end of the quarter.

PYQ MAY 2008, NOV 2008

- Q.3.** On 31st March, 20X3 the following balances were extracted from the books of the Supreme Manufacturing Company:

NB
PN

Cost Accounting Systems

	Dr. (₹)	Cr. (₹)
Stores Ledger Control A/c	35,000	
Work-in-Process Control A/c	38,000	
Finished Goods Control A/c	25,000	
Cost Ledger Control A/c		98,000
	98,000	98,000

The following transactions took place in April 20X3:

	(₹)
Raw Materials	
-Purchased	95,000
-Returned to suppliers	3,000
-Issued to production	98,000
-Returned to stores	3,000
Productive Wages	40,000
Indirect Wages	25,000
Factory overhead expenses incurred	50,000

Selling & Administration Expenses	40,000
Cost of finished goods transferred to warehouse	2,13,000
Cost of Goods sold	2,10,000
Sales	3,00,000

Factory overheads are applied to production at 150% of direct wages, any under/over absorbed overhead being carried forward for adjustment in the subsequent months. All administrative and selling expenses are treated as period costs and charged off to the Profit and Loss Account of the month in which they are incurred.

Show the following accounts:

- Cost Ledger Control A/c
- Stores Ledger Control A/c
- Work-in-Process Control A/c
- Finished Goods Stock Control A/c
- Factory Overhead Control A/c
- Costing Profit and Loss A/c
- Trial Balance as at 30th April, 20X3.

PYQ MAY 2010

Q.4. Acme Manufacturing Co. Ltd. opens the costing records, with the balances as on 1st July, 20X2 as follows:

NB
PN

	(₹)	(₹)
Material Control A/c	1,24,000	
Work-in-Process Control A/c	62,500	
Finished Goods Control A/c	1,24,000	
Production Overhead Control A/c	8,400	
Administrative Overhead Control A/c		12,000
Selling and Distribution Overhead Control A/c	6,250	
Cost Ledger Control A/c		3,13,150
	3,13,150	3,13,150

The following are the transactions for the quarter ended 30th September 20X2:

	(₹)
Materials purchased	4,80,100
Materials issued to jobs	4,77,400
Materials to works maintenance	41,200
Materials to administration office	3,400
Materials to selling department	7,200

Wages direct	1,49,300
Wages indirect	65,000
Transportation for indirect materials	8,400
Production overheads	2,42,250
Absorbed production overheads	3,59,100
Administration overheads	74,000
Administration allocation to production	52,900
Administration allocation to sales	14,800
Sales overheads	64,200
Sales overheads absorbed	82,000
Finished goods produced	9,58,400
Finished goods sold	9,77,300
Sales realization	14,43,000

Make up the various accounts as you envisage in the Cost Ledger and prepare a Trial Balance as at 30th September, 20X2.

STUDY MAT

- Q.5.** XYZ Ltd. maintains a non-integrated accounting system for the purpose of management information. The following are the data related with year 2020-21:

NB
PN

Particulars	(₹ in '000)
Opening balances:	
- Stores ledger control A/c	24,000
- Work-in-process control A/c	6,000
- Finished goods control A/c	1,29,000
- Building construction A/c	3,000
- Cost ledger control A/c	1,62,000
During the year following transactions took place:	
Materials:	
- Purchased	12,000
- Issued to production	15,000
- Issued to general maintenance	1,800
- Issued to building construction	1,200
Wages:	
- Gross wages paid	45,000
- Indirect wages paid	12,000
- For building construction	3,000
Factory overheads:	

- Actual amount incurred (excluding items shown above)	48,000
- Absorbed in building construction	6,000
- Under-absorbed	2,400
Royalty paid	1,500
Selling, distribution and administration overheads	7,500
Sales	1,35,000

At the end of the year, the stock of raw material and work-in-process was ₹ 1,65,00,000 and ₹ 75,00,000 respectively. The loss arising in the raw material account is treated as factory overheads. The building under construction was completed during the year. Gross profit margin is 20% on sales.

Required:

PREPARE the relevant control accounts to record the above transactions in the cost ledger of the company.

MTP 2 NOV 2021

Q.6. From the following details show the necessary accounts in cost ledger. The cost of each stick is as under:

NB
PN

	Material (₹)	Work in Process (₹)	Finished Stock (₹)
Opening Balance	8,000	5,000	10,000
Closing Balance	11,000	9,000	12,000

	(₹)
Materials Purchased	
25,000 Wages Paid (including ₹2,000 indirect)	10,000
Overheads Incurred	8,000
Overheads absorbed	9,000
Sales	50,000

MTP MAY 2010

Q.7. A Company operates separate cost accounting and financial accounting systems. The following is the list of opening balances as on 1.04.2013 in the Cost Ledger.

NB
PN

	Debit (₹)	Credit (₹)
Stores Ledger Control Account	53,375	--
WIP Control Account	1,04,595	--
Finished Goods Control Account	30,780	--
General Ledger Adjustment Account	--	1,88,750

Transactions for the quarter ended 30.06.2013 are as under:

	(₹)
Materials purchased	26,700
Materials issued to production	40,000
Materials issued to factory for repairs	900
Factory wages paid (including indirect wages ₹23,000)	77,500
Production overheads incurred	95,200
Production overheads under-absorbed and written-off	3,200
Sales	2,56,000

The Company's gross profit is 25% on Cost of Sales. At the end of the quarter, WIP stocks increased by ₹7,500.

Prepare the relevant Control Accounts, Costing Profit & Loss Account and General Ledger Adjustment Account to record the above transactions for the quarter ended 30.06.2013.

RTP MAY 2005

- Q.8.** a) A fire destroyed some accounting records of a company. You have been able to collect the following from the spoilt papers/records and as a result of consultation with accounting staff in respect of January, 20X3:

NB
PN

- (i) Incomplete Ledger Entries:

Materials Control A/c

	(₹)	(₹)
To Balance b/d	32,000	

Work-in-Process Control A/c

	(₹)		(₹)
To Balance b/d	9,200	Finished Goods Control A/c	1,51,000

Payables (Creditors) A/c

	(₹)		(₹)
To Balance b/d	19,200	Balance b/d	16,400

Manufacturing Overheads Control A/c

	(₹)		(₹)
To Cost Ledger Control A/c (Amount spent)	29,600		

Finished Goods Control A/c

	(₹)		(₹)
To Balance b/d	24,000	By Balance b/d	30,000

(ii) Additional Information:

- (1) The cash-book showed that ₹89,200 have been paid to creditors for raw-material.
- (2) Ending inventory of work-in-process included material ₹5,000 on which 300 direct labour hours have been booked against wages and overheads.
- (3) The job card showed that workers have worked for 7,000 hours. The wage rate is ₹10 per labour hour.
- (4) Overhead recovery rate was ₹4 per direct labour hour.

You are required to complete the above accounts in the cost ledger of the company.

STUDY MAT

Q.9. The following incomplete accounts are furnished to you for the month ended 31st October, 20X2.

NB
PN

Stores Ledger Control Account

01.10.20X2	To Balance	₹54,000
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Work in Process Control Account

01.10.20X2	To Balance	₹6,000
------------	------------	--------

Finished Goods Control Account

01.10.20X2	To Balance	₹75,000
------------	------------	---------

Factory Overheads Control Account

Total Debits for October, 20X2	₹45,000
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Creditors for Purchases Account

01.10.20X2	By Balance	₹30,000
------------	------------	---------

Additional information:

- 1) The factory overheads are applied by using a budgeted rate based on direct labour hours. The budget for overheads for 20X2 is ₹6,75,000 and the budget of direct labour hours is 4,50,000.

- 2) The balance in the account of creditors for purchases on 31.03.20X2 is ₹15,000 and the payments made to creditors in October, 20X2 amount to ₹1,05,000.
- 3) The finished goods inventory as on 31st October, 20X2 is ₹66,000.
- 4) The Cost of Goods sold during the month was ₹1,95,000.
- 5) On 31st October, 20X2 there was only one unfinished job in the factory. The cost records show that ₹3,000 (1,200 direct labour hours) of direct labour cost and ₹6,000 of direct material cost had been charged.
- 6) A total of 28,200 direct labour hours were worked in October, 20X2. All factory workers earn same rate of pay.
- 7) All actual factory overheads incurred in October, 20X2 have been posted.

You are required to find:

- (a) Materials purchased during October, 20X2
- (b) Cost of goods completed in October, 20X2
- (c) Overheads applied to production in October, 20X2
- (d) Balance of Work-in-Process Control A/c on 31st October, 20X2
- (e) Direct Materials consumed during October, 20X2
- (f) Balance of Stores Ledger Control Account on 31st October, 20X2
- (g) Over absorbed or under absorbed overheads for October, 20X2

STUDY MAT , PYQ MAY 2013

Q.10. The following figures are extracted from the Trial Balance of Go-getter Co. on 30th September, 20X2:

NB PN		Debit (₹)	Credit (₹)
	Inventories:		
	Finished Stock	80,000	
	Raw Materials	1,40,000	
	Work-in-Process	2,00,000	
	Office Appliances	17,400	
	Plant & Machinery	4,60,500	
	Building	2,00,000	
	Sales		7,68,000
	Sales Return and Rebates	14,000	
	Material Purchased	3,20,000	
	Freight incurred on Materials	16,000	
	Purchase Returns		4,800
	Direct Employee Cost	1,60,000	
	Indirect Employee Cost	18,000	

Factory Supervision	10,000	
Repairs and Upkeep Factory	14,000	
Heat, Light and Power	65,000	
Rates and Taxes	6,300	
Miscellaneous Factory Expenses	18,700	
Sales Commission	33,600	
Sales Travelling	11,000	
Sales Promotion	22,500	
Distribution Department- Salaries and Expenses	18,000	
Office Salaries and Expenses	8,600	
Interest on Borrowed Funds	2,000	

Further details are available as follows:

1) Closing Inventories:

Finished Goods	1,15,000
Raw Materials	1,80,000
Work-in-Process	1,92,000

2) Accrued Expenses on:

Direct Employee Cost	8,000
Indirect Employee Cost	1,200
Interest on Borrowed Funds	2,000

3) Depreciation to be provided on:

Office Appliances	5%
Plant and Machinery	10%
Buildings	4%

4) Distribution of the following costs:

Heat, Light and Power to Factory, Office and Distribution in the ratio 8:1:1
 Rates and Taxes two-thirds to Factory and one-third to Office
 Depreciation on Buildings to Factory, Office and Selling in the ratio 8:1:1

With the help of the above information, you are required to prepare a condensed Profit and Loss statement of Go-getter Co. for the year ended 30th September, 20X2 along with supporting schedules of:

- Cost of Sales
- Selling and Distribution Expenses
- Administration Expenses

PYQ NOV 2011

Reconciliation of Cost Books and Financial Books of Accounts Type I

- Q.11.** A manufacturing company disclosed a net loss of ₹3,47,000 as per their cost accounts for the year ended March 31, 2014. The financial accounts however disclosed a net loss of ₹5,10,000 for the same period. The following information was revealed as a result of scrutiny of the figures of both the sets of accounts.

NB
PN

	(₹)
Factory Overheads under-absorbed	40,000
Administration Overheads over-absorbed	60,000
Depreciation charged in Financial Accounts	3,25,000
Depreciation charged in Cost Accounts	2,75,000
Interest on investments not included in Cost Accounts	96,000
Income-tax provided	54,000
Interest on loan funds in Financial Accounts	2,45,000
Transfer fees (credit in financial books)	24,000
Stores adjustment (credit in financial books)	14,000
Dividend received	32,000

RTP MAY 2016 , RTP SEP 2024

- Q.12.** A manufacturing company has disclosed a net loss of ₹2,13,000 as per their cost accounting records for the year ended March 31, 2014. However, their financial accounting records disclosed a net loss of ₹2,58,000 for the same period. A scrutiny of data of both the sets of books of accounts revealed the following information:

NB
PN

	(₹)
(i) Factory overheads under-absorbed	5,000
(ii) Administration overheads over-absorbed	3,000
(iii) Depreciation charged in financial accounts	70,000
(iv) Depreciation charged in cost accounts	80,000
(v) Interest on investments not included in cost accounts	20,000
(vi) Income-tax provided in financial accounts	65,000
(vii) Transfer fees (credit in financial accounts)	2,000
(viii) Preliminary expenses written off	3,000
(ix) Over-valuation of closing stock of finished goods in cost accounts	7,000

Prepare a Memorandum Reconciliation Account.

PYQ MAY 2009, PYQ NOV 2010, MTP 1 NOV 2019

- Q.13.** R Limited showed a net loss of ₹35,400 as per their cost accounts for the year ended 31st March, 2014. However, the financial accounts disclosed a net profit of ₹67,800 for the same period. The following information were revealed as a result of scrutiny of the figures of cost accounts and financial accounts:

NB
PN

	(₹)
(i) Administrative overhead under recovered	25,500
(ii) Factory overhead over recovered	1,35,000
(iii) Depreciation under charged in Cost Accounts	26,000
(iv) Dividend received	20,000
(v) Loss due to obsolescence charged in Financial Accounts	16,800
(vi) Income tax provided	43,600
(vii) Bank interest credited in Financial Accounts	13,600
(viii) Value of opening stock:	
In Cost Accounts	1,65,000
In Financial Accounts	1,45,000
(ix) Value of closing stock:	
In Cost Accounts	1,25,500
In Financial Accounts	1,32,000
(x) Goodwill written-off in Financial Accounts	25,000
Notional rent of own premises charged in Cost Accounts	₹60,000
Provision for doubtful debts in Financial Accounts	₹15,000

Prepare a reconciliation statement by taking costing net loss as base.

PYQ NOV 2012

- Q.14.** A manufacturing company has disclosed net loss of ₹48,700 as per their cost accounting records for the year ended 31st March, 2014. However, their financial accounting records disclosed net profit of ₹35,400 for the same period. A scrutiny of data of both the sets of books of accounts revealed the following information:

NB
PN

	(₹)
Factory overheads under absorbed	30,500
Administrative overheads over absorbed	65,000
Depreciation charged in financial accounts	2,25,000
Depreciation charged in cost accounts	2,70,000
Income-tax provision	52,400
Transfer fee (credited in financial accounts)	10,200
Obsolescence loss charged in financial accounts	20,700
Notional rent of own premises charged in cost accounts	54,000

Value of opening stock:	
in cost accounts	1,38,000
in financial accounts	1,15,000
Value of closing stock:	
in cost accounts	1,22,000
in financial accounts	1,12,500

Prepare a Memorandum Reconciliation Account by taking costing loss as base

PYQ MAY 2014 , MTP 1 SEP 2024

- Q.15.** M/s H.K. Piano Company showed a net loss of ₹4,16,000 as per their financial accounts for the year ended 31st March, 20X3. The cost accounts, however, disclosed a net loss of ₹3,28,000 for the same period. The following information was revealed as a result of scrutiny of the figures of both the sets of books:

NB
PN

Particulars	(₹)
Factory overheads under-recovered	6,000
Administration overheads over-recovered	4,000
Depreciation charged in financial accounts	1,20,000
Depreciation recovered in costs	1,30,000
Interest on investment not included in costs	20,000
Income-tax provided	1,20,000
Transfer fees (credit in financial books)	2,000
Stores adjustment (credit in financial books)	2,000

Prepare a Memorandum reconciliation account.

STUDY MAT

Type II

- Q.16.** The following figures are available from the financial records of ABC Manufacturing Co. Ltd. for the year ended 31-3-20X3.

NB
PN

	(₹)
Sales (20,000 units)	25,00,000
Materials	10,00,000
Wages	5,00,000
Factory Overheads	4,50,000
Office and administrative Overhead (production related)	2,60,000
Selling and distribution Overheads	1,80,000
Finished goods (1,230 units)	1,50,000

	(₹)	(₹)
Work-in-Process:		
Materials	30,000	
Labour	20,000	
Factory overheads	20,000	70,000
Goodwill written off		2,00,000
Interest on capital		20,000

In the Costing records, factory overhead is charged at 100% of wages, administration overhead 10% of factory cost and selling and distribution overhead at the rate of ₹10 per unit sold.

Prepare a statement reconciling the profit as per cost records with the profit as per financial records.

STUDY MAT

Q.17. The following figures have been extracted from the Financial Accounts of a manufacturing firm for the first year of its operation:

NB
PN

	(₹)
Direct Material Consumption	50,00,000
Direct Wages	30,00,000
Factory Overhead	16,00,000
Administration Overheads (production related)	7,00,000
Selling and Distribution Overheads	9,60,000
Bad Debts	80,000
Preliminary Expenses written off	40,000
Legal Charges	10,000
Dividends Received	1,00,000
Interest Received on Deposits	20,000
Sales (1,20,000 units)	1,20,00,000
Closing Stock:	
Finished Goods (4,000 units)	3,20,000
Work-in-Process	2,40,000

The cost accounts for the same period reveal that the direct material consumption was ₹56,00,000. Factory overhead is recovered at 20% on prime cost. Administration overhead is recovered at ₹6 per unit of production. Selling and distribution overheads are recovered at ₹8 per unit sold.

Prepare the Profit and Loss Accounts both as per financial records and as per cost records. Reconcile the profits as per the two records.

STUDY MAT

Q.18. The financial books of a company reveal the following data for the year ended 31st March, 2014:

NB
PN

	(₹)
Opening Stock:	
Finished goods 875 units	74,375
Work-in-process	32,000
01.04.2013 to 31.3.2014	
Raw materials consumed	7,80,000
Direct Labour	4,50,000
Factory overheads	3,00,000
Goodwill written off	1,00,000
Administration overheads	2,95,000
Dividend paid	85,000
Bad Debts	12,000
Selling and Distribution Overheads	61,000
Interest received	45,000
Rent received	18,000
Sales 14,500 units	20,80,000
Closing Stock: Finished goods 375 units	41,250
Work-in-process	38,667

The cost records provide as under:

- Factory overheads are absorbed at 60% of direct wages.
- Administration overheads are recovered at 20% of factory cost. - Selling and distribution overheads are charged at ₹4 per unit sold. - Opening Stock of finished goods is valued at ₹104 per unit.
- The company values work-in-process at factory cost for both Financial and Cost Profit Reporting.

Required:

- 1) Prepare statements for the year ended 31st March, 2014 show
 - the profit as per financial records
 - the profit as per costing records.
- 2) Present a statement reconciling the profit as per costing records with the profit as per Financial Records.

PYQ MAY 2015 , RTP NOV 2017, RTP MAY 2021,
RTP NOV 2022, RTP NOV 2023, RTP MAY 2024, MTP 2SEP 2024

Q.19. The following is the Trading and Profit & Loss Account of Omega Limited:

NB
PN

Particulars	(₹)	Particulars	(₹)
To Materials consumed	23,01,000	By Sales (30,000 units)	48,75,000
To Direct wages	12,05,750	By Finished goods Stock (1,000 units)	1,30,000
To Production Overheads	6,92,250	By Work-in-progress:	
To Administration Over-heads	3,10,375	Materials 55,250	
To Selling and Distribution Overheads	3,68,875	Wages 26,000	
To Preliminary Expenses written off	22,750	Production Overheads <u>16,250</u>	97,500
To Goodwill written off	45,500		
To Fines	3,250	By Dividends received	3,90,000
To Interest on Mortgage	13,000	By Interest on bank deposits	65,000
To Loss on Sale of machine	16,250		
To Taxation	1,95,000		
To Net Profit for the year	3,83,500		
	55,57,500		55,57,500

Omega Limited manufactures a standard unit.

The Cost Accounting records of Omega Ltd. show the following:

- (1) Production overheads have been charged to work-in-progress at 20% on Prime cost. (2) Administration Overheads have been recovered at ₹9.75 per finished Unit. (3) Selling & distribution Overheads have been recovered at ₹13 per Unit sold.
- (4) The Under- or Over-absorption of Overheads has not been transferred to costing P/L A/c.

Required:

- (a) Prepare a proforma Costing Profit & Loss account, indicating net profit.
- (b) Prepare Control accounts for Production overheads, Administration Overheads and Selling & Distribution Overheads.
- (c) Prepare a statement reconciling the profit disclosed by the Cost records with that shown in Financial accounts.

PYQ NOV 2005

Q.20. ABC Ltd. has furnished the following information from the financial books for the year ended 31st March, 2014:

NB
PN

Particulars	(₹)	Particulars	(₹)
To Opening stock (500 units at 140 each)	70,000	By Sales (10,250 units)	28,70,000
To Material consumed	10,40,000	By Closing stock (250 units at ₹ 200 each)	50,000
To Wages	6,00,000		
To Gross profit c/d	12,10,000		
	29,20,000		29,20,000
To Factory overheads	3,79,000	By Gross profit b/d	12,10,000
To Administration over-heads	4,24,000	By Interest	1,000
To Selling expenses	2,20,000	By Rent received	40,000
To Bad debts	16,000		
To Preliminary expenses	20,000		
To Net profit	1,92,000		
	12,51,000		12,51,000

The cost sheet shows the cost of materials at ₹104 per unit and the labour cost at ₹60 per unit. The factory overheads are absorbed at 60% of labour cost and administration overheads at 20% of factory cost. Selling expenses are charged at ₹24 per unit. The opening stock of finished goods is valued at ₹180 per unit.

You are required to prepare:

- (1) A statement showing profit as per Cost accounts for the year ended 31st March, 2014; and
- (2) A statement showing the reconciliation of profit as disclosed in Cost accounts with the profit shown in Financial accounts.

RTP MAY 2008

Type III

Q.21. The following figures have been extracted from the cost records of a manufacturing company:

NB
PN

	(₹)
Stores:	
Opening Balance	63,000
Purchases	3,36,000
Transfer from Work-in-Progress	1,68,000
Issues to Work-in-Progress	3,36,000
Issues to Repairs and Maintenance	42,000
Deficiencies found in Stock taking	12,600
Work-in-Progress	
Opening Balance	1,26,000
Direct Wages applied	1,26,000
Overheads Applied	5,04,000
Closing Balance	84,000

Finished Products:

Entire output is sold at a profit of 10% on actual cost from work-in-progress. Others: Wages incurred ₹1,47,000; Overhead incurred ₹5,25,000. Income from investment ₹21,000; Loss on sale of fixed assets ₹42,000.

Draw the stores control account, work-in-progress control account, costing profit and loss account, profit and loss account and reconciliation statement.

PYQ NOV 2011

Q.22. Following information have been extracted from the cost records of XYZ Pvt. Ltd.
Stores:

NB
PN

	(₹)
Stores:	
Opening Balance	54,000
Purchases	2,88,000
Transfer from Work-in-Progress	1,44,000
Issues to Work-in-Progress	2,88,000
Issues for Repairs	36,000
Deficiencies found in Stock taking	10,800
Work-in-Progress	
Opening Balance	1,08,000

Direct Wages applied	1,08,000
Overheads Applied	4,32,000
Closing Balance	72,000
Entire production is sold at a profit of 15% on cost of WIP	
Wages Paid	1,26,000
Overheads incurred	4,50,000

Draw the Stores Ledger Control Account, Work-in-Progress Control Account, Overheads Control Account and Costing Profit and Loss Account.

PYQ NOV 2014

Q.23. Following are the figures extracted from the Cost Ledger of a manufacturing unit.

NB			(₹)
PN			
	Stores:		
	Opening balance		15,000
	Purchases		80,000
	Transfer from WIP		40,000
	Issue to WIP		80,000
	Issue to repairs and maintenance		10,000
	Sold as a special case at cost		5,000
	Shortage in the year		3,000
	Work-in-Process:		
	Opening inventory		30,000
	Direct labour cost charged		30,000
	Overhead cost charged		1,20,000
	Closing Balance		20,000
	Finished Products:		
	Entire output is sold at 10% profit on actual cost from work-in-process.		
	Others:		
	Wages for the period		35,000
	Overhead Expenses		1,25,000

Ascertain the profit or loss as per financial account and cost accounts and reconcile them.

STUDY MAT

Q.24. You are given the following information of the cost department of a manufacturing company:

NB
PN

	(₹)
Stores:	
Opening Balance	12,60,000
Purchases	67,20,000
Transfer from work-in-progress	33,60,000
Issue to work-in-progress	67,20,000
Issue to repairs and maintenance	8,40,000
Shortage found in stock taking	2,52,000
Work-in-progress:	
Opening Balance	25,20,000
Direct wages applied	25,20,000
Overhead applied	90,08,000
Closing Balance	15,20,000
Finished products:	
Entire output is sold at a profit of 12% on actual cost from work-in-progress.	

	(₹)
Wages Incurred	29,40,000
Overhead Incurred	95,50,000
Income from Investment	4,00,000
Loss on sale of fixed assets	8,40,000

Shortage in stock taking is treated as normal loss.

You are required to prepare:

- 1) Stores control account;
- 2) Work-in-progress control account;
- 3) Costing Profit and Loss account;
- 4) Profit and Loss account and
- 5) Reconciliation statement

PYQ MAY 2011

Integrated Accounting

Q.25. In the absence of the Chief Accountant, you have been asked to prepare a month's cost accounts for a company which operates a batch costing system fully integrated with the financial accounts. The following relevant information is provided to you:

NB
PN

	(₹)	(₹)
Balances at the beginning of the month:		
Stores Ledger Control Account		25,000
Work-in-Process Control Account		20,000
Finished Goods Control Account		35,000
Prepaid Production Overheads brought forward from previous month		3,000
Transactions during the month:		
Materials Purchased		75,000
Materials Issued:		
To production	30,000	
To factory maintenance	4,000	34,000
Materials transferred between batches		5,000
Total wages paid:		
To direct workers	25,000	
To indirect workers	5,000	30,000
Direct wages charged to batches		20,000
Recorded non-productive time of direct workers		5,000
Selling and Distribution Overheads Incurred		6,000
Other Production Overheads Incurred		12,000
Sales		1,00,000
Cost of Finished Goods Sold		80,000
Cost of Goods completed and transferred into finished goods during the month		65,000
Physical value of work-in-Process at the end of the month		40,000

The production overhead absorption rate is 150% of direct wages charged to work-in- Process.

Required:

Prepare the following accounts for the month:

(a) Stores Ledger Control Account.

(b) Work-in-Process Control Account.

- (c) Finished Goods Control Account.
 (d) Production Overhead Control Account.
 (e) Costing Profit and Loss Account.

STUDY MAT

Q.26. Bangalore Petrochemicals Co. keeps books on integrated accounting system. The following balances appear in the books as on 1st January, 20X2.

NB
PN

	DR. (₹)	CR. (₹)
Stores Ledger control A/c	18,000	
Work-in-Process Control A/c	17,000	
Finished Goods Control A/c	13,000	
Bank A/c	10,000	
Creditors A/c		8,000
Fixed assets A/c	55,000	
Debtors A/c	12,000	
Share capital A/c		80,000
Provision for depreciation A/c		5,000
Profit and loss A/c		32,000
	1,25,000	1,25,000

Transaction for the year ended 31st Dec., 20X2 were as given below:

	DR. (₹)	CR. (₹)
Wages-direct	87,000	
Wages-indirect	5,000	92,000
Purchase of materials (on credit)		1,00,000
Materials issued to production		1,10,000
Materials for repairs		2,000
Goods finished during the year (at cost)		2,15,000
Sales (credit)		3,00,000
Cost of goods sold		2,20,000
Production overhead absorbed		48,000
Production overhead incurred		40,000
Administration overhead incurred (production)		12,000
Selling overhead incurred		14,000
Payments of creditors		1,01,000
Payments of debtors		2,90,000
Depreciation on machinery		1,300
Prepaid rent (included in factory overheads)		300

Write up accounts in the integrated ledger.

PYQ NOV 2006

Q.27. BPR Limited keeps books on integrated accounting system. The following balances appear in the books as on April 1, 2013.

NB
PN

	DR. (₹)	CR. (₹)
Stores Control A/c	40,950	–
Work-in-progress A/c	38,675	–
Finished Goods A/c	52,325	–
Bank A/c	–	22,750
Trade Payables A/c	–	18,200
Non-Current Assets A/c	1,47,875	–
Trade Receivables A/c	27,300	–
Share Capital A/c	–	1,82,000
Provision for Depreciation A/c	–	11,375
Provision for Doubtful Debts A/c	–	3,725
Factory Overheads Outstanding A/c	–	6,250
Pre-Paid Administration Overheads A/c	9,975	–
Profit & Loss A/c*	–	72,800
(*Reserve & Surplus)		
	3,17,100	3,17,100

The transactions for the year ended March 31, 2014, were as given below:

	DR. (₹)	CR. (₹)
Direct Wages	1,97,925	–
Indirect Wages	11,375	2,09,300
Purchase of materials (on credit)		2,27,500
Materials issued to production		2,50,250
Material issued for repairs		4,550
Goods finished during the year (at cost)		4,89,125
Credit Sales		6,82,500
Cost of Goods sold		5,00,500
Production overheads absorbed		1,09,200
Production overheads paid during the year		91,000
Production overheads outstanding at the end of year		7,775
Administration overheads paid during the year		27,300
Selling overheads incurred		31,850
Payment to Trade Payables		2,29,775

Payment received from Trade Receivables		6,59,750
Depreciation of Machinery		14,789
Administration overheads outstanding at the end of year		2,225
Provision for doubtful debts at the end of the year		4,590

Required:

Write up accounts in the integrated ledger of BPR Limited and prepare a Trial balance.

RTP MAY 2005

Additional Questions

- Q.28.** X Ltd. follows Non-Integrated Accounting System. Financial Accounts of the company show a Net Profit of ₹ 5,50,000 for the year ended 31st March, 2022. The chief accountant of the company has provided following information from the Financial Accounts and Cost Accounts:

Sr. No	Particulars	(₹)
(i)	Legal Chargers Provided in Financial accounts	15,250
(ii)	Interim Dividend received credited in financial accounts	4,50,000
(iii)	Preliminary Expenses written off in financial accounts	25,750
(iv)	Over recovery of selling overheads in cost accounts	11,380
(v)	Profit on sale of capital asset credited in financial accounts	30,000
(vi)	Under valuation of closing stock in cost accounts	25,000
(vii)	Over recovery of production overheads in cost accounts	10,200
(viii)	Interest paid on Debentures shown in financial accounts	50,000

Required:

Find out the Profit (Loss) as per Cost Accounts by preparing a Reconciliation Statement.

PYQ NOV 2022

- Q.29.** R Ltd. showed a Net Profit of ₹ 3,60,740 as per their cost accounts for the year ended 31st March, 2021.

The following information was revealed as a result of scrutiny of the figures from the both sets of accounts:

Sr. No	Particulars	(₹)
(i)	Over recovery of selling overheads in cost accounts	10,250
(ii)	iOver valuation of closing stock in cost accounts	7,300
(iii)	Rent received credited in financial accounts	5,450
(iv)	Bad debts provided in financial accounts	3,250
(v)	Income tax provided in financial accounts	15,900
(vi)	Loss on sale of capital asset debited in financial accounts	5,800
(vii)	Under recovery of administration overheads in cost accounts	3,600

Required:

Prepare a reconciliation statement showing the profit as per financial records.

PYQ DEC 2021

Progress Sheet

	Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐
Question 2	☐	☐	☐
Question 3	☐	☐	☐
Question 4	☐	☐	☐
Question 5	☐	☐	☐
Question 6	☐	☐	☐
Question 7	☐	☐	☐
Question 8	☐	☐	☐
Question 9	☐	☐	☐
Question 10	☐	☐	☐
Question 11	☐	☐	☐
Question 12	☐	☐	☐
Question 13	☐	☐	☐
Question 14	☐	☐	☐
Question 15	☐	☐	☐

	Class Work	1 st Practice	2 nd Practice
Question 16	☐	☐	☐
Question 17	☐	☐	☐
Question 18	☐	☐	☐
Question 19	☐	☐	☐
Question 20	☐	☐	☐
Question 21	☐	☐	☐
Question 22	☐	☐	☐
Question 23	☐	☐	☐
Question 24	☐	☐	☐
Question 25	☐	☐	☐
Question 26	☐	☐	☐
Question 27	☐	☐	☐
Question 28	☐	☐	☐
Question 29	☐	☐	☐



UNIT AND BATCH COSTING

- Q.1** The following data relate to the manufacture of a standard product during the 4- week ended 28th February 2016:

NB	Raw Materials Consumed	₹ 4,00,000
PN	Direct Wages	₹ 2,40,000
	Machine Hours Worked	3,200 hours
	Machine Hour Rate	₹ 40
	Office Overheads (related to production activities)	10% of works cost
	Selling Overheads	₹ 20 per unit
	Units produced and sold	10,000 at ₹120 each

You are required to find out the cost per unit and profit for the 4- week ended 28th February 2016.

STUDY MAT

- Q.2** Arnav Confectioners (AC) owns a bakery which is used to make bakery items like pastries, cakes and muffins. AC use to bake at least 50 units of any item at a time.

A customer has given an order for 600 muffins. To process a batch of 50 muffins, the following cost would be incurred:

Direct materials-	₹ 500
Direct wages-	₹ 50
Oven set-up cost	₹ 150

AC absorbs production overheads at a rate of 20% of direct wages cost. 10% is added to the total production cost of each batch to allow for selling, distribution and administration overheads.

AC requires a profit margin of 25% of sales value.
Determine the selling price for 600 muffins.

STUDY MAT, RTP MAY 2018

- Q.3** Wonder Ltd. Has a capacity of 120,000 Units per annum as its optimum capacity. The production costs are as under:

NB	Direct Material	₹ 90 per unit
PN	Direct Labour	₹ 60 per unit
	Overheads:	
	Fixed:	₹ 30,00,000 per annum
	Variable:	₹ 100 per unit
	Semi Variable:	₹ 20,00,000 per annum up to 50% capacity and an extra amount of ₹ 4,00,000 for every 25% increase in capacity or part thereof.

The production is made to order and not for stocks.

If the production program of the factory is as indicated below and the management desires a profit of ₹ 20,00,000 for the year work out the average selling price at which each unit should be quoted.

First 3 months : 50% capacity

Remaining 9 months : 80% capacity.

Ignore administration, selling and distribution overheads

STUDY MAT

Q.4 A factory incurred the following expenditure during the year 2013.

NB		(₹)	(₹)
PN	Direct material consumed		12,00,000
	Manufacturing Wages		7,00,000
	Manufacturing overhead:		
	Fixed	3,60,000	
	Variable	2,50,000	6,10,000
			25,10,000

In the year 2014, following changes are expected in production and cost of production.

Production will increase due to recruitment of 60% more workers in the factory. Overall efficiency will decline by 10% on account of recruitment of new workers. There will be an increase of 20% in Fixed overhead and 60% in Variable overhead. The cost of direct material will be decreased by 6%.

The company desire to earn a profit of 10% on selling price. Ascertain the cost of production and selling price.

PYQ MAY 2006

Q.5 Atharva Pharmacare Limited produced a uniform type of product and has a manufacturing capacity of 3,000 units per week of 48 hours. From the records of the company, the following data are available relating to output and cost of 3 consecutive weeks

NB	Week Number	Units Manufactured	Direct Material (₹)	Direct Wages (₹)	Factory Overheads (₹)
PN	1	1,200	9,000	3,600	31,000
	2	1,600	12,000	4,800	33,000
	3	1,800	13,500	5,400	34,000

Assuming that the company charges a profit of 20% on selling price, find out the selling price per unit when the weekly output is 2,000 units

STUDY MAT

- Q.6** A Factory manufactures a uniform type of article and has a capacity of 4,000 units per week. The following information shows the different elements of cost for three consecutive weeks when the output has changed every week.

NB	Units Produced	Direct Materials (₹)	Direct Labour (₹)	Factory overheads (Partly variable & partly fixed)
PN	2,000	12,000	6,000	12,500
	2,800	16,800	8,400	16,500
	3,700	22,200	11,100	21,000

The factory has received an order for 5,000 units and it desires a profit of 16-2/3% on selling price. Find out the price at which each unit should be sold.

PYQ MAY 2007

- Q.7** Rio Ltd. undertakes to supply 1000 units of a component per month for the months of January, February and March 2018. Every month a batch order is opened against which material and labour cost are booked at actual.

From the following present the profit per unit of each batch order and the overall position of the order for 3000 units.

NB	Month	Batch Output (Numbers)	Material Cost (₹)	Labour Cost (₹)
PN	January 2018	1,250	6,250	2,500
	February 2018	1,500	9,000	3,000
	March 2018	1,000	5,000	2,000

Labour is paid at the rate of ₹ 2 per hour.

Month	Overheads (₹)	Total Labour (Hours)
January 2018	12,000	4,000
February 2018	9,000	4,500
March 2018	15,000	5,000

STUDY MAT

- Q.8** A jobbing factory has undertaken to supply 200 pieces of a component per month for the ensuing six months. Every month a batch order is opened against which materials and labour hours are booked at actual. Overheads are levied at a rate per labour hour. The selling price contracted for is ₹ 8 per piece. From the following data present the cost and profit per piece of each batch order and overall position of the order for 1,200 pieces.

NB
PN

Month	Batch Output	Material cost (₹)	Direct wages (₹)	Direct labour (Hours)
January	210	650	120	240
February	200	640	140	280
March	220	680	150	280
April	180	630	140	270
May	200	700	150	300
June	220	720	160	320

The other details are:

The other details are:	The other details are:	The other details are:
January	12,000	4,800
February	10,560	4,400
March	12,000	5,000
April	10,580	4,600
May	13,000	5,000
June	12,000	4,800

STUDY MAT,MTP 2 NOV 2020, RTP MAY 2023,RTP SEP 2024

- Q.9** An article passes through three successive operations from raw materials stage to the finished product stage. The following data are available from the production records for the month of March, 2021:

NB	Operation	No. of pieces (Input)	No. of pieces (Rejected)	No. of pieces (Output)
PN	1	1,80,000	60,000	1,20,000
	2	1,98,000	18,000	1,80,000
	3	1,44,000	24,000	1,20,000

- DETERMINE the input required to be introduced in the first operation in no. of pieces in order to obtain finished output of 500 pieces after the last operation.
- CALCULATE the cost of raw material required to produce one piece of finished product, if the weight of the finished piece is 0.5 kg. and the price of raw material is Rs. 80 per kg.

RTP MAY 2008

Q.10 A company wants to outsource the operation of its canteen to a contractor. The company will provide space for cooking, free electricity and furniture in the canteen. The contractor will have to provide lunch to 300 workers of which 180 are vegetarian (Veg) and the rest are non-vegetarian (Non-Veg). In the case of non-veg meals, there will be a non-veg item in addition the veg items. A contractor who is interested in the contract has analysed the costs likely to be incurred. His analysis is given below:

NB

PN

- Cereals : ₹ 8 per plate
- Veg items : ₹ 5 per plate
- Non-veg items : ₹ 15 per plate
- Spices : ₹ 1 per plate
- Cooking oil : ₹ 4 per plate
- One cook : Salary ₹ 13,000 per month
- Three helpers : Salary ₹ 7,000 per month per head
- Fuel : Two commercial cylinders per month, price ₹ 1,000 each.

On an average the canteen will remain open for 25 days in a month. The contractor wants to charge the non-veg meals at 1.50 times of the veg meals.

You are required to calculate:

- (i) The price per meal (veg and non-veg separately) that contractor should quote if he wants a profit of 20% on his takings.
- (ii) The price per meal (separately for veg and non-veg) that a worker will be required to pay if the company provides 60% subsidy for meals out of welfare fund

PYQ MAY 2018

Q.11 Monthly demand for a product 500 units

NB

Setting-up cost per batch ₹ 60

PN

Cost of manufacturing per unit ₹ 20

Rate of interest 10% p.a.

Determine economic batch quantity.

STUDY MAT

Q.12 M/s. KBC Bearings Ltd. is committed to supply 48,000 bearings per annum to M/s. KMR Fans on a steady daily basis. It is estimated that it costs ₹ 1 as inventory holding cost per bearing per month and that the setup cost per run of bearing manufacture is ₹ 3,200. What would be the optimum run size of bearing manufacture?

NB

PN

What would be the interval between two consecutive optimum runs?
Find out the minimum inventory cost?

STUDY MAT

Q.13 A customer has been ordering 90,000 special design metal columns at the rate of 18,000 columns per order during the past years. The production cost comprises ₹ 2,120 for material, ₹ 60 for labour and ₹ 20 for fixed overheads. It costs ₹ 1,500 to set up for one run of 18,000 columns and inventory carrying cost is 5%.

NB

PN

Required:

- Find the most economic production run.
- Calculate the extra cost that company incur due to processing of 18,000 columns in a batch.

STUDY MAT

Q.14 X Ltd. is committed to supply 24,000 bearings per annum to Y Ltd. on steady basis. It is estimated that it costs 10 paise as inventory holding cost per bearing per month and that the set-up cost per run of bearing manufacture is ₹ 324.

NB

PN

Required:

- What would be the optimum run size for bearing manufacture?
- Assuming that the company has a policy of manufacturing 6,000 bearings per run, how much extra costs the company would be incurring as compared to the optimum run suggested in (i) above?
- What is the minimum inventory holding cost?

STUDY MAT

Q.15 Arnav Motors Ltd. manufactures pistons used in car engines. As per the study conducted by the Auto Parts Manufacturers Association, there will be a demand of 80 million pistons in the coming year. Arnav Motors Ltd. is expected to have a market share of 1.15% of the total market demand of the pistons in the coming year. It is estimated that it costs ₹ 1.50 as inventory holding cost per piston per month and that the set-up cost per run of piston manufacture is ₹ 3,500.

NB

PN

Required:

- What would be the optimum run size for piston manufacturing?
- Assuming that the company has a policy of manufacturing 40,000 pistons per run, how much extra costs the company would be incurring as compared to the optimum run suggested in (i) above?

(OLD STUDY MAT)

Q.16 BTL LLP. Manufactures glass bottles for HDL Ltd., a pharmaceutical company which is in ayurvedic medicines business.

NB

PN

BTL can produce 2,00,000 bottles in a month. Set – up cost of each production run is ₹ 5,200 and the cost of holding one bottle for a year is ₹ 1.50.

As per an estimate HDL Ltd. can order as much as 19,00,000 bottles in a year spreading evenly throughout the year.

At present BTL manufactures 1,60,000 bottles in a batch.

Required:

- COMPUTE the Economic Batch Quantity for bottle production.
- COMPUTE the annual cost saving to BTL by adopting the EBQ of a production.

PYQ MAY 2012

- Q.17** A Company has an annual demand from a single customer for 50,000 litres of a paint product. The total demand can be made up of a range of colour to be produced in a continuous production run after which a set-up of the machinery will be required to accommodate the colour change. The total output of each colour will be stored and then delivered to the customer as single load immediately before production of the next colour commences. The setup costs are ₹ 100 per set up. The service is supplied by an outside company as required. The holding costs are incurred on rented storage space which costs ₹ 50 per sq. meter per annum. Each sq. meter can hold 250 litres suitably stacked.

NB

PN

Required:

- Calculate the total cost per year where batches may range from 4,000 to 10,000 litres in multiples of 1,000 litres and hence, choose the production batch size which will minimize the cost.
- Use the economic batch size formula to calculate the batch size that will minimize the batch cost.

STUDY MAT

- Q.18** M/s. Gaurav Private Limited is manufacturing and selling two products: 'BLACK' and 'WHITE' at selling price of ₹ 20 and ₹ 30 respectively. The following sales strategy has been outlined for the financial year 2019-20:

NB

PN

- Sales planned for the year will be ₹ 81,00,000 in the case of 'BLACK' and ₹ 54,00,000 in the case of 'WHITE'.
- The selling price of 'BLACK' will be reduced by 10% and that of 'WHITE' by 20%.
- Break-even is planned at 70% of the total sales of each product.
- Profit for the year to be maintained at ₹ 8,26,200 in the case of 'BLACK' and ₹ 7,45,200 in the case of 'WHITE'. This would be possible by reducing the present annual fixed cost of 42,00,000 allocated as ₹ 2,00,000 to 'BLACK' and ₹ 20,00,000 to 'WHITE'.

You are required to calculate:

- Number of units to be sold of 'BLACK' and 'WHITE' to Break even during the financial year 2019-20.
- Amount of reduction in fixed cost product-wise to achieve desired profit mentioned at (iv) above

STUDY MAT, PYQ MAY 2019

Additional Questions

Q.19

NB

PN

Arnav Ltd. operates in beverages industry where it manufactures soft -drink in three sizes of Large (3 litres), Medium (1.5 litres) and Small (600 ml) bottles. The products are processed in batches. The 5,000 litres capacity processing plant consumes electricity of 90 Kilowatts per hour and a batch takes 1 hour 45 minutes to complete. Only symmetric size of products can be processed at a time. The machine set-up takes 15 minutes to get ready for next batch processing. During the set -up, power consumption is only 20%.

- (I) The current price of Large, Medium and Small are ₹ 150, ₹ 90 and ₹ 50 respectively.
- (II) To produce a litre of beverage, 14 litres of raw material-W and 25 ml of Material-C are required high costs ₹ 0.50 and ₹ 1,000 per litre respectively.
- (III) 20 direct workers are required. The workers are paid ₹ 880 for 8 hours shift of work.
- (IV) The average packing cost per bottle is ₹ 3
- (V) Power cost is ₹ 7 per Kilowatt -hour (Kwh)
- (VI) Other variable cost is ₹ 30,000 per batch.
- (VII) Fixed cost (Administration and marketing) is ₹ 4,90,00,000.
- (VIII) The holding cost is ₹ 1 per bottle per annum.

The marketing team has surveyed the following demand (bottle) of products:

Large	Medium	Small
3,00,000	7,50,000	20,00,000

Required:

CALCULATE net profit/ loss of the organisation and also COMPUTE Economic Batch Quantity (EBQ).

STUDY MAT, RTP MAY 2024

Q.20 PS Ltd. manufactures articles in predetermined lots simultaneously. The following costs have been incurred for Batch No. 'PS143' in the month of March, 2022:

NB

Units produced 1,000 units

PN

Direct materials cost ₹ 2,00,000

Direct Labour -

Department A 800 labour hours @ ₹ 100 per hour.

Department B 1,400 labour hours @ ₹ 120 per hour.

Factory overheads are absorbed on labour hour basis and the rates are:

Department A @ ₹ 140 per hour.

Department B @ ₹ 80 per hour.

Administrative overheads are absorbed at 10% of selling price.

The firm expects 25% gross profit (sales value minus factory cost) for determining the selling price.

You are required to CALCULATE the selling price per unit of Batch No. 'PS143'.

RTP NOV 2022

Progress Sheet

	Class Work	1 st Practice	2 nd Practice		Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐	Question 11	☐	☐	☐
Question 2	☐	☐	☐	Question 12	☐	☐	☐
Question 3	☐	☐	☐	Question 13	☐	☐	☐
Question 4	☐	☐	☐	Question 14	☐	☐	☐
Question 5	☐	☐	☐	Question 15	☐	☐	☐
Question 6	☐	☐	☐	Question 16	☐	☐	☐
Question 7	☐	☐	☐	Question 17	☐	☐	☐
Question 8	☐	☐	☐	Question 18	☐	☐	☐
Question 9	☐	☐	☐	Question 19	☐	☐	☐
Question 10	☐	☐	☐	Question 20	☐	☐	☐



JOB COSTING

- Q.1** A factory uses job costing. The following data are obtained from its books for the year ended 31st March, 2018:

NB		Amount (₹)
PN	Direct materials	9,00,000
	Direct wages	7,50,000
	Selling and distribution overheads	5,25,000
	Administration overheads	4,20,000
	Factory overheads	4,50,000
	Profit 6,09,00	

Required:

- PREPARE a Job Cost sheet indicating the Prime cost, Cost of Production, Cost of sales and the Sales value.
- In 2018-19, the factory received an order for a job. It is estimated that direct materials required will be ₹ 2,40,000 and direct labour will cost ₹ 1,50,000. DETERMINE what should be the price for the job if factory intends to earn the same rate of profit on sales assuming that the selling and distribution overheads have gone up by 15%. The factory overheads is recovered as percentage of wages paid, whereas, other overheads as a percentage of cost of production, based on cost rates prevailing in the previous year.

RTP MAY 2018, RTP MAY 2020

- Q.2** A company has been asked to quote for a job. The company aims to make a net profit of 30% on sales. The estimated cost for the job is as follows:

NB	Direct materials 10 kg @ ₹ 10 per kg
PN	Direct labour 20 hours @ ₹ 5 per hour
	Variable production overheads are recovered at the rate of ₹ 2 per labour hour.
	Fixed production overheads for the company are budgeted to be ₹ 1,00,000 each year and are recovered on the basis of labour hours.
	There are 10,000 budgeted labour hours each year. Other costs in relation to selling, distribution and administration are recovered at the rate of ₹ 50 per job. DETERMINE quote for the job by the Company.

PYQ MAY 2005

- Q.3** Ispat Engineers Limited (IEL) undertook a plant manufacturing work for a client. It will charge a profit mark up of 20% on the full cost of the jobs. The following are the information related to the job:

NB	Direct materials utilised – ₹ 1,87,00,000
PN	Direct labour utilised – 2,400 hours at ₹80 per hour
	Budgeted production overheads are Rs. 48,00,000 for the period and are recovered on the basis of 24,000 labour hours.

Budgeted production overheads are Rs. 48,00,000 for the period and are recovered on the basis of 24,000 labour hours.

Budgeted selling and administration overheads are ₹ 18,00,000 for the period and recovered on the basis of total budgeted total production cost of ₹ 36,00,00,000.

Required:

CALCULATE the price to be charged for the job.

PYQ NOV 2007

- Q.4** A shop floor supervisor of a small factory presented the following cost for Job No. 303, to determine the selling price.

NB	Per unit (₹)	
	PN	
	Materials	70
	Direct wages 18 hours @ ₹ 2.50 (Dept. X 8 hours; Dept. Y 6 hours; Dept. Z 4 hours)	45
	Chargeable expenses	5
		<u>120</u>
	Add: 33-1/3 % for expenses cost	40
		<u>160</u>

Analysis of the Profit/Loss Account for the year 20X2

	(₹)		(₹)
Material used	1,50,000	Sales less returns	2,50,000
Direct wages:			
Dept. X 10,000			
Dept. Y 12,000			
Dept. Z <u>8,000</u>	30,000		
Special stores item	4,000		
Overheads:			
Dept. X 5,000			
Dept. Y 9,000			
Dept. Z <u>2,000</u>	16,000		
Works cost	2,00,000		
Gross profit c/d	50,000		
Selling expenses	20,000	Gross profit b/d	50,000
Net profit	30,000		

It is also noted that average hourly rates for the three Departments X, Y and Z are similar.

You are required to:

- Draw up a job cost sheet.
- Calculate the entire revised cost using 2012 actual figures as basis.
- Add 20% to total cost to determine selling price.

STUDY MAT

Q.5 In a factory following the Job Costing Method, an abstract from the work-in-progress as on 30th September was prepared as under.

NB
PN

Job No.	Materials (₹)	Direct hrs.	Labour (₹)	Factory Overheads applied (₹)
115	1325	400 hrs.	800	640
118	810	250 hrs.	500	400
120	765	300 hrs.	475	380
	2,900		1,775	1,420

Materials used in October were as follows:

Materials Requisition No.	Job No.	Cost (₹)
54	118	300
55	118	425
56	118	515
57	120	665
58	121	910
59	124	720
		3,535

A summary for labour hours deployed during October is as under:

Job no.	Number of hours	
	Shop A	Shop B
115	25	25
118	90	30
120	75	10
121	65	-
124	25	10

Indirect labour: Waiting of material		20		10
Machine breakdown		10		5
Idle time	5		6	
Overtime premium		6		5

A shop credit slip was issued in October, that material issued under Requisition No. 54 was returned back to stores as being not suitable. A material transfer note issued in October indicated that material issued under Requisition No. 55 for Job 118 was directed to Job 124.

The hourly rate in shop A per labour hour is ₹ 3 per hour while at shop B, it is ₹ 2 per hour. The factory overhead is applied at the same rate as in September. Job 115, 118 and 120 were completed in October.

You are asked to compute the factory cost of the completed jobs. It is the practice of the management to put a 10% on the factory cost to cover administration and selling overheads and invoice the job to the customer on a total cost plus 20% basis. What would be the invoice price of these three jobs?

STUDY MAT

- Q.6** Ares Plumbing and Fitting Ltd. (APFL) deals in plumbing materials and also provides plumbing services to its customers. On 12th August, 2014, APFL received a job order for a students' hostel to supply and fitting of plumbing materials. The work is to be done on the basis of specification provided by the hostel owner. Hostel will be inaugurated on 5th September, 2014 and the work is to be completed by 3rd September, 2014.

NB

PN

Following are the details related with the job work:

Direct Materials

APFL uses weighted average method for the pricing of materials issues.

Opening stock of materials as on 12th August 2014:

- 15mm GI Pipe, 12 units of (15 feet size) @ ₹ 600 each
- 20mm GI Pipe, 10 units of (15 feet size) @ ₹ 660 each
- Other fitting materials, 60 units @ ₹ 26 each
- Stainless Steel Faucet, 6 units @ ₹ 204 each
- Valve, 8 units @ ₹ 404 each

Purchases:

On 16th August 2014:

- 20mm GI Pipe, 30 units of (15 feet size) @ ₹ 610 each
- 10 units of Valve @ ₹ 402 each

NB

PN

On 18th August 2014:

- Other fitting materials, 150 units @ ₹ 28 each
- Stainless Steel Faucet, 15 units @ ₹ 209 each

On 27th August 2014:

- 15mm GI Pipe, 35 units of (15 feet size) @ ₹ 628 each
- 20mm GI Pipe, 20 units of (15 feet size) @ ₹ 660 each
- Valve, 14 units @ ₹ 424 each

Issues for the hostel job:**On 12th August 2014:**

- 20mm GI Pipe, 2 units of (15 feet size)
- Other fitting materials, 18 units

On 17th August 2014:

- 15mm GI Pipe, 8 units of (15 feet size)
- Other fitting materials, 30 units

On 28th August 2014:

- 20mm GI Pipe, 2 units of (15 feet size)
- 15mm GI Pipe, 10 units of (15 feet size)
- Other fitting materials, 34 units
- Valve, 6 units

On 30th August:

- Other fitting materials, 60 units
- Stainless Steel Faucet, 15 units

Direct Labour:

Plumber: 180 hours @ ₹ 50 per hour (includes 12 hours overtime)

Helper: 192 hours @ ₹ 35 per hour (includes 24 hours overtime)

Overtimes are paid at 1.5 times of the normal wage rate.

Overheads:

Overheads are applied @ ₹ 13 per labour hour. Pricing policy:

It is company's policy to price all orders based on achieving a profit margin of 25% on sales price.

You are required to:

- Calculate the total cost of the job.
- Calculate the price to be charged from the customer

STUDY MAT

Progress Sheet

	Class Work	1 st Practice	2 nd Practice		Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐	Question 4	☐	☐	☐
Question 2	☐	☐	☐	Question 5	☐	☐	☐
Question 3	☐	☐	☐	Question 6	☐	☐	☐

10

**PROCESS
AND
OPERATION
COSTING**

Basic Process Accounts

- Q.1** From the following data, prepare process accounts indicating the cost of each process and the total cost. The total units that pass through each process were 240 for the period.

NB		Process I (₹)	Process II (₹)	Process III (₹)
PN	Materials	1,50,000	50,000	20,000
	Labour	80,000	2,00,000	60,000
	Other expenses	26,000	72,000	25,000

Indirect expenses amounting to ₹ 85,000 may be apportioned on the basis of wages. There was no opening or closing stock.

STUDY MAT

- Q.2** A product passes through three processes. The output of each process is treated as the raw material of the next process to which it is transferred and output of the third process is transferred to finished stock.

NB		Process I (₹)	Process II (₹)	Process III (₹)
PN	Materials issued	40,000	20,000	10,000
	Labour	6,000	4,000	1,000
	Manufacturing overhead	10,000	10,000	15,000

10,000 units have been issued to the Process-I and after processing, the output of each process is as under:

Process	Output	Normal Loss
Process-I	9,750 units	2%
Process-II	9,400 units	5%
Process-III	8,000 units	10%

No stock of materials or of work-in-process was left at the end. Calculate the cost of the finished articles.

STUDY MAT

- Q.3** A product passes from Process I and Process II. Materials issued to Process I amounted to ₹ 40,000, Labour ₹ 30,000 and manufacturing overheads were ₹ 27,000. Normal loss was 3% of input as estimated. But 500 more units of output of Process I were lost due to the carelessness of workers. Only 4,350 units of output were transferred to Process II. There were no opening stocks. Input raw material issued to Process I was 5,000 units. You are required to show Process I account.

NB
PN

STUDY MAT

- Q.4** N Ltd. produces a product which passes through two processes – Process – I and Process-II. The company has provided following information related to the Financial Year 2021-22:

NB

PN

Particulars	Process- I	Process- II
Raw Material @ ` 65 per unit	6,500 units	--
Direct Wages	₹ 1,40,000	₹ 1,30,000
Direct Expenses	30% of Direct Wages	35% of Direct Wages
Manufacturing Overheads	₹ 21,500	₹ 24,500
Realisable value of scrap per unit	₹ 4.00	₹ 16.00
Normal Loss	250 units	500 units
Units transferred to Process-II / finished stock	6,000 units	5,500 units
Sales	5,000 units	

There was no opening or closing stock of work-in progress.

You are required to prepare:

- Process-I Account
- Process -II Account
- Finished Stock Account

PYQ NOV 2022

- Q.5** JK Ltd. produces a product "AZE", which passes through two processes, viz., process I and process II. The output of each process is treated as the raw material of the next process to which it is transferred and output of the second process is transferred to finished stock. The following data related to December, 2013:

NB

PN

	Process- I	Process- II
25,000 units introduced at a cost of	₹ 2,00,000	?
Material consumed	₹ 1,92,000	₹ 96,020
Direct labour	₹ 2,24,000	₹ 1,28,000
Manufacturing expenses	₹ 1,40,000	₹ 60,000
Normal wastage of input	10%	10%
Scrap value of normal wastage		
(per unit)	₹ 9.90	₹ 8.60
Output in Units	22,000	20,000

Required:

- Prepare Process I and Process II account.
- Prepare Abnormal Gain/ Loss account as the case may be for each process.

PYQ MAY 2008

- Q.6** Meta Company Ltd. is engaged in the production of product 'Trio' which passes through two different processes Process P and Process Q. Other information obtained from books of account for the year is as follows:

Particulars	Process P	Process Q
Raw material used	10,000	---
Raw material cost per unit	₹ 80	---
Direct wages	₹ 52,000	₹ 78,000
Direct Expenses	₹ 8,600	₹ 11,100
Selling price per unit of output	₹ 130	₹ 190

Production overheads of ₹ 3,00,000 are recovered as percentage of direct wages.

Actual output of the two processes was:

P-9,200 units and Q-6,400 units. 3/4th of the output of Process P was passed on to the Process Q and the balance was sold. The entire output of process Q was sold.

Management & Selling expenses during the year were ₹ 1,70,000.

These are not allocable to the processes.

The normal loss of the two processes, calculated on the input of every process was:

Process P- 6% and Process Q-10%

The Loss of Process P was sold at ₹ 5 per unit and that of Q at ₹ 8 per unit.

Assume that Process P and Process Q are not the responsibility centres.

You are required to prepare:

- Process P Account
- Process Q Account
- Abnormal Loss and Abnormal Gain Account
- Costing Profit & Loss Account.

PYQ MAY 2024

- Q.7** M J Pvt. Ltd. produces a product "SKY" which passes through two processes, viz. Process-A and Process-B. The details for the year ending 31.3.2014 are as follows:

NB		Process A	Process B
PN	40,000 Units introduced at a cost of	₹ 3,60,000	-
	Material Consumed	₹ 2,42,000	₹ 2,25,000
	Direct Wages	₹ 2,58,000	₹ 1,90,000
	Manufacturing Expenses	₹ 1,96,000	₹ 1,23,720
	Output in Units	37,000	27,000
	Normal Wastage of Input	5%	10%
	Scrap Value (per unit)	₹ 15	₹ 20
	Selling Price (per unit)	₹ 37	₹ 61

Additional Information:

80% of the output of Process-A, was passed on to the next process and the balance was sold. The entire output of Process- B was sold.

Indirect expenses for the year was ₹ 4,48,080.

It is assumed that Process-A and Process-B are not responsibility center.

Required:

- Prepare Process-A and Process-B Account.
- Prepare Profit & Loss Account showing the net profit I net loss for the year.

PYQ MAY 2014

- Q.8** MP Ltd. produces a Product-X, which passes through three processes, I, II and III. In Process-III a by-product arises, which after further processing at a cost of Rs. 85 per unit, product Z is produced. The information related for the month of September 2020 is as follows:

NB PN		Process-I	Process-II	Process-III
	Normal loss	5%	10%	5%
	Materials introduced (7,000 units)	1,40,000	-	-
	Materials added	62,000	1,36,000	84,200
	Direct wages	42,000	54,000	48,000
	Direct expenses	14,000	16,000	14,000

Production overhead for the month is Rs. 2,88,000, which is absorbed as a percentage of direct wages.

The scraps are sold at Rs. 10 per unit

Product-Z can be sold at Rs. 135 per unit with a selling cost of Rs. 15 per unit No. of units produced:

Process-I- 6,600; Process-II- 5,200, Process-III- 4,800 and Product-Z- 600 There is no stock at the beginning and end of the month.

You are required to PREPARE accounts for:

- Process-I, II and III
- By-product-Z

MTP 1 MAY 2021

- Q.9** A Manufacturing unit manufactures a product 'XYZ' which passes through three distinct Processes - X, Y and Z. The following data is given:

NB PN		Process X	Process Y	Process Z
	Material consumed (in ₹)	2,600	2,250	2,000
	Direct wages (in ₹)	4,000	3,500	3,000

- The total Production Overhead of ₹ 15,750 was recovered @ 150% of Direct wages.
- 15,000 units at ₹ 2 each were introduced to Process 'X'.
- The output of each process passes to the next process and finally, 12,000 units were transferred to Finished Stock Account from Process 'Z'.
- No stock of materials or work in progress was left at the end. The following additional information is given:

NB

PN

Process	% of wastage to normal input	Value of Scrap per unit (₹)
X	6%	1.10
Y	?	2.00
Z	5%	1.00

You are required to:

(i) Find out the percentage of wastage in process 'Y', given that the output of Process 'Y' is transferred to Process 'Z' at ₹ 4 per unit.

(ii) Prepare Process accounts for all the three processes X, Y and Z.

PYQ JULY 2021

Equivalent Production Weighted Average Method

Q.10 ABC Ltd. produces an item which is completed in three processes – X, Y and Z. The following information is furnished for process X for the month of March, 2018:

Opening work-in-progress (5,000 units)	
Materials	₹ 35,000
Labour	₹ 13,000
Overheads	₹ 25,000
Units introduced into process X (55,000 units):	
Materials	₹ 20,20,000
Labour	₹ 8,00,000
Overheads	₹ 13,30,000
Units scrapped : 5,000 units	
Degree of completion:	
Materials	100%
Labour and Overheads	60%
Closing work-in-progress (5,000 units):	
Degree of completion :	
Material	100%
Labour and Overheads	60%

Units finished and transferred to Process Y : 50,000 units

Normal loss : 5% of total input (including opening works-in-progress)

Scrapped units fetch ₹ 20 per unit.

Presuming that average method of inventory is uses, prepare

- (i) Statement of Equivalent production
- (ii) Statement of Cost for each element
- (iii) Statement of distribution of cost
- (iv) Abnormal loss account

PYQ MAY 2018

Q.11 Opening work-in-process 1,000 units (60% complete); Cost ₹ 1,10,000. Units introduced during the period 10,000 units; Cost ₹ 19,30,000. Transferred to next process - 9,000 units.

NB

Closing work-in-process - 800 units (75% complete).

PN

Normal loss is estimated at 10% of total input including units in process at the beginning.

Scraps realise ₹ 10 per unit. Scraps are 100% complete.

Using WEIGHTED AVERAGE METHOD, compute equivalent production and cost per equivalent unit. Also evaluate the output.

STUDY MAT

Q.12 Following information is given regarding Process-I for the month of February 2015,

NB

PN

Production record:		
Units in process as on 1.2.20X5 (All materials used, 25% complete for labour and overheads)		4,000
New units introduced		16,000
Units completed		14,000
Units in process as on 28.2.20X5 (All materials used, 33.33% complete for labour and overheads)		6,000
Cost records:		
Work-in-progress as on 1.2.20X5		
Materials	6,000	
Labour	1,000	
Overheads	1,000	
		8,000
Cost during the month: Materials		(₹) 25,600
Labour		15,000
Overheads		55,600

Presuming that average method of inventory is used, prepare:

- i) Statement of equivalent production.
- ii) Statement showing cost for each element.
- iii) Statement of apportionment of cost.

Process cost account for Process-I.

STUDY MAT

- Q.13** ABC Limited manufactures a product 'ZX' by using the process namely RT. For the month of May, 2014, the following data are available:

NB	Process RT	
PN	Material introduced (units)	16,000
	Transfer to next process (units)	14,400
	Work-in-progress:	
	At the beginning of the month (units) (80% complete)	4,000
	At the end of the month (units) (66.66%)	3,000
	Cost records:	
	WIP at the beginning of the month	
	Material	₹ 30,000
	Conversion cost	₹ 29,200
	Cost during the month:	
	Materials	₹ 1,20,000
	Conversion cost	₹ 1,60,800

Normal spoiled units are 10% of good finished output transferred to next process.

Defects in these units are identified in their finished state. Material for the product is put in the process at the beginning of the cycle of operation, whereas labour and other indirect cost flow evenly over the year. It has no realizable value for spoiled units.

Required:

- Statement of equivalent production (Average cost method)
- Statement of cost and distribution of cost
- Process accounts.

PYQ MAY 2004

- Q.14** Following data are available for a product for the month of July, 2016:

NB	Particulars	Process- I (₹)	Process- II (₹)
PN	Opening work-in- progress	Nil	Nil
	Costs incurred during the month:		
	- Direct materials	6,00,000	
	- Labour	1,20,000	1,60,000
	- Factory overheads	2,40,000	2,00,000
	Units of production:		
	Received in process	40,000	36,000
	Completed and transferred	36,000	32,000
	Closing work-in-progress	2,000	?
	Normal loss in process	2,000	1,500

Production remaining in process has to be valued as follows

Materials	100%
Labour	50%
Overheads	50%

There has been no abnormal loss in Process- II.

The company follows weighted average method for valuing inventory.

Prepare Process Accounts after working out the missing figures and with detailed workings.

PYQ MAY 2005

Q.15 The following details are available of Process X for August 2013:

NB	(1)	Opening work-in-progress	8,000 units
PN		Degree of completion and cost:	
		Material (100%)	₹ 63,900
		Labour (60%)	₹ 10,800
		Overheads (60%)	₹ 5,400
	(2)	Input 1,82,000 units at	₹ 7,56,900
	(3)	Labour paid	₹ 3,28,000
	(4)	Over heads incurred	₹ 1,64,000
	(5)	Units scrapped	14,000
		Degree of completion:	
		Material	100%
		Labour and overhead	80%
	(6)	Closing work-in-process	18000 units
		Degree of completion:	
		Material	100%
		Labour and overhead	70%
	(7)	1,58,000 units were completed and transferred to next process.	
	(8)	Normal loss is 8% of total input including opening work-in-process	
	(9)	Scrap value is ₹ 8 per unit to be adjusted in direct material cost	

You are required to compute, assuming that average method of inventory is used:

Equivalent production, and

Cost per unit.

STUDY MAT, PYQ NOV 2011

- Q.16** A product is manufactured in two sequential processes, namely Process – 1 and Process -2. The following information relates to Process – 1. At the beginning of June 2019, there were 1,000WIP goods (60% completed in terms of conversion cost) in the inventory, which are valued at ₹ 2,86,020 (Material cost ₹ 2,55,000 and conversion ₹ 31,020). Other information relating to process – 1 for the month of June 2019 is as follows;

NB
PN

Cost of materials introduced – 40,000 units ₹)	96,80,000
Conversion cost added ₹	18,42,000
Transferred to Process – 2 (Units)	35,000
Closing WIP (Units) (60% completed in terms of conversion cost)	1,500

100% of materials are introduced to Process – 1 at the beginning. Normal loss is estimated at 10% of input materials (excluding opening WIP).

Required:

- PREPARE a statement of equivalent units using the weighted average cost method and thereby calculate the following:
- CALCULATE the value of output transferred to Process – 2 and closing WIP.

PYQ MAY 2014

- Q.17** A company produces a component, which passes through two processes. During the month of December, 2021, materials for 40,000 components were put into Process -I of which 30,000 were completed and transferred to Process-II. Those not transferred to Process- II were 100% complete as to materials cost and 50% complete as to labour and overheads cost. The Process- I costs incurred were as follows:

NB
PN

Direct Materials	₹ 6,00,000
Direct Wages	₹ 7,00,000
Factory Overheads	₹ 4,90,000

Of those transferred to Process II, 28,000 units were completed and transferred to finished goods stores. There was a normal loss with no salvage value of 200 units in Process II. There were 1,800 units, remained unfinished in the process with 100% complete as to materials and 25% complete as regard to wages and overheads. Costs incurred in Process-II are as follows:

Packing Materials	₹ 1,60,000
Direct Wages	₹ 1,42,250
Factory Overheads	₹ 1,70,700

Packing material cost is incurred at the end of the second process as protective packing to the completed units of production.

Required:

- PREPARE Statement of Equivalent Production, Cost per unit and Process I A/c.
- PREPARE statement of Equivalent Production, Cost per unit and Process II A/c.

STUDY MAT, PYQ MAY 2006, RTP MAY 2021, RTP MAY 2022

FIFO Method

Q.18 Following information is available regarding Process A for the month of October 2013:

NB
PN

Production Record:		
(i)	Opening work-in progress	40,000 Units
	(Material: 100% complete, 25% complete for labour & overheads)	
(ii)	Units Introduced	1,80,000 Units
(iii)	Units Completed	1,50,000 Units
(iv)	Units in-process on 31.10.2013	70,000 Units
	(Material: 100% complete, 50% complete for labour & overheads)	

Cost Record:	
Opening Work-in-progress:	(₹)
Material	1,00,000
Labour	25,000
Overheads	45,000
Cost incurred during the month:	
Material	6,60,000
Labour	5,55,000
Overheads	9,25,000
Assure that FIFO method is used for W.I.P. inventory valuation.	

Required:

- i) Statement of Equivalent Production
- ii) Statement showing Cost for each element
- iii) Statement of apportionment of Cost
- iv) Process- A Account

STUDY MAT, PYQ NOV 2011(SAME AS Q 15)

Q.19 The following data are available in respect of Process-I for October 2014:

NB
PN

- i) Opening stock of work in process: 600 units at a total cost of ₹ 4,200.
- ii) Degree of completion of opening work in process:

Material	100%
Labour	60%
Overheads	60%

- iii) Input of materials at a total cost of ₹ 55,200 for 9,200 units.
- iv) Direct wages incurred ₹ 18,600
- v) Overheads ₹ 8,630
- vi) Units scrapped are 200 units.

The stage of completion of these units was:

Materials	100%
Labour	80%
Overheads	80%

- vii) Closing work in process; 700 units.

The stage of completion of these units was:

Material	100%
Labour	70%
Overheads	70%

- viii) 8,900 units were completed and transferred to the next process.
- ix) Normal loss is 4% of the total input (opening stock plus units put in)
- x) Scrap value is ₹ 6 per unit.

You are required to:

- i) Compute equivalent production,
- ii) Calculate the cost per equivalent unit for each element.
- iii) Calculate the cost of abnormal loss (or gain), closing work in process and the units transferred to the next process using the FIFO method.

RTP MAY 2024 , RTP MAY 2015 , RTP NOV 2017, MTP 2 NOV 2022

Q.20 The following data are available in respect of Process-I for July 2017:

NB

PN

- i) Opening stock of work in process: 600 units at a total cost of ₹ 84,000.
- ii) Degree of completion of opening work in process:

Material	100%
Labour	60%
Overheads	60%

- iii) Input of materials at a total cost of ₹ 11,04,000 for 9,200 units.
- iv) Direct wages incurred ₹ 3,72,000 Overheads ₹ 1,72,600.
- v) Units scrapped 200 units. The stage of completion of these units was:

Materials	100%
Labour	80%
Overheads	80%

- vi) Closing work in process; 700 units. The stage of completion of these units was:

Material	100%
Labour	70%
Overheads	70%

- vii) 8,900 units were completed and transferred to the next process.
- viii) Normal loss is 4% of the total input (opening stock plus units put in)
- ix) Scrap value is ₹ 120 per unit.

You are required to:

- i) Compute equivalent production,
- ii) Calculate the cost per equivalent unit for each element.
- iii) Calculate the cost of abnormal loss (or gain), closing work in process and the units transferred to the next process using the FIFO method.

SAME AS Q 19

Q.21 Chill Ltd. uses process costing to manufacture water density sensor for hydro sector. The following information pertains to operations for the month of February:

NB PN	Particulars	Units
	Beginning WIP, February	1 22,400
	Started in production during February	1,40,000
	Completed production during February	1,28,800
	Ending work in progress, February	28 33,600

The beginning work in progress was 50% complete for materials and 30% complete for conversion costs. The ending inventory was 80% complete for material and 30% complete for conversion costs.

Costs pertaining to the month of February are as follows:

Beginning inventory costs are material ₹ 1,38,350, direct labour ₹ 1,50,600 and factory overhead ₹ 63,600

Cost incurred during February are material ₹ 23,95,000, direct labour ₹ 9,14,400, factory overheads ₹ 19,55,800.

CALCULATE:

- (i) Using the FIFO method, the equivalent units of production for material.
- (ii) Cost per equivalent unit for conversion cost.

MTP 1 MAY 2022

Q.22 Following details have been provided by M/s AR Enterprises:

- i) Opening works-in progress – 3000 units (70% complete)
- ii) Units introduced during the year – 1700 units
- iii) Cost of the process (for the period) - ₹ 33,12,720
- iv) Transferred to next process – 15000 units
- v) Closing works -in-progress – 2200 units (80% complete)
- vi) Normal loss is estimated at 12% of total input (including units in process in the beginning) Scraps realize ₹ 50 per unit. Scraps are 100% complete.

Using FIFO method, compute:

- i) Equivalent production
- ii) Cost per equivalent unit.

RTP MAY 2006

Q.23

NB

PN

Akash Ltd. manufactures chemical solutions for the food processing industry. The manufacturing takes place in a number of processes and the company uses FIFO method to value work-in-process and finished goods. At the end of the last month, a fire occurred in the factory and destroyed some of paper containing records of the process operations for the month.

Akash Ltd. needs your help to prepare the process accounts for the month during which the fire occurred. You have been able to gather some information about the month's operating activities but some of the information could not be retrieved due to the damage.

The following information was salvaged:

- i) Opening work-in-process at the beginning of the month was 800 litres, 70% complete for labour and 60% complete for overheads. Opening work-in-process was valued at ₹ 26,640.
- ii) Closing work-in-process at the end of the month was 160 litres, 30% complete for labour and 20% complete for overheads.
- iii) Normal loss is 10% of input and total losses during the month were 1,800 litres partly due to the fire damage.
- iv) Output sent to finished goods warehouse was 4,200 litres.
- v) Losses have a scrap value of ₹ 15 per litre.
- vi) All raw materials are added at the commencement of the process.
- vii) The cost per equivalent unit (litre) is ₹ 39 for the month made up as follows:

	(₹)
Raw Material	23
Labour	7
Overheads	9
	39

Required:

- i) Calculate the quantity (in litres) of raw material inputs during the month.
- ii) Calculate the quantity (in litres) of normal loss expected from the process and the quantity (in litres) of abnormal loss / gain experienced in the month.
- iii) Calculate the values of raw material, labour and overheads added to the process during the month.
- iv) Prepare the process account for the month.

RTP MAY 2018

Inter Process Profits

- Q.24** A Ltd. produces product 'AXE' which passes through two processes before it is completed and transferred to finished stock. The following data relate to October 2014:

	Process- I (₹)	Process- II (₹)	Finished Stock (₹)
Opening stock	7,500	9,000	22,500
Direct materials	15,000	15,750	--
Direct wages	11,200	11,250	--
Factory overheads	10,500	4,500	--
Closing stock	3,700	4,500	11,250
Inter-process profit included in opening stock	--	1,500	8,250

Output of Process- I is transferred to Process- II at 25% profit on the transfer price. Output of Process- II is transferred to finished stock at 20% profit on the transfer price. Stock in process is valued at prime cost. Finished stock is valued at the price at which it is received from process II. Sales during the period are ₹ 1,40,000.

Prepare Process cost accounts and finished goods account showing the profit element at each stage.

STUDY MAT

- Q.25** The product of a manufacturing concern passes through two processes A and B and then to finished stock. The details of expenses incurred on the two processes during the year were as under:

	Process A (₹)	Process B (₹)
Materials	40,000	--
Labour	40,000	56,000
Overheads	16,000	40,000

On completion, the output of Process A is transferred to Process B at a price calculated to give a profit of 20% on the transfer price and the output of Process B is charged to finished stock at a profit of 25% on the transfer price. The finished stock department realized ₹ 4,00,000 for the finished goods received from Process B.

You are asked to SHOW process accounts and total profit, assuming that there was no opening or closing work-in-progress.

PYQ MAY 2008

Miscellaneous

Q.26 A Chemical Company carries on production operation in two processes. The material first pass through Process I, where Product 'A' is produced. Following data are given for the month just ended:

NB
PN

Material input quantity	2,00,000 kg.
Opening work-in-progress quantity (Material 100% and conversion 50% complete)	40,000 kg.
Work completed quantity	1,60,000 kg.
Closing work-in-progress quantity (Material 100% and conversion two-third complete)	30,000 kg.
Material input cost	₹ 75,000
Processing cost	₹ 1,02,000
Opening work-in-progress cost	
Material cost	₹ 20,000
Processing cost	₹ 12,000

Normal process loss in quantity may be assumed to be 20% of material input. It has no realizable value.

Any quantity of Product 'A' can be sold for ₹1.60 per kg.

Alternatively, it can be transferred to Process II for further processing and then sold as Product 'AX' for ₹2 per kg. Further materials are added in Process II, which yield two kg. of product 'AX' for every kg. of Product 'A' of

Process II.

Of the 1,60,000 kg. per month of work completed in Process I, 40,000 kg. are sold as Product 'A' and 1,20,000 kg. are passed through Process II for sale as Product 'AX'. Process II has facilities to handle up to 1,60,000 kg. of Product 'A' per month, if required.

The monthly costs incurred in Process II (other than the cost of Product 'A') are:

	1,20,000 kg. of Product 'A' input (₹)	1,60,000 kg. of Product 'A' input (₹)
Materials Cost	1,32,000	1,76,000
Processing Costs	1,20,000	1,40,000

Required:

(i) Determine, using the weighted average cost method, the cost per kg. of Product 'A' in Process I and value of both work completed and closing work-in-progress for the month just ended.

(ii) Is it worthwhile processing 1,20,000 kg of Product 'A' further?

(iii) Calculate the minimum acceptable selling price per kg., if a potential buyer could be found for additional output of Product 'AX' that could be produced with the remaining Product 'A' quantity.

PYQ NOV 2006

Q.27

MTK Ltd. purchased 10,000 kgs, of a basic material @ ₹ 12 per kg and issued it for further processing in purifying department. In purifying department wages paid amounted to ₹ 4,200 and overhead was applied @ 150% of the labour cost.

NB

PN

Indirect materials costing ₹ 1,500 were introduced into the process. The normal yield from the process is 90%. 9,100 kgs of output was obtained from this purifying process. Any difference in weight between the input of basic material and output of purified material can be sold @ ₹ 1,50 per kg.

The process is operated under a licence for which royalty @ ₹ 0.20 per kg. of purified material produced is paid.

You are required to prepare:

- (i) Purifying process Account
- (ii) Normal loss Account
- (iii) Abnormal loss / gain Account
- (iv) Royally Payable Account.

RTP MAY 2013

Q.28

From the following Information for the month ending October, 2013, prepare Process Cost accounts for Process III. Use First-in-first-out (FIFO) method to value equivalent production.

NB

PN

Direct material added in process III (Opening WIP)	2,000 units at ₹ 25,750
Transfer from Process II	53,000 units at ₹ 4,11,500
Transfer to Process IV	48,000 units
Closing stock of Process III	5,000 units
Units scrapped	2,000 units
Direct material added in Process III	₹ 1,97,600
Direct wages	₹ 97,600
Production overheads	₹ 48,800

Degree of completion:

	Opening Stock	Closing Stock	Scrap
Materials	80%	70%	100%
Labour	60%	50%	70%
Overheads	60%	50%	70%

The normal loss in the process was 5% of production and scrap was sold at ₹ 3 per unit.

RTP MAY 2010

Additional Questions

Q.29 PQR Company Ltd. provides the following information relating to Process-P:

- (i) Opening Work-in-progress - NIL
- (ii) Units Introduced - 45,000 units @ ₹ 10 per unit
- (iii) Expenses debited to the process:

Direct material	₹ 65,500
Labour	₹ 90,800
Overhead	₹ 1,80,700

- (iv) Normal loss in the process - 2% of Input

- (v) Work-in progress - 1800 units

Degree of completion

Materials	-	100%
Labour	-	50%
Overhead	-	40%

- (vi) Finished output - 42,000 units

- (vii) Degree of completion of abnormal loss:

Materials	-	100%
Labour	-	80%
Overhead	-	60%

- (viii) Units scrapped as normal loss were sold at ₹ 5 per unit.

- (ix) All the units of abnormal loss were sold at ₹ 2 per unit.

You are required to PREPARE:

- Statement of equivalent production.
- Statement showing the cost of finished goods, abnormal loss and closing balance of work-in-progress.
- Process-P account and abnormal loss account.

MTP 1 SEP 2025

Q.30 SM Pvt. Ltd. manufactures their products in three consecutive processes. The details are as below:

	Process X	Process Y	Process Z
Transferred to next Process		60%	50%
Transferred to warehouse for sale	40%	50%	100%

In each process, there is a weight loss of 2% and scrap of 4% of input of each process. The realizable value of scrap of each process is as below:

Process X @ ₹ 3 per ton

Process Y @ ₹ 5 per ton

Process Z @ ₹ 7 per ton.

The following particulars relate to January 2023:

	Process X	Process Y	Process Z
Materials used (in Tons)	1,500	454	189
Rate per ton	₹ 21.5	₹ 14	₹ 12
Direct Wages	₹ 5,000	₹ 3,260	₹ 2,540
Direct Expenses	₹ 3,820	₹ 2,775	₹ 1,900

PREPARE Process Accounts- X, Y and Z & calculate cost per ton at each process.

SIM. RTP NOV 2022

Q.31 A Ltd. mixes powdered ingredients in two different processes to produce one product. The output of Process- I becomes the input of Process-II and the output of Process-II is transferred to the Packing department.

From the information given below, you are required to PREPARE accounts for Process-I, Process- II and Abnormal loss/ gain A/c to record the transactions for the month of August 2023.

Process-I

Input	
Material A	6,000 kilograms at ₹ 50 per kilogram
Material B	4,000 kilograms at ₹ 100 per kilogram
Labour	430 hours at ₹ 50 per hour
Normal loss	5% of inputs. Scrap is disposed off at ₹16 per kilogram
Output	9,200 kilograms.

There is no work-in-process at the beginning or end of the month.

Process-II

Input	
Material C	6,600 kilograms at ₹ 125 per kilogram
Material D	4,200 kilograms at ₹ 75 per kilogram
Flavouring Essence	₹ 3,300
Labour 370 hours at	₹ 50 per hour
Normal loss	5% of inputs with no disposal value
Output	18,000 kilograms.

There is no work-in-process at the beginning of the month but 1,000 kilograms in process at the end of the month and estimated to be only 50% complete so far as labour and overhead were concerned.

Overhead of ₹ 92,000 incurred to be absorbed on the basis of labour hours.

MTP1 NOV 2023

Q.32 'Dairy Wala Private limited' is engaged in the production of flavoured milk. Its process involve filtration and boiling of milk after that some sugar, flavour, colour is added and then letting it cool to fill the product into clean and sterile bottles. For Producing 10 litre of flavour milk, 100 litre of Raw milk is required, which extracts only 45 litres of standardized milk.

Following information regarding Process – I has been obtained from the manufacturing department of Dairy Wala Private limited for the month of December 2022:

Items	(₹)
Opening work-in process (13,500 litre)	
Milk	1,50,000
Labour	45,000
Overheads	1,35,000
Milk introduced for filtration and boiling (3,00,000 litre)	15,00,000
Direct Labour	6,00,000
Overheads	18,00,000
Abnormal Loss:	3,000 litres
Degree of completion:	
Milk	100%
Labour and overheads	80%
Closing work-in process: 27,000 litres	
Degree of completion:	
Milk	100%
Labour and overheads	80%
Milk transferred for Packing: 1,18,500 litres	

You are required to PREPARE using average method:

- Statement of equivalent production,
- Statement of cost,
- Statement of distribution cost, and
- Process-I Account.

RTP MAY 2023

Q.33 The following information is furnished by ABC Company for Process - II of its manufacturing activity for the month of April 2023:

NB
PN

- (i) Opening Work-in-Progress – Nil
- (ii) Units transferred from Process I – 55,000 units at ₹ 3,27,800
- (iii) Expenditure debited to Process – II:
 - Consumables ₹ 1,57,200
 - Labour ₹ 1,04,000
 - Overhead ₹ 52,000
- (iv) Units transferred to Process III – 51,000 units
- (v) Closing WIP – 2,000 units (Degree of completion):
 - Consumables 80%
 - Labour 60%
 - Overhead 60%
- (vi) Units scrapped - 2,000 units, scrapped units were sold at ₹ 5 per unit
- (vii) Normal loss – 4% of units introduced

You are required to:

- (i) Prepare a Statement of Equivalent Production.
- (ii) Determine the cost per unit
- (iii) Determine the value of Work-in-Process and units transferred to Process – III

SAMEAS Q29

Progress Sheet

	Class Work	1 st Practice	2 nd Practice		Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐	Question 18	☐	☐	☐
Question 2	☐	☐	☐	Question 19	☐	☐	☐
Question 3	☐	☐	☐	Question 20	☐	☐	☐
Question 4	☐	☐	☐	Question 21	☐	☐	☐
Question 5	☐	☐	☐	Question 22	☐	☐	☐
Question 6	☐	☐	☐	Question 23	☐	☐	☐
Question 7	☐	☐	☐	Question 24	☐	☐	☐
Question 8	☐	☐	☐	Question 25	☐	☐	☐
Question 9	☐	☐	☐	Question 26	☐	☐	☐
Question 10	☐	☐	☐	Question 27	☐	☐	☐
Question 11	☐	☐	☐	Question 28	☐	☐	☐
Question 12	☐	☐	☐	Question 29	☐	☐	☐
Question 13	☐	☐	☐	Question 30	☐	☐	☐
Question 14	☐	☐	☐	Question 31	☐	☐	☐
Question 15	☐	☐	☐	Question 32	☐	☐	☐
Question 16	☐	☐	☐	Question 33	☐	☐	☐
Question 17	☐	☐	☐				



**JOINT
PRODUCTS
& BY
PRODUCTS**

Joint Products

Q.1 A company produces two products, A and B, through a joint production process. The total joint production cost incurred is as under:

NB	Material	₹ 20,000
PN	Labour	₹ 10,000
	Variable overheads	₹ 6,000
	Fixed Overheads	₹ 24,000

Product A and B can be sold for ₹ 20 per unit and ₹ 15 per unit respectively at split off point. The produced quantities are Product A-2,000 units and Product B – 4,000 units.

- You are required to calculate the joint production cost allocation for each product using the:
 - Physical unit method.
 - Contribution margin method.
- Product B can be further processed by incurring expenditure of ₹ 12,000. Loss in further processing is 2%. It can be sold @ ₹ 18 per unit. Explain the impact on profitability if Product B is further processed.

PYQ MAY 2024

Q.2 A company's plant processes 6,750 units of a raw material in a month to produce two products 'M' and 'N'.

The process yield is as under:

NB	Product M	80%
PN	Product N	12%
	Process Loss	8%

The cost of raw material is ₹ 80 per unit.

Processing cost is ₹ 2,25,000 of which labour cost is accounted for 66%. Labour is chargeable to products 'M' and 'N' in the ratio of 100:80.

Prepare a Comprehensive Cost Statement for each product showing:

- Apportionment of joint cost among products 'M' and 'N' and
- Total cost of the products 'M' and 'N'.

PYQ NOV 2020

Q.3 Inorganic Chemicals purchases salt and processes it into more refined products such as Caustic Soda, Chlorine and PVC. In the month of July, Inorganic Chemicals purchased Salt for ₹ 40,000. Conversion of ₹ 60,000 were incurred up to the split off point, at which time two seal able products were produced. Chlorine can be further processed into PVC.

The July production and sales information are as follows:

	Production	Sales quantity	Selling price
	(tonne)	(tonne)	(per tonne)
Caustic Soda	1,200	1,200	₹ 50
Chlorine	800	—	—
PVC	500	500	₹ 200

All 800 tonnes of Chlorine were further processed, at an incremental cost of ₹ 20,000 to yield 500 tonnes of PVC. There was no beginning or ending inventories of Caustic Soda, Chlorine or PVC in July.

There is active market for Chlorine. Inorganic Chemicals could have sold all its July production of Chlorine at ₹ 75 per tonne.

Required:

- 1) To calculate how joint cost of ₹ 1,00,000 would be apportioned between Caustic Soda and Chlorine under each of following methods:
 - a) Sales value at split off,
 - b) Physical measure (method), and
 - c) Estimated net realisable value.
- 2) Lifetime Swimming Pool Products offers to purchase 800 tonnes of Chlorine in August at ₹ 75 per tonne. This sale of Chlorine would mean that no PVC would be produced in August. How the acceptance of this offer for the month of August would affect operating income?

STUDY MAT

Q.4 'Buttery Butter' is engaged in the production of Buttermilk, Butter and Ghee. It purchases processed cream and let it through the process of churning until it separates into buttermilk and butter. For the month of January, 2020, 'Buttery Butter' purchased 50 Kilolitre processed cream @ ₹ 100 per 1000 ml. Conversion cost of ₹ 1,00,000 were incurred up-to the split off point, where two saleable products were produced i.e. buttermilk and butter. Butter can be further processed into Ghee.

The January, 2020 production and sales information is as follows:

Products	Production (in Kilolitre/tonne)	Sales Quantity (in Kilolitre/tonne)	Selling price per Litre/Kg (₹)
Buttermilk	28	28	30
Butter	20	—	—
Ghee	16	16	480

All 20 tonne of butter were further processed at an incremental cost of ₹ 1,20,000 to yield 16 Kilolitre of Ghee. There was no opening or closing inventories of buttermilk, butter or ghee in January, 2020.

Required:

- (i) SHOW how joint cost would be apportioned between Buttermilk and Butter under Estimated Net Realisable Value method.
- (ii) 'Healthy Bones' offers to purchase 20 tonne of butter in February at ₹ 360 per kg. In case 'Buttery Butter' accepts this offer, no Ghee would be produced in February. SUGGEST whether 'Buttery Butter' shall accept the offer affecting its operating income or further process butter to make Ghee itself?

STUDY MAT, MTP 1 NOV 2020 OLD, MTP 1 NOV 2020 NEW

- Q.5** In an Oil Mill four products emerge from a refining process. The total cost of input during the quarter ending March 20X8 is ₹1,48,000. The output, sales and additional processing costs are as under:

NB

PN

Products	Output in Litres	Additional processing cost after split off (₹)	Sales value (₹)
ACH	8,000	43,000	1,72,500
BCH	4,000	9,000	15,000
CSH	2,000	-	6,000
DSH	4,000	1,500	45,000

In case these products were disposed-off at the split off point that is before further processing, the selling price per litre would have been:

ACH (₹)	BCH (₹)	CSH (₹)	DSH (₹)
15.00	6.00	3.00	7.50

PRODUCE a statement of profitability based on:

- If the products are sold after further processing is carried out in the mill.
- If they are sold at the split off point.

MTP 1 NOV 2019

- Q.6** Key Pee Limited produces and sells the following products:

NB

PN

Products	Units	Selling price at split-off point (₹)	Selling price after further processing (₹)
A	500000	42.5	62.5
B	75000	32.5	42.5
C	62500	20	30
D	50000	25	-
E	187500	35	50

Cost of raw material ₹ 89,75,000 and other manufacturing expenses cost ₹13,67,500 in the manufacturing process which are absorbed on the products on the basis of their 'Net realisable value'. The further processing costs of A, B, C and E are ₹31,25,000; ₹ 3,75,000; ₹1,25,000 and ₹3,75,000 respectively. Fixed costs are ₹11,82,500.

You are required to PREPARE the following in respect of the coming year:

- Statement showing income forecast of the company assuming that none of its products are to be further processed.
- Statement showing income forecast of the company assuming that products A, B, C and E are to be processed further.

RTP MAY 2023

- Q.7** A company's plant processes 1,50,000 kg. of raw material in a month to produce two products, viz, 'P' and 'Q'. The cost of raw material is ₹ 12 per kg. The processing costs per month are:

NB

PN

	(₹)
Direct Materials	90,000
Direct Wages	1,20,000
Variable Overheads	1,00,000
Fixed Overheads	1,00,000

The loss in process is 5% of input and the output ratio of P and Q which emerge simultaneously is 1:2. The selling prices of the two products at the point of split off are: P ₹ 12 per kg. and Q ₹ 20 per kg. A proposal is available to process P further by mixing it with other purchased materials. The entire current output of the plant can be so processed further to obtain a new product 'S'. The price per kg. of S is ₹ 15 and each kg of output of S will require one kilogram of input P. The cost of processing of P into S (including other materials) is ₹ 1,85,000 per month.

You are required to prepare a statement showing the monthly profitability based both on the existing manufacturing operations and on further processing.

Will you recommend further processing?

SIMILAR PYQ NOV 2020

- Q.8** A Company produces two joint products P and Q in 70 : 30 ratio from basic raw materials in department A. The input output ratio of department A is 100 : 85. Product P can be sold at the split of stage or can be processed further at department B and sold as product AR. The input output ratio is 100 : 90 of department B. The department B is created to process product A only and to make it product AR.

NB

PN

The selling prices per kg. are as under: Product P ₹ 85 Product Q ₹ 290 Product AR ₹ 115

The production will be taken up in the next month. Raw materials 8,00,000 Kgs. Purchase price ₹ 80 per Kg.

	Dept. A ₹ Lacs	Dept. B ₹ Lacs
Direct Materials	35.00	5.00
Direct Labour	30.00	9.00
Variable overheads	45.00	18.00
Fixed overheads	40.00	32.00
Total	150.00	64.00
Selling Expenses:		
Product P	24.60	
Product Q	21.60	
Product AR	16.80	

Required:

- Prepare a statement showing the apportionment of joint costs.
- State whether it is advisable to produce product AR or not.

PYQ MAY 2007

- Q.9** A company processes a raw material in its Department 1 to produce three products, viz. A, B and X at the same split-off stage. During a period 1,80,000 kgs of raw materials were processed in Department 1 at a total cost of ₹ 12,88,000 and the resultant output of A, B and X were 18,000 kgs, 10,000 kgs and 54,000 kgs respectively. A and B were further processed in Department 2 at a cost ₹ 1,80,000 and ₹ 1,50,000 respectively.

X was further processed in Department 3 at a cost of ₹ 1,08,000. There is no waste in further processing. The details of sales affected during the period were as under:

	A	B	X
Quantity Sold (kgs.)	17,000	5,000	44,000
Sales Value (₹)	12,24,000	2,50,000	7,92,000

There were no opening stocks. If these products were sold at split-off stage, the selling prices of A, B and X would have been ₹ 50, ₹ 40 and ₹ 10 per kg respectively.

Required:

- PREPARE a statement showing the apportionment of joint costs to A, B and X.
- PRESENT a statement showing the cost per kg of each product indicating joint cost and further processing cost and total cost separately.
- PREPARE a statement showing the product wise and total profit for the period.
- STATE with supporting calculations as to whether any or all the products should be further processed or not.

RTP MAY 2016, RTP MAY 2018, RTP MAY 2019, MTP 1 SEP 2023

- Q.10** A company produces two joint product X and Y, from the same basic materials. The processing is completed in three departments Materials are mixed in department I. At the end of this process X and Y get separated. After separation X is completed in the department II and Y is finished in department III. During a period 2,00,000 kgs of raw material were processed in department I, at a total cost of ₹ 8,75,000, and the resultant 60% becomes X and 30% becomes Y and 10% normally lost in processing.

In department II 1/6 of the quantity received from department I is lost in processing. X is further processed in department II at a cost of ₹ 1,80,000.

In department III further, new material added to the material received from department I and weight mixture is doubled, there is no quantity loss in the department and further processing cost (with material cost) is ₹ 1,50,000.

The details of sales during the year:

	Product X	Product Y
Quantity sold (kgs)	90,000	1,15,000
Sales price per kg (₹)	10	4

There were no opening stocks. If these products sold at split-off-point, the selling price of X and Y would be ₹ 8 and ₹ 4 per kg respectively.

Required:

- Prepare a statement showing the apportionment of joint cost to X and Y in proportion of sales value at split off point.
- Prepare a statement showing the cost per kg of each product indicating joint cost, processing cost and total cost separately.
- Prepare a statement showing the product wise profit for the year.
- On the basis of profits before and after further processing of product X and Y, give your comment that products should be further processed or not.

PYQ MAY 2005

Q.11 Pokemon Chocolates manufactures and distributes chocolate products. It purchases Cocoa beans and processes them into two intermediate products:

NB

PN

Chocolate powder liquor base Milk-chocolate liquor base. These two intermediate products become separately identifiable at a single split off point. Every 500 pounds of cocoa beans yields 20 gallons of chocolate - powder liquor base and 30 gallons of milk-chocolate liquor base.

The chocolate powder liquor base is further processed into chocolate powder. Every 20 gallons of chocolate- powder liquor base yields 200 pounds of chocolate powder. The milk- chocolate liquor base is further processed into milk-chocolate. Every 30 gallons of milk- chocolate liquor base yields 340 pounds of milk chocolate. Production and sales data for October, 2004 are:

Cocoa beans processed	7,500 pounds
Costs of processing Cocoa beans to split off point (including purchase of beans)	₹ 7,12,500

	Production	Sales	Selling price
Chocolate powder	3,000 pounds	3,000 pounds	₹ 190 per pound
Milk chocolate	5,100	5,100	₹ 237.50 per pound

The October, 2004 separable costs of processing chocolate-powder liquor into chocolate powder are ₹ 3,02,812.50. The October 2004 separable costs of processing milk-chocolate liquor base into milk-chocolate are ₹ 6,23,437.50.

Pokemon fully processes both of its intermediate products into chocolate powder or milk- chocolate. There is an active market for these intermediate products. In October, 2004, Pokemon could have sold the chocolate powder liquor base for ₹ 997.50 a gallon and the milk-chocolate liquor base for ₹ 1,235 a gallon.

Required:

- i) Calculate how the joint cost of ₹ 7,12,500 would be allocated between the chocolate powder and milk- chocolate liquor bases under the following methods:
 - a) Sales value at split off point
 - b) Physical measure (gallons)
 - c) Estimated net realisable value, (NRV) and
 - d) Constant gross-margin percentage NRV.
- ii) What is the gross-margin percentage of the chocolate powder and milk-chocolate liquor bases under each of the methods in requirements (i)?
- iii) Could Pokemon have increased its operating income by a change in its decision to fully process both of its intermediate products? Show your computations.

STUDY MAT, PYQ NOV 2004

Q.12

ABC Ltd. operates a simple chemical process to convert a single material into three separate items, referred to here as X, Y and Z. All three end products are separated simultaneously at a single split-off point.

NB

PN

Products X and Y are ready for sale immediately upon splitoff without further processing or any other additional costs. Product Z, however, is processed further before being sold. There is no available market price for Z at the split-off point.

The selling prices quoted here are expected to remain the same in the coming year. During 2002-03, the selling prices of the items and the total amounts sold were :

X – 186 tons sold for Rs. 1,500 per ton

Y – 527 tons sold for Rs. 1,125 per ton

Z – 736 tons sold for Rs. 750 per ton

The total joints manufacturing costs for the year were Rs. 6,25,000. An additional Rs. 3,10,000 was spent to finish product Z.

There were no opening inventories of X, Y or Z. At the end of the year, the following of complete units were on hand :

X 180 tons

Y 60 tons

Z 25 tons

There was no opening or closing work-in-progress.

Required

- (i) Compute the cost of inventories of X, Y and Z for Balance Sheet purposes and cost of goods sold for income statement purpose as March 31, 2003, using :
 - (a) Net realizable value (NRV) method of joint cost allocation.
 - (b) Constant gross-margin percentage NRV method of joint-cost allocation.
- (ii) Compare the gross-margin percentages for X, Y and Z using two methods given in requirement (i).

PYQ MAY 2007

- Q.13** Three joint products are produced by passing chemicals through two consecutive processes. Output from process 1 is transferred to process 2 from which the three joint products are produced and immediately sold. The data regarding the processes for April, 2014 is given below:

NB
PN

	Process 1	Process 2
Direct material 2,500 kg. @ ₹ 4 per kg.	₹ 10,000	–
Direct labour	₹ 6,250	₹ 6,900
Overheads	₹ 4,500	₹ 6,900
Normal Loss	10% of input	–
Scrap value of loss	₹ 2 per kg.	–
Output	2,300 kg.	Joint products
		A – 900 kg.
		B – 800 kg.
		C – 600 kg.

There were no opening or closing stocks in either process, and the selling prices of the output from process 2 were:

Joint product A	₹ 24 per kg.
Joint product B	₹ 18 per kg.
Joint product C	₹ 12 per kg.

Required:

- Prepare an account for process 1 together with any Loss or Gain Accounts you consider necessary to record the month's activities.
- Calculate the profit attributable to each of the joint products by apportioning the total costs from process 2
 - According to weight of output;
 - By the market value of production.

RTP MAY 2007

By Products

Q.14 A Company manufactures one main product (M1) and two by-products B1 and B2. For the month of January 2013, following details are available:

Total Cost up to separation Point ₹ 2,12,400

NB		M1	B1	B2
PN	Cost after separation	-	₹ 35,000	₹ 24,000
	No. of units produced	4,000	1,800	3,000
	Selling price per unit	₹ 100	₹ 40	₹ 30
	Estimated net profit as percentage to sales Value	-	20%	30%
	Estimated selling expenses as percentage to sales value	20%	15%	15%

There are no beginning or closing inventories. Prepare statement showing:

- Allocation of joint cost; and
- Product-wise and overall profitability of the company for January 2013.

SIM MTP 1 SEP 2024

Q.15 A Factory is engaged in the production of chemical Bomex and in the course of its manufacture a by-product Cromex is produced which after further processing has a commercial value. For the month of April 2019 the following are the summarised cost data:

NB		Joint Expenses (₹)	Separate Expenses (₹)	
PN			Bomex	Cromex
	Materials	1,00,000	6,000	4,000
	Labour	50,000	20,000	18,000
	Overheads	30,000	10,000	6,000
	Selling Price per unit		100	40
	Estimated profit per unit on sale of Cromex			5
	Number of units produced		2,000 units	2,000 units

The factory uses net realisable value method for apportionment of joint cost to by-products.

You are required to prepare statements showing :

- Joint cost allocable to Cromex
- Product wise and overall profitability of the factory for April 2019.

PYQ MAY 2019

Additional Questions

Q.16

NB

PN

ABC Company produces a Product 'X' that passes through three processes: R, S and T. Three types of raw materials, viz., J, K, and L are used in the ratio of 40:40:20 in process R. The output of each process is transferred to next process. Process loss is 10% of total input in each process. At the stage of output in process T, a by-product 'Z' is emerging and the ratio of the main product 'X' to the by-product 'Z' is 80:20. The selling price of product 'X' is ₹60 per kg.

The company produced 14,580 kgs of product 'X'

Material price : Material J @ ₹ 15 per kg; Material K @ ₹ 9 per kg.

Material L @ ₹ 7 per kg Process costs are as follows:

Process	Variable cost per kg (₹)	Fixed cost of Input (₹)
R	5.00	42,000
S	4.50	5,000
T	3.40	4,800

The by-product 'Z' cannot be processed further and can be sold at ₹ 30 per kg at the splitoff stage. There is no realizable value of process losses at any stage.

Required:

Present a statement showing the apportionment of joint costs on the basis of the sales

value of product 'X' and by-product 'Z' at the split- off point and the profitability of product X' and by-product 'Z'.

PYQ MAY 2023

Q.17

NB

PN

A factory producing article A also produces a by-product B which is further processed into finished product. The joint cost of manufacture is given below:

Material	₹ 5,000
Labour	₹ 3,000
Overhead	₹ 2,000
	<u>₹ 10,000</u>

	A	B
Material	3,000	1,500
Labour	1,400	1,000
Overhead	600	500
	5,000	3,000

Selling prices are A ₹ 16,000
 B ₹ 8,000

Estimated profit on selling prices is 25% for A and 20% for B.

Assume that selling and distribution expenses are in proportion of sales prices. Show how you would apportion joint costs of manufacture and prepare a statement showing cost of production of A and B.

RTP NOV 2023

- Q.18** XYZ Limited manufactures three joint products A, B and C from a joint process. Product B is sold at split off point whereas product A and C are sold after further processing. 10% of the quantity of product A is lost in further processing. Data regarding these products for the year ending 31st March, 2023 are as follows:

NB

PN

	A	B	C
Number of units produced and sold	3,60,000	2,10,000	4,50,000
Selling price per unit at split off point	-	₹ 6	-
Selling price per unit after further processing	₹ 9.50	-	₹ 12
Further processing costs	₹8,60,000	-	₹10,40,000

The joint production cost upto the split off point at which A, B and C become separable products is ₹ 57,26,000.

Required:

- Prepare a statement showing apportionment of joint cost to the products using Net realizable value method.
- Assume XYZ Limited has received an offer from D Limited to purchase product 'A' at the split off point at ₹ 7 per unit and another company PQR Limited has offered to purchase product 'C' at split off point at 9 per unit.

Advise whether these offers should be accepted or not?

PYQ NOV 2023

- Q.19** JP Ltd. uses joint production process that produces three products at the split -off point. Joint production costs during the month of July, 2022 were ₹ 33,60,000.

Product information for the month of July is as follows:

NB

PN

Particulars	Product A	Product B	Product C
Units produced	3,000	6,000	9,000
Sales prices:			
At the split-off	₹ 200		
After further processing	₹ 300	₹ 350	₹ 100
Costs to process after split-off	₹ 6,00,000	₹ 6,00,000	₹ 6,00,000

Other information is as follows:

Product C is a by-product and the company accounts for the by-product at net realizable value as a reduction of joint cost. Further, Product B & C must be processed further before they can be sold. FIND OUT the joint cost allocated to Product A in the month of July if joint cost allocation is based on Net Realizable Value.

RTP NOV 2022

Q.20 Three products X, Y and Z alongwith a byproduct B are obtained again in a crude state which require further processing at a cost of ₹ 5 for X; ₹ 4 for Y; and ₹ 2.50 for Z per unit before sale. The byproduct is however saleable as such to a nearby factory. The selling prices for the three main products and byproduct, assuming they should yield a net margin of 25 percent of cost, are fixed at ₹ 13.75 ₹ 8.75 and ₹ 7.50 and ₹ 1.00 respectively – all per unit quantity sold.

NB

PN

During a period, the joint input cost including the material cost was ₹ 90,800 and the respective outputs were:

X	8,000 units
Y	6,000 units
Z	4,000 units
B	1,000 units

By product should be credited to the joint cost and only the net joint costs are to be allocated to the main products.

CALCULATE the joint cost per unit of each product and the margin available as a percentage on cost.

MTP 1 AUG 2018

Progress Sheet

	Class Work	1 st Practice	2 nd Practice		Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐	Question 11	☐	☐	☐
Question 2	☐	☐	☐	Question 12	☐	☐	☐
Question 3	☐	☐	☐	Question 13	☐	☐	☐
Question 4	☐	☐	☐	Question 14	☐	☐	☐
Question 5	☐	☐	☐	Question 15	☐	☐	☐
Question 6	☐	☐	☐	Question 16	☐	☐	☐
Question 7	☐	☐	☐	Question 17	☐	☐	☐
Question 8	☐	☐	☐	Question 18	☐	☐	☐
Question 9	☐	☐	☐	Question 19	☐	☐	☐
Question 10	☐	☐	☐	Question 20	☐	☐	☐

12

**SERVICE
COSTING**

Basic Questions

Q.1 A company has the following three alternative proposals for conveyance facilities for its sales personnel who has to do substantial traveling, approximately 20,000 kilometers yearly:

NB
PN

- (i) Purchasing and maintaining its own fleet of cars. The average cost of a car is ₹ 7,20,000
- (ii) Allow the Executive to use their own car and reimburse the expenses @ ₹ 12 per kilometer and also bear insurance costs.
- (iii) Hire cars from an agency at ₹ 2,16,000 per year per car. The company will have to bear costs of petrol, taxes and tyres.

The following further details are available:

Petrol	₹ 7.20 per km.
Tyre	₹ 0.144 per km.
Taxes	₹ 960 per car per annum
Repairs and maintenance	₹ 0.24 per km.
Insurance	₹ 1,440 per car per annum
Life of the car	5 years with annual mileage of 20,000 km.
Resale value	₹ 96,000 at the end of the fifth year.

WORK OUT the relative costs of three proposals and rank them.

MTP1 NOV 2022

Q.2 PREPARE cost statement of Panipat Thermal Power Station showing the cost of electricity generated per kwh, from the following data.

NB
PN

Total units generated	16,50,000 kWh
	(₹)
Operating labour	21,75,000
Repairs & maintenance	7,25,000
Lubricants, spares and stores	5,80,000
Plant supervision	4,35,000
Administration overheads	29,00,000
Insurance Charges	15,00,000
Fuel Charges	8,00,000

7 kWh. of electricity generated per kg. of coal consumed @ ₹4.75 per kg. Depreciation charges @ 5% on capital cost of ₹ 3,10,00,000.

RTP MAY 2023

Q.3 Star Airlines operates a single aircraft of 180 seats capacity between city 'ND' and 'GA'. The average normal occupancy is estimated at 70% per flight. The average one-way fare is ₹ 12,500 from city 'ND' to 'GA'. The costs of operation of the flight as collected by an expert analyst are:

NB

PN

Fuel cost (Variable) per flight from 'ND' to 'GA'	₹ 2,28,000 per flight
Food served on flight from 'ND' to 'GA' (no charge to passenger)	₹ 270 per passenger
Commission paid to Travel Agents (All ticket booking through agents)	7.5% of fare
Fixed costs:	
Lease & landing charges per flight 'ND' to 'GA'	₹ 9,12,000
Salaries of flight crew per flight 'ND' to 'GA'	₹ 90,000

Note: Assume that fuel costs are unaffected by the actual number of passengers on a flight.

You are required to:

- Calculate the net operating income that Star Airlines makes per flight from 'ND' to 'GA'.
- Star Airlines expects that its occupancy will increase to 144 passengers per flight if the fare is reduced to ₹ 11,670. Advise whether this proposal should be implemented or not.

PYQ MAY 2024

Road Travel/Transport Service

Q.4 You have been given a permit to run a bus on a route of 20 km. long. The bus costs you ₹ 9,00,000. It has to be insured @ 3% p.a. and the annual tax will be ₹ 10,000. Garage rent is ₹ 10,000 p.m. Annual repairs will be ₹ 10,000 and the bus is likely to last for 5 years and at the end of which the scrap value is likely to be ₹ 60,000.

NB

PN

The driver's salary will be ₹ 1,500 p.m. and the conductor's ₹ 1,000 together with 10% of the takings as commission (to be shared equally by both). Stationery will cost ₹ 500 p.m. The manager- cum- accountant's salary will be ₹ 3,500 p.m.

Diesel and oil be ₹ 450 per hundred kilometres. The bus will make 3 round trips for carrying on the average 40 passengers on each trip. Assuming 15% profit on takings, calculate the bus fare to be charged from each passenger. The bus will work on the average 25 days in a month.

PYQ MAY 2005

- Q.5** A transport company has been given a 40 kilometre long route to run 5 buses. The cost of each bus is ₹ 6,50,000. The buses will make 3 round trips per day carrying on an average 80 percent passengers of their seating capacity. The seating capacity of each bus is 40 passengers. The buses will run on an average 25 days in a month. The other information for the year 2010-11 are given below:

NB

PN

Garage rent	₹ 4,000 p.m
Annual repairs and maintenance	₹ 22,500 each bus p.m.
Salaries of 5 drivers	₹ 3,000 each p.m
Wages of 5 conductors	₹ 1,200 each p.m.
Manager's salary	₹ 7,500 each p.m.
Road tax., permit fee, etc.	₹ 5,000 for quarter
Office expenses	₹ 2,000 p.m
Cost of diesel per litre	₹ 33
Kilometre run per litre for each bus	6 kilometres
Annual depreciation	15% of cost
Annual Insurance	3% of cost

You are required to calculate the bus fare to be charged from each passenger per kilometer company wants to earn a profit of 33.333% percent on takings.

PYQ MAY 2010, PYQ JULY 2021

- Q.6** The following information relates to a bus operator:

NB

PN

	Amount (₹)
Cost of the bus	18,00,000
Insurance Charges	3% p. a
Manager-cum-accountant's salary	8,000p.m.
Annual Tax	50,000
Garage Rent	2,500p.m.
Annual repair & maintenance	1,50,000
Expected life of the bus	15 years
Scrap value at the end of 15years	1,20,000
Driver's salary	15,000p.m.
Conductor's salary	12,000p.m.
Stationery	500p.m.
Engine oil, lubricants (for 1200km.)	2,500
Diesel and oil (for 10km.)	52
Commission to driver and conductor (shared equally)	10% of collections
Route distance	20 km long

The bus will make 3 round trips for carrying on the average 40 passengers in each trip. Assume 15% profit on collections. The bus will work on the average 25 days in a month. Calculate fare for passenger-km

PYQ NOV 2013

Q.7

A mini-bus, having a capacity of 32 passengers, operates between two places - 'A' and 'B'. The distance between the place 'A' and place 'B' is 30 km. The bus makes 10 round trips in a day for 25 days in a month. On an average, the occupancy ratio is 70% and is expected throughout the year.

NB

PN

The details of other expenses are as under:

	Amount (₹)
Insurance	15,600 Per annum
Garage Rent	2,400 Per quarter
Road Tax	5,000 Per annum
Repairs	4,800 Per quarter
Salary of operating staff	7,200 Per month
Tyres and Tubes	3,600 Per quarter.
Diesel: (one litre is consumed for every 5km)	13 Per litre
Oil and Sundries	22 Per 100 km run
Depreciation	68,000 Per annum

Passenger tax @ 22% on total taking is to be levied and bus operator requires a profit of 25% on total taking.

Prepare operating cost statement on the annual basis and find out the cost per passenger kilometer and one way fare per passenger.

PYQ MAY 2015

Q.8 Mr. X owns a bus which runs according to the following schedule:

NB	i) Delhi to Chandigarh and back, the same day.	
PN	Distance covered:	250 km. One Way
	Number of days run each month:	8
	Seating capacity occupied	90%.
	ii) Delhi to Agra and back, the same day.	
	Distance covered:	210 km. One Way
	Number of days run each month:	10
	Seating capacity occupied	85%
	iii) Delhi to Jaipur and back, the same day	
	Distance covered:	270 km. One Way
	Number of days run each month	6
	Seating capacity occupied	100%
	iv) Following are the other details:	
	Cost of the bus	₹ 12,00,000
	Salary of the Driver	₹ 24,000p.m.
	Salary of the Conductor	₹ 21,000p.m.
	Salary of the part-time Accountant	₹ 5,000p.m.
	Insurance of the bus	₹ 4,800p.a.
	Diesel consumption 4 km. per litre at	₹ 56 per litre
	Road tax	₹ 15,915p.a.
	Lubricant oil	₹ 10 per 100km
	Permit fee	₹ 315p.m
	Repairs and maintenance	₹ 1,000p.m
	Depreciation of the bus	@ 20%p.a.
	Seating capacity of the bus	50 persons.

Passenger tax is 20% of the total takings. Calculate the bus fare to be charged from each passenger to earn a profit of 30% on total takings. The fares are to be indicated per passenger for the journeys:

- Delhi to Chandigarh
- Delhi to Agra and
- Delhi to Jaipur.

STUDY MAT, RTP MAY 2008

Q.9

NB

PN

A transport company has a fleet of three trucks of 10 tonnes capacity each plying in different directions for transport of customer's goods. The trucks run loaded with goods and return empty. The distance travelled, number of trips made and the load carried per day by each truck are as under:

Truck No.	One way Distance Km	No. of trips Per day	Load carried Per trip/ day tonnes
1	16	4	6
2	40	2	9
3	30	3	8

The analysis of maintenance cost and the total distance travelled during the last two years is as under:

Year	Total distance travelled	Maintenance Cost*
1	1,60,200	46,050
2	1,56,700	45,175

The following are the details of expenses for the year under review:

Diesel	₹ 10 per litre. Each litre gives 4 km per litre of diesel on an average
Driver's salary	₹ 2,000 per month
License and taxes	₹ 5,000 per annum per truck
Insurance	₹ 5,000 per annum for all the three vehicles
Purchase Price per truck	₹ 3,00,000, Life 10 years. Scrap value at the end of life is ₹ 10,000
Oil and Sundries	₹ 25 per 100 km run
General Overhead	₹ 11,084 per annum

The vehicles operate 24 days per month on an average.

Required

- Prepare an Annual Cost Statement covering the fleet of three vehicles.
- Calculate the cost per km. run.
- Determine the freight rate per tonne km. to yield a profit of 10% on freight.

MTP 1 NOV 2023

Q.10 A transport company has 20 vehicles, which capacities are as follows:

No. of Vehicles	Capacity per vehicle
5	9 tonne
6	12 tonne
7	15 tonne
2	20 tonne

NB

PN

The company provides the goods transport service between stations 'A' to station 'B'. Distance between these stations is 200 kilometres. Each vehicle makes one round trip per day an average. Vehicles are loaded with an average of 90 percent of capacity at the time of departure from station 'A' to station 'B' and at the time of return back loaded with 70 percent of capacity. 10 percent of vehicles are laid up for repairs every day. The following information are related to the month of October, 2013

Salary of Transport Manager	₹ 30,000
Salary of 30 drivers	₹ 4,000 each driver
Wages of 25 Helpers	₹ 2,000 each helper
Wages of 20 Labourers	₹ 1,500 each labourer
Consumable stores	₹ 45,000
Insurance (Annual)	₹ 24,000
Road Licence (Annual)	₹ 60,000
Cost of Diesel per litre	₹ 35
Kilometres run per litre each vehicle	5 km.
Lubricant, Oil etc.	₹ 23,500
Cost of replacement of Tyres, Tubes, other parts etc.	₹ 1,25,000
Garage rent (Annual)	₹ 90,000
Transport Technical Service Charges	₹ 10,000
Electricity and Gas charges	₹ 5,000
Depreciation of vehicles	₹ 2,00,000

There is a workshop attached to transport department which repairs these vehicles and other vehicles also. 40 percent of transport manager's salary is debited to the workshop. The transport department is charged ₹ 28,000 for the service rendered by the workshop during October, 2013. During the month of October, 2013 operation was 25 days.

You are required:

- Calculate per ton-km operating cost.
- Find out the freight to be charged per ton-km, if the company earned a profit of 25 per cent on freight.

RTP MAY 2005

- Q.11** A Mineral is transported from two mines – 'A' and 'B' and unloaded at plots in a Railway Station. Mine A is at a distance of 10km.,and B is at a distance of 15km.from rail head plots. A fleet of lorries of 5 tonne carrying capacity is used for the transport of mineral from the mines. Records reveal that the lorries average a speed of 30 km. per hour, when running and regularly take 10 minutes to unload at the rail head. At mine 'A' loading time averages 30 minutes per load while at mine 'B' loading time averages 20 minutes per load.

Drivers 'wages, depreciation, insurance and taxes are found to cost ₹ 9 per hour operated. Fuel, oil, tyres, repairs and maintenance cost ₹ 1.20 per km.

Draw up a statement, showing the cost per tonne-kilometer of carrying mineral from each mine.

PYQ NOV 2006

- Q.12** Voyager Cabs Pvt. Ltd. is a New Delhi based cab renting company, provides cab facility on rent for cities Delhi, Agra and Jaipur to the tourists. To attract more tourists it has launched a new three days tour package for Delhi-Jaipur-Agra-Delhi. Following are the relevant information regarding the package:

NB	Distance between Delhi to Jaipur (Km.)	274
PN	Distance between Delhi to Agra (Km.)	242
	Distance between Agra to Jaipur (Km.)	238
	Price of Diesel in Delhi	₹ 54 per litre
	Price of Diesel in Jaipur	₹ 56 per litre
	Price of Diesel in Agra	₹ 58 per litre
	Mileage of cab per litre of diesel(Km.)	16
	Chauffeur's salary	₹ 12,000 per month
	Cost of the cab	₹ 12,00,000
	Expected life of the cab	24,00,000kms.
	Servicing cost	₹ 30,000 after every 50,000 kms. run
	Chauffeur's meal allowance	₹ 50 for every 200 kilometres of completed journey
	Other set up and office cost	₹ 24,000 per month

Voyager Cabs has made tie-up with fuel service centres at Agra, Jaipur and Delhi to fill diesel to its cabs on production of fuel pass book to the fuel centre. Company has a policy to get fuel filled up sufficient to reach next destination only.

You are required to calculate the price inclusive of GST @ 18% to be quoted for the package if company wants to earn profit of 25% on its net takings i.e. excluding GST.

RTP MAY 2014

- Q.13** Gopal Milk Co-Operative Society (GMCS) collects raw milk from the farmers of Ramgarh, Pratapgarh and Devgarh panchayats and processes these milk to make various dairy products. GMCS has its own vehicles (tankers) to collect and bring the milk to the processing plant. Vehicles are parked in the GMCS's garage situated within the plant compound. Following are the some information related with the vehicles:

NB

PN

	Ramgarh	Pratapgarh	Davgarh
No. of vehicles assigned	4	3	5
No. of trips a day	3	2	2
One way distance from the processing plant	24km.	34km.	16km.
Toll tax paid p.m.(`)	2,850	3,020	-

All the 5 vehicles assigned to Devgarh panchayat, were purchased five years back at a cost of ₹ 9,25,000 each .The 4 vehicles assigned to Ramgarh panchayat, were purchased two years back at a cost of ₹ 11,02,000 each and the remaining vehicles assigned to Pratapgarh were purchased last year at a cost of ₹ 13,12,000 each. With the purchase of each vehicles two years free servicing warranty is provided. A vehicle gives 10 kmpl mileage in the first two year of purchase, 8 kmpl in next two years and 6 kmpl afterwards. The vehicles are subject to depreciation of 10% p.a. on straight line basis irrespective of usage. A vehicle has the capacity to carry 25,000 litres of milk but on an average only 70% of the total capacity is utilized.

The following expenditure is related with the vehicles:

Salary of Driver (a driver for each vehicle)	₹ 18,000p.m.
Salary to Cleaner (a cleaner for each vehicle)	₹ 11,000p.m.
Allocated garage parking fee	₹ 1,350 per vehicle per month
Servicing cost	₹ 3,000 for every complete 5,000 k.m. run.
Price of diesel per litre	₹ 58.00

From the above information you are required to calculate

- Total operating cost per month for each vehicle. (Take 30 days for the month)
- Vehicle operating cost per litre of milk.

RTP MAY 2007

- Q.14** SMC is a public school having five buses each plying in different directions for the transport of its school students. In view of a larger number of students availing of the bus service the buses work two shifts daily both in the morning and in the afternoon. The buses are garaged in the school. The work-load of the students has been so arranged that in the morning the first trip picks up senior students and the second trip plying an hour later picks up the junior students. Similarly in the afternoon the first trip takes the junior students and an hour later the second trip takes the senior students home.

The distance travelled by each bus one way is 8 km. The school works 25 days in a month and remains closed for vacation in May, June and December. Bus fee, however, is payable by the students for all 12 months in a year.

The details of expenses for a year are as under:

	Amount (₹)
Driver's salary	4,500 per month per driver
Cleaner's salary	3,500 per month
(one cleaner employed for all the five buses)	
(Salary payable for all 12 months)	
Licence fee, taxes, etc.	8,600 per bus per annum
Insurance	10,000 per bus per annum
Repairs & maintenance	35,000 per bus per annum
Purchase price of the bus	15,00,000 each
Life of each bus	12 years
Scrap value of buses at the end of life	3,00,000
Diesel cost	45.00 per litre

Each bus gives an average mileage of 4km. per litre of diesel. Seating capacity of each bus is 50 students. The seating capacity is fully occupied during the whole year. Students picked up and dropped within arrange upto 4km.of distance from the school are charged half fare and fifty per cent of the students travelling in each trip are in this category.

Ignore interest. Since the charges are to be based on average cost you are required to:

- Prepare a statement showing the expenses of operating a single bus and the fleet of five buses for a year.
- Work out the average cost per student per month in respect of-
 - students coming from a distance of upto 4 km. from the school and
 - students coming from a distance beyond 4 km. from the school.

STUDY MAT

Q.15

Paras Travels provides mini buses to an IT company for carrying its employees from home to office and dropping back after office hours. It runs a fleet of 8 mini buses for this purpose. The buses are parked in a garage adjoining the company's premises. Company is operating in two shifts (one shift in the morning and one shift in the afternoon). The distance travelled by each mini bus one way is 30 kms. The company works for 20 days in a month.

The seating capacity of each mini bus is 30 persons. The seating capacity is normally 80% occupied during the year. The details of expenses incurred for a year are as under:

Particulars	Amount (₹)
Driver's salary	₹ 20,000 per driver per month
Lady attendant's salary (mandatorily required for each mini bus)	₹ 10,000 per attendant per month
Cleaner's salary (One cleaner for 2 mini buses)	₹ 15,000 per cleaner per month
Diesel (Avg. 8 kms per litre)	₹ 80 per litre
Insurance charges (per annum)	2% of Purchase Price
License fees and taxes	₹ 5,080 per mini bus per month
Garage rent paid	₹ 24,000 per month
Repair & maintenance including engine oil and lubricants (for every 5,760 kms)	₹ 2,856 per mini bus
Purchase Price of mini bus	₹ 15,00,000 each
Residual life of mini bus	8 Years
Scrap value per mini bus at the end of residual life	₹ 3,00,000

Paras Travels charges two types of fare from the employees. Employees coming from a distance of beyond 15 kms away from the office are charged double the fare which is charged from employees coming from a distance of up-to 15 kms. away from the office. 50% of employees travelling in each trip are coming from a distance beyond 15 kms. from the office. The charges are to be based on average cost.

You are required to:

- Prepare a statement showing expenses of operating a single mini bus for a year,
- Calculate the average cost per employee per month in respect of:
 - Employees coming from a distance upto 15 kms. from the office.
 - Employees coming from a distance beyond 15 kms. from the office.

PYQ DEC 2021

- Q.16** Global Transport Ltd. charges ₹ 90 per ton for its 6 - tonnes truck lorry load from city 'A' to city 'B'. The charges for the return journey are ₹ 84 per ton. No concession or reduction in these rates is made for any delivery of goods at intermediate station 'C'. In January 2012, the truck made 12 outward journeys for city 'B' with full load out of which 2 tons were unloaded twice in the way at city 'C'. The truck carried a load of 8 tonnes in its return journey for 5 times but was once caught by police and ₹ 1,200 was paid as fine. For the remaining trips the truck carried full load out of which all the goods on load were unloaded once at city 'C', but it returned without any load once only from 'C' station to 'A' station. The distance from city 'A' to city 'C' and city 'B' are 140 km. and 300 km. respectively. Annual fixed costs and maintenance charges are ₹ 60,000 and ₹ 12,000 respectively. Running charges spent during January 2012 are ₹ 2,944.

You are required to find out the cost per absolute tonne-kilometre and the profit for January, 2012.

RTP MAY 2012

- Q.17** Chiku Transport Service is a Delhi based national goods transport service provider, owning four trucks for this purpose. The cost of running and maintaining these trucks are as follows:

Particulars	Amount
Diesel cost	₹ 19.20 per km.
Engine oil	₹ 4,200 for every 13,000 km.
Repair and maintenance	₹ 36,000 for every 10,000 km.
Driver's salary	₹ 24,000 per truck per month
Cleaner's salary	₹ 15,000 per truck per month
Supervision and other general expenses	₹ 14,000 per month
Cost of loading of goods	₹ 180 per Metric Ton (MT)

All four trucks were purchased for ₹ 30 lakhs with an estimated life of 7,20,000 km each. During the next month, it is expecting 6 bookings, the details are as follows:

St. No.	Journey	Distance in km	Weight-up (in MT)	Weight-Down (in MT)
1.	Delhi to Kochi	2,700	14	6
2.	Delhi to Guwahati	1,890	12	0
3.	Delhi to Vijayawada	1,840	15	0
4.	Delhi to Varanasi	815	10	0
5.	Delhi to Asansol	1,280	12	4
6.	Delhi to Chennai	2,185	10	8
	Total	10,710	73	18

Required

- Calculate the total absolute Ton-km for the vehicles.
- Calculate the cost per ton-km.

MTP 1 MAY 2024

- Q.18** A lorry starts with a load of 24 tonnes of goods from station A. It unloads 10 tonnes at station B and rest of goods at station C. It reaches back directly to station A after getting reloaded with 18 tonnes of good sat station C. The distance between A to B, B to C and then from C to A are 270 kms, 150 kms and 325kms respectively. Compute 'Absolute tonnes kms' and 'Commercial tonnes- kms'.

NB

PN

STUDY MAT, PYQ MAY 2009, RTP MAY 2008

Hotel Services

- Q.19** A company runs a holiday home. For this purpose, it has hired a building at a rent of ₹ 10,000 per month along with 5% of total taking. It has three types of suites for its customers, viz., single room, double rooms and triple rooms.

NB

PN

Following information is given:

Type of suite	Number	Occupancy percentage
Single room	100	100%
Double rooms	50	80%
Triple rooms	30	60%

The rent of double rooms suite is to be fixed at 2.5 times of the single room suite and that of triple rooms suite as twice of the double rooms suite.

The other expenses for the year 2013 are as follows:

	(₹)
Staff salaries	14,25,000
Room attendants' wages	4,50,000
Lighting, heating and power	2,15,000
Repairs and renovation	1,23,500
Laundry charges	80,500
Interior decoration	74,000
Sundries	1,53,000

Provide profit @ 20% on total taking and assume 360 days in a year.

You are required to calculate the rent to be charged for each type of suite.

STUDY MAT, RTP MAY 2019

- Q.20** P Holiday Resorts offers three types of rooms to its guests, viz deluxe room, super deluxe room and luxury suite. You are required to ascertain the tariff to be charged to the customers for different types of rooms on the basis of following information:

NB	Type of Room	Number of Rooms	Occupancy
PN	Deluxe Room	100	90%
	Super Deluxe Room	60	75%
	Luxury Suite	40	60%

Rent of 'super deluxe' room is to be fixed at 2 times of 'deluxe room' and that of 'luxury suite' is 3 times of 'deluxe room'. Annual expenses are as follows:

Particulars	Amount (₹ in lakhs)
Staff salaries	680.00
Lighting, Heating and Power	300.00
Repairs, Maintenance and Renovation	180.00
Linen	30.00
Laundry charges	24.00
Interior decoration	75.00
Sundries	30.28

An attendant for each room was provided when the room was occupied and he was paid ₹ 500 per day towards wages. Further, depreciation is to be provided on building @ 5% on ₹ 900 lakhs, furniture and fixtures @ 10% on ₹ 90 lakhs and air conditioners @ 10% on ₹ 75 lakhs.

Profit is to be provided @ 25% on total taking and assume 360 days in a year.

RTP MAY 2023

- Q.21** A hotel is being run in a Hill station with 200 single rooms. The hotel offers concessional rates during six off-season (winter) months in a year.

During this period, half of the full room rent is charged. The management's profit margin is targeted at 20% of the room rent. The following are the cost estimates and other details for the year ending 31st March, 2021:

- Occupancy during the season is 80% while in the off-season it is 40%.
- Total investment in the hotel is ₹ 300 lakhs of which 80% relates to Buildings and the balance to Furniture and other Equipment.
- Room attendants are paid ₹ 15 per room per day on the basis of occupancy of rooms in a month.
- Expenses :
 - Staff salary (excluding that of room attendants) ₹ 8,00,000
 - Repairs to Buildings ₹ 3,00,000
 - Laundry Charges ₹ 1,40,000

- Interior Charges ₹ 2,50,000
- Miscellaneous Expenses ₹ 2,00,200

(v) Annual Depreciation is to be provided on Buildings @ 5% and 15% on Furniture and other Equipments on straight line method.

(vi) Monthly lighting charges are ₹ 110 per room, except in four months in winter when it is ₹ 30 per room and this cost is on the basis of full occupancy for a month.

You are REQUIRED to workout the room rent chargeable per day both during the season and the off-season months using the foregoing information.

(Assume a month to be of 30 days and winter season to be considered as part of off-season).

PYQ NOV 2019, MTP 1 NOV 2021

Q.22 Following are the information given by owner of M/s. Moonlight Co. running a hotel at Manali. You are requested to advise him regarding the rent to be charged from his customer per day so that he is able to earn 20% profit on cost other than interest.

NB

PN

- Staff salaries ₹ 4,00,000.
- The Room Attendant's salary is ₹ 10 per day. The salary is paid on daily basis and the services of room attendant are needed only when the room is occupied. There is one room attendant for one room.
- Lighting, Heating and Power:
 - The normal lighting expenses for a room if it is occupied for the whole month is ₹ 250.
 - Power is used only in winter and normal charge per month if occupied for a room is ₹ 100.
- Repairs to Building ₹ 50,000 per annum.
- Linen ect. ₹ 24,000 per annum.
- Sundries ₹ 70,770 per annum.
- Interior decoration and furnishing ₹ 50,000 per annum.
- Cost of Building ₹ 20,00,000, rate of depreciation 5%.
- Other Equipments ₹ 5,00,000, rate of depreciation 10%.
- Interest @ 5% may be charged on its investment of ₹ 25,00,000 in the building and equipment.
- There are 200 rooms in the hotel and 90% of the rooms are normally occupied in summer and 40% of the rooms are occupied in winter. You may assume that period of summer and winter is six months each. Normal days in a month may be assumed to be 30.

PYQ MAY 2019

Other Services

Q.23 Following are the data pertaining to Infotech Pvt. Ltd, for the year 2022-23:

NB	PN	Amount (₹)	
		Salary to Software Engineers (5 persons)	15,00,000
		Salary to Project Leaders (2 persons)	9,00,000
		Salary to Project Manager	6,00,000
		Repairs & maintenance	3,00,000
		Administration overheads	12,00,000

The company executes a Project XYZ, the details of the same as are as follows:
Project duration – 6 months

One Project Leader and three Software Engineers were involved for the entire duration of the project, whereas Project Manager spends 2 months' efforts, during the execution of the project.

Travel expenses incurred for the project – ₹ 1,87,500

Two Laptops were purchased at a cost of ₹ 50,000 each, for use in the project and the life of the same is estimated to be 2 years

PREPARE Project cost sheet.

STUDY MAT

Q.24 Sanziet Life care Ltd. Operates in life insurance business. Last year it has launched a new term Insurance policy for practicing professionals 'Professionals Protection Plus'. The company has Incurred the following expenditures during the last year for the policy:

NB	PN		
		Policy development cost	₹ 11,25,000
		Cost of marketing of the policy	₹ 45,20,000
		Sales support expenses	₹ 11,45,000
		Policy issuance cost	₹ 10,05,900
		Policy serving cost	₹ 35,20,700
		Claims management cost	₹ 1,25,600
		IT cost	₹ 74,32,000
		Postage and logistics	₹ 10,25,000

Facilities cost	₹ 15,24,000
Employees cost	₹ 5,60,000
Office administration cost	₹ 16,20,400

Number of policy sold-528

Total insured value of policies- ₹ 1,320 crore

Required:

- (i) CALCULATE total cost for Professionals Protection Plus' policy segregating the costs Into Four main activities namely
 - (a) Marketing and Sales support,
 - (b) Operations,
 - (c) IT
 - (d) Support functions.
- (ii) CALCULATE cost per policy.
- (iii) CALCULATE cost per rupee of insured value.

STUDY MAT

Q.25 MRSL Healthcare Ltd. has incurred the following expenditure during the last year for its newly launched 'COVID-19' Insurance policy:

NB	Office administration cost	48,00,000
PN	Claim management cost	3,80,000
	Employees cost	16,20,000
	Postage and logistics	32,40,000
	Policy issuance cost	29,50,000
	Facilities cost	46,75,000
	Cost of marketing of the policy	1,38,90,000
	Policy development cost	35,00,000
	Policy servicing cost	96,45,000
	Sales support expenses	32,00,000
	I.T. Cost	?

Number of Policy sold: 2,800

Total insured value of policies - ₹ 3,500 Crores Cost per rupee of insured value - ₹0.002

You are required to:

- (i) Calculate Total Cost for "COVID-19" Insurance policy segregating the costs into four main activities namely (a) Marketing and Sales support (b) Operations (c) I.T. Cost and (d) Support functions.
- (ii) Calculate Cost Per Policy.

PYQ JULY 2021

Q.26 SEZ Ltd. built a 120 km. long highway and now operates a toll road to collect tolls. The company has invested ₹ 900 crore to build the road and has estimated that a total of 120 crore vehicles will be using the highway during the 10 years toll collection tenure. The other costs for the month of "June 2020" are as follows:

NB

PN

(i) Salary:

- Collection personnel (3 shifts and 5 persons per shift) - ₹ 200 per day per person.
- Supervisor (3 shifts and 2 persons per shift) - ₹ 350 per day per person.
- Security personnel (2 shifts and 2 persons per shift) - ₹ 200 per day per person.
- Toll Booth Manager (3 shifts and 1 person per shift) - ₹ 500 per day per person.

(ii) Electricity - ₹ 1,50,000

(iii) Telephone - ₹ 1,00,000

(iv) Maintenance cost - ₹ 50 lakhs

(v) The company needs 30% profit over total cost. Required:

(1) Calculate cost per kilometre.

(2) Calculate the toll rate per vehicle.

PYQ NOV 2020

Q.27 BK Infra Ltd. built and operates a 110 k.m. long highway on the basis of Built-Operate-Transfer (BOT) model for a period of 25 year. A traffic assessment has been carried out to estimate the traffic flow per day. The details are as below:

NB

PN

Sl. No.	Type of vehicle	Daily traffic volume
1.	Two wheelers	44,500
2.	Car and SUVs	3,450
3.	Bus and LCV	1,800
4.	Heavy commercial vehicles	816

The following is the estimated cost of the project:

Sl. No.	Activities	Amount (Rs. in lakh)
1	Site clearance	170.70
2	Land development and filling work	9,080.35
3	Sub base and base courses	10,260.70
4	Bituminous work	35,070.80
5	Bridge, flyovers, underpasses, Pedestrian subway, footbridge, etc.	29,055.60

6	Drainage and protection work	9,040.50
7	Traffic sign, marking and road appurtenance	8,405.00
8	Maintenance, repairing and rehabilitation	12,429.60
9	Environmental management	982.00
	Total Project cost	114,495.25

An average cost of ₹ 1,120 lakh has to be incurred on administration and toll plaza operation.

On the basis of the vehicle specifications (i.e. weight, size, time saving etc.), the following weights has been assigned to the passing vehicles:

Sl. No.	Type of vehicle	
1.	Two wheelers	5%
2.	Car and SUVs	20%
3.	Bus and LCV	30%
4.	Heavy commercial vehicles	45%

Required:

- CALCULATE the total project cost per day of concession period.
- COMPUTE toll fee to be charged for per vehicle of each type, if the company wants to earn a profit of 15% on total cost.

[Note: Concession period is a period for which an infrastructure is allowed to operate and recovers its investment]

RTP SEP 2024

Q.28

ABC Health care runs an Intensive Medical Care Unit. For this purpose, it has hired a building at a rent of ₹ 50,000 per month with the agreement to bear the repairs and maintenance charges also.

NB

PN

The unit consists of 100 beds and 5 more beds can comfortably be accommodated when the situation demands. Though the unit is open for patients all the 365 days in a year, scrutiny of accounts for the year 2020 reveals that only for 120 days in the year, the unit had the full capacity of 100 patients per day and for another 80 days, it had, on an average only 40 beds occupied per day. But, there were occasions when the beds were full, extra beds were hired at a charge of ₹ 50 per bed per day. This did not come to more than 5 beds above the normal capacity on any one day. The total hire charges for the extra beds incurred for the whole year amounted to ₹ 20,000.

The unit engaged expert doctors from outside to attend on the patients and the fees were paid on the basis of the number of patients attended and time spent by them which on an average worked out to ₹ 30,000 per month in the year 2020. The permanent staff expenses and other expenses of the unit were as follows:

	₹
2 Supervisors each at a per month salary of	5,000
4 Nurses each at a per month salary of	3,000
2 Ward boys each at a per month salary of	1,500
Other Expenses for the year were as under:	
Repairs and Maintenance	28,000
Food supplied to patients	4,40,000
Caretaker and Other services for patients	1,25,000
Laundry charges for bed linen	1,40,000
Medicines supplied	2,80,000
Cost of Oxygen etc. other than directly borne for treatment of patients	75,000
General Administration Charges allocated to the unit	71,000

Required:

- What is the profit per patient day made by the unit in the year 2020, if the unit recovered an overall amount of ₹ 200 per day on an average from each patient.
- The unit wants to work on a budget for the year 2021, but the number of patients requiring medical care is a very uncertain factor. Assuming that same revenue and expenses prevail in the year 2021 in the first instance, work out the number of patient days required by the unit to break even.

PYQ JAN 2021

Q.29 ABC Bank is having a branch which is engaged in processing of 'Vehicle Loan' and 'Education Loan' applications in addition to other services to customers. 30% of the overhead costs for the branch are estimated to be applicable to the processing of 'Vehicle Loan' applications and 'Education Loan' applications each.

NB

PN

Branch is having four employees at a monthly salary of ₹ 50,000 each, exclusively for processing of Vehicle Loan applications and two employees at a monthly salary of ₹ 70,000 each, exclusively for processing of Education Loan applications.

In addition to above, following expense are incurred by the Branch:

- Branch Manager who supervises all the activities of branch, is paid at ₹ 90,000 per month.
- Legal charges, Printing & stationery and Advertising Expenses are incurred at ₹ 30,000, ₹ 12,000 and ₹ 18,000 respectively for a month.
- Other expenses are ₹ 10,000 per month.

You are required to:

- Compute the cost of processing a Vehicle Loan application on the assumption that 496 Vehicle Loan applications are processed each month.
- Find out the number of Education Loan Applications processed, if the total processing cost per Education Loan Application is same as in the Vehicle Loan Application as computed in (i) above.

PYQ NOV 2022

- Q.30** AD Higher Secondary School (AHSS) offers courses for 11th & 12th standard in three streams i.e. Arts, Commerce and Science. AHSS runs higher secondary classes along with primary and secondary classes but for accounting purpose it treats higher secondary as a separate responsibility centre. The Managing committee of the school wants to revise its fee structure for higher secondary students. The accountant of the school has provided the following details for a year:

NB

PN

	Amount (₹)
Teachers' salary (15 teachers ₹ 35,000 12 months)	63,00,000
Principal's salary	14,40,000
Lab attendants' salary (2 attendants ₹ 15,000 2 months)	3,60,000
Salary to library staff	1,44,000
Salary to peons (4 peons ₹ 10,000 12 months)	4,80,000
Salary to other staffs	4,80,000
Examinations expenditure	10,80,000
Office & Administration cost	15,20,000
Annual day expenses	4,50,000
Sports expenses	1,20,000

Other information:

(i)

	Standard 11 & 12			Primary & Secondary
	Arts	Commerce	Science	
No. of students	120	360	180	840
Lab classes in a year	0	0	144	156
No. of examinations in a year	2	2	2	2
Time spent at library per student per year	180 hours	120 hours	240 hours	60 hours
Time spent by principal for administration	208 hours	312 hours	480 hours	1,400 hours
Teachers for 11 & 12 standard	4	5	6	-

- (ii) One teacher who teaches economics for Arts stream students also teaches commerce streams students. The teachers takes 1,040 classes in a year, it includes 208 classes for commerce students.
- (iii) There is another teacher who teaches mathematics for Science stream students also teaches business mathematics to commerce stream students. She takes 1,100 classes a year, it includes 160 classes for commerce students.

- (iv) One peon if fully dedicated for higher secondary section. Other peons dedicate their 15% time for higher secondary section.
- (v) All school students irrespective of section and age participate in annual functions and sports activities.

Required:

- (i) CALCULATE cost per student per annum for all three streams.
- (ii) If the management decides to take uniform fee of ₹ 1,000 per month from all higher secondary students, CALCULATE stream wise profitability.
- (iii) If management decides to take 10% profit on cost, COMPUTE fee to be charged from the students of all three streams respectively.

STUDY MAT, RTP MAY 2018

Additional Questions

- Q.31** A hotel having 20 single rooms is having 80% occupancy in normal season (8 months) and 50% in off- season (4 months) in a year (take 30 days month).

NB	Annual fixed expenses	Amount in ₹
PN	Salary of the staff (excluding room attendant)	15,00,000
	Repair & maintenance	12,60,000
	Depreciation on building & furniture	12,40,000
	Other fixed expenses like dusting, sweeping etc.	13,25,000
		53,25,000
	Variable expenses (per guest per day)	
	Linen, laundry & security support	80.00
	Electricity & other facilities	120.00
	Misc. expenses like attendant etc.	300.00
		500.00

Management wishes to make a margin of 25% of total cost.

Required

- CALCULATE the Tariff per room per day.
- CALCULATE the break-even occupancy in normal season (in percentage also) assuming there is 50% occupancy in off-season.

RTP MAY 2009

- Q.32** SpeedEx Logistics, established in 2010 and headquartered in Mumbai, India, operates within the transportation and logistics industry as a thirdparty logistics (3PL) provider. The company's fleet consists of 10 trucks, 15 vans, and 5 trailer, each serving distinct purposes. The records of Truck R-40 reveal the following information for July 2024.

NB	Days Maintained	30
PN	Days Operated	25
	Total Hours Operated	300
	Total Kilometres Covered	2,500
	Total Tonnage Carried	
	(4 tonne-load per trip, return journey empty 2 round trips per day)	

The following further information is made available:

- Operating Costs for the month: Petrol ₹ 400, oil ₹170, Grease ₹ 90, Wages to driver ₹ 550, Wages to Worker ₹ 350.

- B. Maintenance Costs for the month: Repair ₹ 170, Overhaul ₹ 60, Tyres ₹ 150, Garage charges ₹ 100.
- C. Fixed Costs for the month based on the estimates for the year: Insurance ₹ 50, Licence, tax etc. ₹ 80, Interest ₹ 40, Other Overheads ₹ 190
- D. Capital costs: Cost of acquisition ₹ 54,000; Residual Value at the end of 5 years life ₹ 36,000.

You are required to CALCULATE:

- cost per days maintained
- cost per days operated
- cost per hours operated
- cost per kilometres covered
- cost per commercial tonne km

MTP 2 SEP 2024

- Q.33** S Travels has been promised a contract to run a tourist car on a 20 km. long route for a multinational firm. He buys a car costing ₹ 4,50,000. The annual cost of insurance and taxes are ₹ 7,500 and ₹ 1800 respectively. He has to pay ₹ 2500 per month for a garage where he keeps the car when it is not in use. The annual repair costs are estimated at ₹ 12,000. The car is estimated to have a life of 10 years at the end of which the scrap value is likely to be ₹ 50,000.

He hires a driver who is to be paid ₹ 3,000 per month plus 10% of the takings as commission. Other incidental expenses are estimated at ₹ 2,000 per month.

Petrol and oil will cost ₹ 220 per 100 kms. The car will make 4 round trips each day. Assuming that a profit of 15% on takings is desired and that the car will be on the road for 25 days on an average per month, what should he charge per round-trip?

RTP MAY 2012

- Q.34** The data given relates to 'Entertainment Paradise' a mini theatre for the year ending 2007:

No. of Employee	Salaries:		Electricity and oil	11,655
1	Manager	Rs. 800 p.m.	Carbon	7,235
10	Gate-keepers	200 p.m. each	Misc. expenditure	5,425
2	Operators	400 p.m.	each Advertisement	34,710
4	Clerks	250 p.m.	each Admn. Expenses	18,000
			Hire of print	1,40,700

The premises are valued at Rs. 6,00,000 and the estimated life is 15 years. Projector and other equipments cost Rs. 3,20,000 on which 10% depreciation is to be charged.

Daily 3 shows are run throughout the year. The total capacity is 625 seats which is divided into three classes as follows:

Emerald Circle 250 seats

Diamond 250 seats

Coral 125 seats

Ascertain cost per man-show assuming that:

(a) 20% of the seats remain vacant, and

(b) Weightage to be given to the three classes in the ratio 1 : 2 : 3.

Determine the rates for each class if the management expects 30% return on gross proceeds. Ignore entertainment taxes.

PYQ MAY 2007

- Q.35** An Executive manager spends ₹ 10.00 per kilometer on taxi fares for his office work. He is considering two other alternatives, the purchase of a new Nano car or a second hand Innova car. The estimated cost figures are as follows:

NB PN	Items	New Nano Car	Old Innova Car
	Purchase Price	₹1,35,000	₹1,60,000
	Sale price, after 5 years	₹25,000	₹40,000
	Repairs and servicing per annum	₹12,000	₹18,000
	Taxes and insurance per annum	₹3,200	₹2,400
	Petrol consumption per liter	20 km	15 km
	Petrol/ Diesel price, per liter	68.00	₹42.00

He estimates that he has to travel 10,800 km annually. Which of the three alternatives will be economical? If his official visit increases and he has to do 18,000 km per annum what should be his decision?

At how many km per annum will the cost of the two cars break-even and why? Ignore interest and income-tax.

PYQ MAY 2009

- Q.36** Royal Hotel offers three types of rooms to its guests - Deluxe Room, Executive Room and Suite Room. Other information is as follows:-

NB PN		Deluxe Room	Executive Room	Suite Room
	Room Tariff per day	₹ 1,500	₹ 2,400	₹ 3,800
	No. of rooms	20	10	4
	Average occupancy during the year	80%	60%	75%
	Housekeeping expenses per day	₹280	₹ 320	₹425

The hotel provides complimentary breakfast facility to its executive room and suite room guests while swimming pool facility is provided free of cost only to suite room guests.

The restaurant and swimming pool is run by a contractor. The contractor recovers charges of ₹ 150 per person for breakfast and ₹ 200 per person for using swimming pool facility from Royal Hotel.

Besides the above-mentioned charges, annual fixed expenses are as follows:

Salaries to staff ₹ 57,60,000

Electricity Expenses ₹ 24,00,000

Salaries to staff are apportioned to Deluxe Room, Executive Room and Suite Room in the ratio of 25:35:40 and electricity expenses are to be apportioned in proportion to occupancy.

You are required to calculate the total profit of each room type on annual basis.

Note: Assume 360 days in a year and double occupancy in each category of room.

PYQ NOV 2023

Q.37 A company is considering four alternative proposals for a new toy manufacturing Machine launched in the market. New machine is expected to produce approximately 25,000 toys every year. The proposals are as follows:

NB

PN

- (i) Purchase and maintain the new toy manufacturing Machine and bear all related costs. These machines will run on fuel. The average cost of a Machine is ₹ 10,00,000. Life of the machine is 4 years with annual production of 25,000 toys and the Resale value is ₹ 2,00,000 at the end of the fourth year.
- (ii) Hire from Agency-A: It can hire the machine from the Agency-A and pay hire charges at the rate of ₹ 20 per toy and bear no other cost.
- (iii) Hire from Agency-B: It can hire the machine from the Agency-B and pay hire charges at the rate of ₹ 12 per toy and also bear insurance costs. All other costs will be borne by Agency-B.
- (iv) Hire from Agency-C: Hire machine from Agency-C at ₹ 2,50,000 per year. These machines are more advanced and run on electricity and therefore, the running cost is considerably low. The company will have to bear costs of electricity, licensing fees and spare parts. However, Repairs and maintenance and Insurance cost are borne by Agency-C.

The following further details are available:

The cost of Fuel is ₹ 8 per toy, the cost of spare parts is ₹ 0.20 per toy and the cost of electricity is ₹ 2 per toy. Further, the cost of Repairs and maintenance is ₹ 0.25 per toy, the amount of licensing fees to be paid is ₹ 5,000 per machine per annum and the cost of Insurance to be paid is ₹ 25,000 per machine per annum. Consider no taxes.

You are required to:

- (i) Calculate the relative costs of four proposals on cost per toy basis.
- (ii) Rank the proposals on the basis of total cost for 25,000 toys per year.
- (iii) Recommend the best proposal to company in view of (ii) above.

PYQ NOV 2020

Q.38 RST Toll Plaza Limited built an 80-kilometre-long highway between two cities and operates a toll plaza to collect tolls from passing vehicles using the highway. The company has estimated that 50,000 light weight, 12,000 medium weight and 10,000 heavy weight vehicles will be using the highway in one month in outward journey and the same number for return journey.

NB

PN

As per government notification, vehicles used for medical emergencies, Members of Parliament, and essential services are exempt from toll charges. It is estimated that 10% of light weight vehicles will pass the highway for such use.

It is the policy of the company that if vehicles return within 24 hours of their outward journey, the toll fare will be reduced by 25 percent automatically. It is estimated that 30% of chargeable light weight vehicles return within the specified time frame.

The toll charges for medium weight vehicles is to be fixed as 2.5 times of the light weight vehicles and that of heavy weight vehicles as 2 times of the medium weight vehicles.

The toll and maintenance cost for a month is ₹ 59,09,090, The company requires a profit of 10% over the total cost to cover interest and other costs.

Required:

- Calculate the toll rate for each type of vehicle if concession facilities are not available on the return journey.
- Calculate the toll rate that will be charged from light weight vehicles if a return journey concession facility is available, assuming that the revenue earned from light weight vehicles calculated in option (i) remains the same.

PYQ MAY 2023

Q.39 A group of 'Health Care Services' has decided to establish a Critical Care Unit in a metro city with an investment of ₹ 85 lakhs in hospital equipments. The unit's capacity shall be of 50 beds and 10 more beds, if required, can be added.

NB

PN

Other information for a year are as under:

	(₹)
Building Rent	2,25,000 per month
Manager Salary (Number of Manager-03)	50,000 per month to each one
Nurses Salary (Number of Nurses-24)	18,000 per month to each Nurse
Ward boy's Salary (Number of ward boys' -24)	9,000 per month per person
Doctor's payment (Paid on the basis of number of patients attended and time spent by them)	5,50,000 per month
Food and laundry services (variable)	39,53,000
Medicines to patients (variable)	22,75,000 per year
Administrative Overheads	28,00,000 per year
Depreciation on equipments	15% per annum on original cost

It was reported that for 200 days in a year 50 beds were occupied, for 105 days 30 beds were occupied and for 60 days 20 beds were occupied.

The hospital hired 250 beds at a charge of ₹ 950 per bed to accommodate the flow of patients. However, this never exceeded the normal capacity of 50 beds on any day.

Find out:

- (i) Profit per patient day, if hospital charges on an average ₹ 2,500 per day from each patient.
- (ii) Break even point per patient day (Make calculation on annual basis)

PYQ MAY 2018

Q.40 M/s. GPS Private Limited is engaged in producing milk powder. The management of the company is considering for transportation of 29,952 Kilolitre (KL) of milk per month to its storage tanks that are situated 30 km away from its collection centres. Two types of milk tankers are available in the market, namely 8-KL and 6-KL of capacity.

The details of operating costs for the milk tankers are as follows:

NB PN	Particulars	8-KL Tanker	6-KL Tanker
	Purchase Price per tanker	₹ 18,04,000	₹ 12,00,000
	Estimated life 6 years 6 years		
	Residual value per tanker	₹ 4,00,000	₹ 3,00,000
	Other fixed costs per month, per tanker	₹ 55,980	₹ 46,540
	Km. per litre of diesel	4 km.	5 km.

Additional Information:

- (i) Cost of diesel per litre is ₹ 80.
- (ii) Each vehicle can run 6 trips (up and down) each day and can run on an average of 26 days each month.
- (iii) Drivers will have to be recruited according to the number of milk tankers to be used. In addition, one extra driver for every eight milk tankers will be required for the entire fleet. Each driver will cost ₹ 15,000 per month.
- (iv) Yet another possibility is to hire enough milk tankers (8-KL capacity only) from a transport company at the rate of ₹ 63,000 per month per milk tanker. The transport company will bear other fixed costs. However, GPS Private Limited has to bear the cost of drivers and other operational costs.

You are required to prepare:

- (a) Statement of operating cost for each alternative for a month.
- (b) Compute the cost per kilolitre of milk transported.
- (c) Advise the company on an appropriate choice among the above three alternatives.

(Note: Ignore finance cost.)

PYQ JULY 2021

- Q. 41** A LMV Pvt. Ltd, operates cab/ car rental service in Delhi/NCR. It provides its service to the offices of Noida, Gurugram and Faridabad. At present it operates CNG fuelled cars but it is also considering to upgrade these into Electric vehicle (EV). The following details related with the owning of CNG & EV propelled cars are as tabulated below:

NB
PN

Particulars	CNG Car	EV Car
Car purchase price (₹)	9,20,000	15,20,000
Govt. subsidy on purchase of car (₹)	--	1,50,000
Life of the car	15 years	10 years
Residual value (₹)	95,000	1,70,000
Mileage	20 km/kg	240 km per charge
Electricity consumption per full charge	--	30 Kwh
CNG cost per Kg (₹)	60	--
Power cost per Kwh (₹)	--	7.60
Annual Maintenance cost (₹)	8,000	5,200
Annual insurance cost (₹)	7,600	14,600
Tyre replacement cost in every 5 - year (₹)	16,000	16,000
Battery replacement cost in every 8- year (₹)	12,000	5,40,000

Apart from the above, the following are the additional information:

Particulars	
Average distance covered by a car in a month	1,500 km
Driver's salary (₹)	20,000 p.m
Garage rent per car (₹)	4,500 p.m
Share of Office & Administration cost per car (₹)	1,500 p.m

You have been approached by the management of A LMV Pvt. Ltd. for consultation on the two options of operating the cab service.

CALCULATE the operating cost of vehicle per month per car for both CNG & EV options.

STUDY MAT, RTP MAY 2024

Q. 42 Royal Transport Services runs fleet of buses within the limits of Jaipur city. The following are the details which were incurred by the company during October, 2021:

NB	PN		(₹)
		Cost of each Bus	24,00,000
		Garage Rent	1,00,000
		Insurance	25,000
		Road tax	20,000
		Manager's Salary	60,000
		Assistant's Salary (Two)	32,000 each
		Supervisor's Salary (Three)	24,000 each
		Driver's Salary (Twenty-Five)	20,000 each
		Cleaner's Salary (Twenty)	5,000 each
		Office Staff's Salary	1,00,000
		Consumables	1,20,000
		Repairs & Maintenance	90,000
		Other Fixed Expenses	72,000
		Diesel (10 Kms per Litre)	80 per litre
		Oils & Lubricants	1,45,000
		Tyres and tubes	35,000
		Depreciation	10% p.a. on Cost

Other details are as below:

	Capacity
12 Buses	60 Passengers
13 Buses	50 Passengers

Each bus makes 4 round trips a day covering a distance of 10 Kilometers in each trip (One Way) on an average. During the trips 80% of the seats are occupied. The annual records show that 5 buses are generally required to be kept away from roads each day for repairs.

You are required to CALCULATE cost per passenger-km.

Cost sheet to be prepared on the basis of 25 buses.

RTP MAY 2022

Progress Sheet

	Class Work	1 st Practice	2 nd Practice		Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐	Question 23	☐	☐	☐
Question 2	☐	☐	☐	Question 24	☐	☐	☐
Question 3	☐	☐	☐	Question 25	☐	☐	☐
Question 4	☐	☐	☐	Question 26	☐	☐	☐
Question 5	☐	☐	☐	Question 27	☐	☐	☐
Question 6	☐	☐	☐	Question 28	☐	☐	☐
Question 7	☐	☐	☐	Question 29	☐	☐	☐
Question 8	☐	☐	☐	Question 30	☐	☐	☐
Question 9	☐	☐	☐	Question 31	☐	☐	☐
Question 10	☐	☐	☐	Question 32	☐	☐	☐
Question 11	☐	☐	☐	Question 33	☐	☐	☐
Question 12	☐	☐	☐	Question 34	☐	☐	☐
Question 13	☐	☐	☐	Question 35	☐	☐	☐
Question 14	☐	☐	☐	Question 36	☐	☐	☐
Question 15	☐	☐	☐	Question 37	☐	☐	☐
Question 16	☐	☐	☐	Question 38	☐	☐	☐
Question 17	☐	☐	☐	Question 39	☐	☐	☐
Question 18	☐	☐	☐	Question 40	☐	☐	☐
Question 19	☐	☐	☐	Question 41	☐	☐	☐
Question 20	☐	☐	☐	Question 42	☐	☐	☐
Question 21	☐	☐	☐	Question 43	☐	☐	☐
Question 22	☐	☐	☐	Question 44	☐	☐	☐

13

**STANDARD
COSTING**

Material Variances

Q.1 NXE Manufacturing Concern furnishes the following information:

NB	Standard	Material for 70 kg finished products	100 kg.
PN		Price of material	₹ 1 per kg.
	Actual	Output	2,10,000 kg.
		Material used	2,80,000 kg.
		Cost of Materials	₹ 2,52,000

Calculate:

- (a) Material Usage Variance (b) Material Price Variance
(c) Material Cost Variance

STUDY MAT

Q.2 For making 10 kg. of CEMCO, the standard material requirements are:

NB	Material	Quantity (Kg.)	Rate per kg. (₹)
PN	A	8	6.00
	B	4	4.00

During April, 1,000 kg of CEMCO were produced. The actual consumption of materials is as under:

Material	Quantity (Kg.)	Rate per kg. (₹)
A	750	7.00
B	500	5.00

Calculate: (a) Material Cost Variance (b) Material Price Variance
(c) Material usage Variance.

STUDY MAT

Q.3 The standard mix to produce one unit of product is as follows:

NB	Material X	60 units @ ₹ 15 per unit	900
PN	Material Y	80 units @ ₹ 20 per unit	1,600
	Material Z	100 units @ ₹ 25 per unit	2,500
		240 units	5,000

During the month of April, 10 units were actually produced and consumption was as follows:

Material X	640 units @ ₹ 17.50 per unit	11,200
Material Y	950 units @ ₹ 18.00 per unit	17,100
Material Z	870 units @ ₹ 27.50 per unit	23,925
	2,460 units	52,225

Calculate all material variances.

STUDY MAT

- Q.4** Jigyasa Pharmaceuticals Ltd. is engaged in producing dietary supplement 'Funkids' for growing children. It produces 'Funkids' in a batch of 10 kgs. Standard material inputs required for 10 kgs. of 'Funkids' are as below:

NB PN	Material	Quantity (in kgs.)	Rate per kg. (in ₹)
	Vita-X	5	110
	Proto-D	3	320
	Mine-L	3	460

During the month of March, 2014, actual production was 5,000 kgs. of 'Funkids' for which the actual quantities of material used for a batch and the prices paid thereof are as under:

Material	Quantity (in kgs.)	Rate per kg. (in ₹)
Vita-X	6	115
Proto-D	2.5	330
Mine-L	2	405

You are required to calculate the following variances based on the above given information for the month of March, 2014 for Jigyasa Pharmaceuticals Ltd.:

- Material Cost Variance;
- Material Price Variance;
- Material Usage Variance;
- Material Mix Variance;
- Material Yield Variance.

RTP MAY 2014

- Q.5** XYZ Limited produces an article and uses a mixture of material X and Y. The standard quantity and price of materials for one unit of output is as under :

NB PN	Material	Quantity	Price (₹)
	X	2000 kg	1.00 per kg
	Y	800 kg	1.50 per kg

During a period, 1500 units were produced. The actual consumption of materials and prices are given below :

Material	Quantity	Price (₹)
X	31,00,000 kg	1.10 per kg
Y	12,50,000 kg	1.60 per kg

Calculate :

- Standard cost for actual output.
- Material cost variance
- Material Price variance
- Material usage variance

RTP MAY 2017

Q.6 The standard cost of a chemical mixture is as follows:

40% material A at ₹ 20 per kg.

NB

60% material B at ₹ 30 per kg.

PN

A standard loss of 10% of input is expected in production. The cost records for a period showed the following usage:

90 kg material A at a cost of ₹ 18 per kg.

110 kg material B at a cost of ₹ 34 per kg.

The quantity produced was 182 kg. of good product.

Calculate all material variances.

STUDY MAT

Q.7 UV Ltd. presents the following information for November, 2013:

NB

Budgeted production of product P = 200 units.

PN

Standard consumption of Raw materials = 2 kg. per unit of P.

Standard price of material A = ₹ 6 per kg.

Actually, 250 units of P were produced and material A was purchased at ₹ 8 per kg and consumed at 1.8 kg per unit of P.

Calculate the material cost variances.

PYQ NOV 2008

Q.8 Answer the following:

Following are the details of the product Phomex for the month of April 2013:

NB

Standard quantity of material required per unit	5 kg
Actual output	1000 units
Actual cost of materials used	₹ 7,14,000
Material price variance	₹ 51,000 (Fav)

PN

Actual price per kg of material is found to be less than standard price per kg of material by ₹ 10.

You are required to calculate:

i) Actual quantity and Actual price of materials used.

ii) Material Usage Variance

iii) Material Cost Variance

PYQ MAY 2013

Q.9 Following details relating to product X during the month of April, 2009 are available:

NB

Standard cost per unit of X:

PN

Materials: 50kg @ ₹40/kg

Actual production: 100 units

Actual material cost: ₹ 42/kg

Material price variance: ₹ 9,800 (Adverse)

Material usage variance: ₹ 4,000 (Favorable)

Calculate the actual quantity of material used during the month April, 2009.

PYQ MAY 2009

- Q.10** J.K. Ltd. manufactures NXE by mixing three raw materials. For every batch of 100 kg. of NXE, 125 kg. of raw materials are used. In April, 2012, 60 batches were prepared to produce an output of 5,600 kg. of NXE. The standard and actual particulars for April, 2012, are as follows:

NB	Raw Materials	Standard Mix (%)	Price per kg. (₹)	Actual Mix (%)	Price per kg (₹)
PN	A	50	20	60	21
	B	30	10	20	8
	C	20	5	20	6

Calculate all variances.

STUDY MAT

- Q.11** XYZ Ltd. produces two products M and N by using two inputs Material A and B. The standard price per unit of Material A is ₹ 20 and of Material B is ₹ 10. The standard quantities of materials for each product are as follows:

NB	Products	Materials	
PN		A (units)	B (Units)
	M	2	3
	N	1	4

The company actually produced 11,000 units of M and 9,000 units of N and used 32,500 units of Material A at a cost of ₹ 6,59,750 and 67,000 units of Material B at a cost of ₹ 6,83,400.

Calculate:

- Material Price Variance;
- Material Usage Variance;
- Material Cost Variance;

PYQ MAY 2007

- Q.12** XYZ Ltd. produces a product X by using two raw materials A and B. The following standards have been set for the production:

NB	Material	Standard Mix	Standard Price (₹)
PN	A	40%	40 per kg
	B	60%	30 per kg

The standard loss in processing is 15%.

During July, 2016 the company produced 2,000 kg of finished output.

The positions of stock and purchases for the month of July, 2016 are as under:

Material	Stock on 1st July 2016	Stock on 31st July 2016	Purchases during July 2016	
			Quantity	Amount (₹)
A	40 kg.	10 kg.	900 kg.	42.50
B	50 kg.	60 kg.	1,400 kg.	25.00

Calculate the following variances:

- | | |
|-----------------------------------|-------------------------------|
| (i) Material Price Variance: | (ii) Material Usage Variance: |
| (iii) Material Mix Variance: | (iv) Material Yield Variance: |
| (v) Total Material Cost Variance: | |

The company follows FIFO method of stock valuation.

MTP1 MAY 2019

Material + Labour Variances

- Q.13** The following information is available from the cost records of Vatika & Co. For the month of August, 2013:

NB	Material purchased 24,000 kg ₹ 1,05,600
PN	Material consumed 22,800 kg
	Actual wages paid for 5,940 hours ₹29,700
	Unit produced 2,160 units.

Standard rates and prices are:

Direct material rate is ₹ 4.00 per unit

Direct labour rate is ₹ 4.00 per hour

Standard input is 10 kg. for one unit

Standard labour requirement is 2.5 hours per unit.

PYQ NOV 2009

Calculate all material and labour variances for the month of August, 2013.

- Q.14** The following standards have been set to manufacture a product:

NB	Direct Material:	
PN	Particular	(₹)
	2 units of A @ ₹ 4 per unit	8.00
	3 units of B @ ₹ 3 per unit	9.00
	15 units of C @ ₹ 1 per unit	15.00
		32.00
	Direct Labour: 3 hrs @ ₹ 8 per hour	24.00
	Total standard prime cost	56.00

The company manufactured and sold 6,000 units of the product during the year. Direct material costs were as follows:

12,500 units of A at ₹ 4.40 per unit

18,000 units of B at ₹ 2.80 per unit

88,500 units of Cat ₹ 1.20 per unit

The company worked 17,500 direct labour hours during the year. For 2,500 of these hours, the company paid at ₹ 12 per hour while for the remaining, the wages were paid at standard rate.

Calculate materials price variance and usage variance and labour rate and efficiency variances.

STUDY MAT, MTP 2 MAY 2012

- Q.15** JVG Ltd. produces a product and operates a standard costing system and value material and finished goods inventories at standard cost. The information related with the product is as follows:

NB

PN

Particular	Cost per unit (₹)
Direct materials (30 kg at ₹350 per kg)	10,500
Direct labour (5 hours at ₹80 per hour)	400

The actual information for the month just ended is as follows:

- The budgeted and actual production for the month of September 2019 is 1,000 units.
- Direct materials –5,000 kg at the beginning of the month. The closing balance of direct materials for the month was 10,000 kg. Purchases during the month were made at ₹ 365 per kg. The actual utilization of direct materials was 7,200 kg more than the budgeted quantity.
- Direct labour – 5,300 hours were utilised at a cost of ₹ 4,34,600.

Required:

CALCULATE (i) Direct material price and usage variances (ii) Direct labour rate and efficiency variances.

RTP MAY 2006

Labour Variances

- Q.16** The standard labour employment and the actual labour engaged in a week for a job are as under

NB

PN

	Skilled workers	Semi-skilled	Unskilled
Standard no. of workers in the gang	32	12	6
Actual no. of workers employed	28	18	4
Standard wage rate per hour	3	2	1
Actual wage rate per hour	4	3	2

Standard Costing

During the 40 hours working week, the gang produced 1,800 standard labour hours of work. Calculate:

- Labour Cost Variance
- Labour Rate Variance
- Labour Efficiency Variance
- Labour Mix Variance
- Labour Yield Variance

STUDY MAT

Q.17 A manufacturing department of a company has employed 120 workers. The standard output of product "NPX" is 20 units per hour and the standard wage rate is ₹ 25 per labour hour.

NB

PN

In a 48 hours week, the department produced 1,000 units of 'NPX' despite 5% of the time paid being lost due to an abnormal reason. The hourly wages actually paid were ₹ 25.70 per hour.

Calculate:

- Labour Cost Variance
- Labour Rate Variance
- Labour Efficiency Variance
- Labour Idle time Variance

PYQ MAY 2012

Q.18 The standard labour employment and the actual labour engaged in a 40 hours week for a job are as under:

NB

PN

Category of workers	Standard		Actual	
	No. of workers	Wage Rate per hour (₹)	No. of workers	Wage Rate per hour (₹)
Skilled	65	45	50	50
Semi-skilled	20	30	30	35
Unskilled	15	15	20	10

Standard output: 2000 units;

Actual output: 1800 units

Abnormal Idle time 2 hours in the week

Calculate:

- Labour Cost Variance
- Labour Efficiency Variance
- Labour Idle Time Variance

RTP MAY 2012

Q.19 The following information has been provided by a company:

NB	Number of units produced and sold	6,000
PN	Standard labour rate per hour	₹ 8
	Standard hours required for 6,000 units	-
	Actual hours required	17,094 hours
	Labour efficiency	105.3%
	Labour rate variance	₹ 68,376 (A)

You are required to calculate:

- i) Actual labour rate per hour
- ii) Standard hours required for 6,000 units
- iii) Labour Efficiency Variance
- iv) Standard labour cost per unit
- v) Actual labour cost per unit

RTP MAY 2016

Q.20 The standard output of a Product 'D' is 50 units per hour in manufacturing department of a Company employing 100 workers. In a 40 hours week, the department produced 1,920 units of product 'D' despite 5% of the time paid was lost due to an abnormal reason. The hourly wage rates actually paid were ₹ 12.40, ₹ 12.00 and ₹ 11.40 respectively to Group 'A' consisting 10 workers, Group 'B' consisting 30 workers and Group 'C' consisting 60 workers. The standard wage rate per labour is same for all the workers. Labour Efficiency Variance is given ₹ 480 (F).

You are required to COMPUTE:

- (i) Total Labour Cost Variance.
- (ii) Total Labour Rate Variance.
- (iii) Total Labour Gang Variance.
- (iv) Total Labour Yield Variance, and
- (v) Total Labour Idle Time Variance.

PYQ JULY 2012, RTP MAY 2022

Overhead Variances

Q.21 XYZ Ltd. has furnished you the following information for the month of August, 2012:

NB		Budget	Actual
PN	Output (units)	30,000	32,500
	Hours	30,000	33,000
	Fixed overhead	45,000	50,000
	Variable overhead	60,000	68,000
	Working days	25	26

Calculate overhead variances.

STUDY MAT

Q.22 Following information is available from the records of a factory:

NB PN		Budget	Actual
	Fixed overhead for June, 2012	₹ 10,000	₹ 12,000
	Production in June, 2012 (units)	2,000	2,100
	Standard time per unit (hours)	10	–
	Actual hours worked in June	–	21,000

Compute:

- Fixed overhead cost variance
- Expenditure variance
- Volume variance

STUDY MAT

Q.23 X Ltd. has furnished the following data:

NB PN		Budget	Actual
	No. of working days	25	27
	Production in units	20,000	22,000
	Fixed overheads	₹ 30,000	₹ 31,000

Budgeted fixed overhead rate is ₹ 1.00 per hour. In July, 2012, the actual hours worked were 31,500.

Calculate the following variances:

- Volume variance
- Expenditure variance
- Total overhead variance

PYQ NOV 2004

Q.24 A company has a normal capacity of 120 machines, working 8 hours per day of 25 days in a month. The fixed overheads are budgeted at ₹ 1,44,000 per month. The standard time required to manufacture one unit of product is 4 hours.

In April, 2012, the company worked 24 days of 840 machine hours per day and produced 5,305 units of output. The actual fixed overheads were ₹ 1,42,000.

Compute:

- Expense variance
- Volume variance
- Total fixed overheads variance.

STUDY MAT

- Q.25** The following data has been collected from the cost records of a unit for computing the various fixed overhead variances for a period:

Number of budgeted working days	25
Budgeted man-hours per day	6,000
Output (budgeted) per man-hour (in units)	1
Fixed overhead cost as budgeted	₹ 1,50,000

Actual number of working days	27
Actual man-hours per day	6,300
Actual output per man-hour (in-units)	0.9
Actual fixed overhead incurred	₹ 1,56,000

Calculate fixed overhead variances:

- Expenditure Variance
- Volume Variance,
- Fixed Cost Variance.

STUDY MAT

- Q.26** The following information was obtained from the records of a manufacturing unit using standard costing system.

NB		Standard	Actual
PN	Production	4,000 units	3,800 units
	Working days	20	21
	Fixed Overhead	₹ 40,000	₹ 39,000
	Variable Overhead	12,000	12,000

You are required to calculate the following overhead variance:

- Variable overhead cost variance
- Fixed overhead variances
 - Expenditure variances
 - Volume variance

RTP NOV 2004

Q.27 In a manufacturing company the standard units of production of the year were fixed at 1,20,000 units and overhead expenditures were estimated to be:

Fixed Rs. 12,00,000; Variable Rs. 6,00,000;
Semi-Variable Rs. 1,80,000

Actual production during the April, 2019 of the year was 8,000 units. Each month has 20 working days.

During the month there was one public holiday. The actual overheads amounted to:

Fixed Rs. 1,10,000; Variable Rs. 48,000
Semi-variable Rs. 19,200

Semi-variable charges are considered to include 60 per cent expenses of fixed nature and 40 per cent of variable character.

CALCULATE the followings:

- (i) Overhead Cost Variance
- (ii) Fixed Overhead Cost Variance
- (iii) Variable Overhead Cost Variance
- (iv) Fixed Overhead Volume Variance
- (v) Fixed Overhead Expenditure Variance
- (vi) Calendar Variance.

PYQ DEC2021,MTP1 NOV2019

Q.28 Premier Industries has a small factory where 52 workers are employed on an average for 25 days a month and they work 8 hours per day. The normal down time is 15%. The firm has introduced standard costing for cost control. Its monthly budget for November, 2020 shows that the budgeted variable and fixed overhead are ₹ 1,06,080 and ₹ 2,21,000 respectively.

The firm reports the following details of actual performance for November, 2020, after the end of the month:

Actual hours worked	8,100 hrs.
Actual production expressed in standard hours	8,800 hrs.
Actual Variable Overheads	₹ 1,02,000
Actual Fixed Overheads	₹ 2,00,000

You are required to calculate:

- (i) Variable Overhead Variances:
 - (a) Variable overhead expenditure variance.
 - (b) Variable overhead efficiency variance.
- (ii) Fixed Overhead Variances:
 - (a) Fixed overhead budget variance.
 - (b) Fixed overhead capacity variance.
 - (c) Fixed overhead efficiency variance.
- (iii) Control Ratios:
 - (a) Capacity ratio.
 - (b) Efficiency ratio.
 - (c) Activity ratio.

PYQ JAN 2021

Q.29 SJ Ltd. has furnished the following information:

NB	Standard overhead absorption rate per unit	₹ 20
	Standard rate per hour	₹ 4
PN	Budgeted production	15,000 units
	Actual production	15,560 units

Actual overheads were ₹ 2,95,000 out of which ₹ 62,500 fixed.

Actual hours 74,000

Overheads are based on the following flexible budget.

Production (units)	8,000	10,000	14,000
Total Overheads (₹)	1,80,000	2,10,000	2,70,000

You are required to calculate the following overhead variances (on hour's basis) with appropriate workings:

- Variable overhead efficiency and expenditure variance.
- Fixed overhead efficiency and capacity variance.

RTP MAY2012

Q.30 The overhead expense budget for a factory producing to a capacity of 200 units per month is as follows:

NB	Description of overhead	Fixed cost per unit in ₹	Variable cost per unit in ₹	Total cost per unit in ₹
PN	Power and fuel	1,000	500	1,500
	Repair and maintenance	500	250	750
	Printing and stationary	500	250	750
	Other overheads	1,000	500	1,500
		3,000	1,500	4,500

The factory has actually produced only 100 units in a particular month. Details of overheads actually incurred have been provided by the accounts department and are as follows:

Description of overhead	Actual cost
Power and fuel	₹ 4,00,000
Repair and maintenance	₹ 2,00,000
Printing and stationary	₹ 1,75,000
Other overheads	₹ 3,75,000

You are required to compute the production volume variance and the overhead expenses variance.

STUDY MAT

Q.31 XYZ Company has established the following standards for factory overheads.

NB	Variable overhead per unit:	₹ 10/-
PN	Fixed overheads per month	₹ 1,00,000
	Capacity of the plant 20,000 units per month.	

The actual data for the month are as follows:

Actual overheads incurred	₹ 3,00,000
Actual output (units)	15,000 units

Required:

Calculate overhead variances viz:

- Production Volume Variance
- Overhead Expense Variance

STUDY MAT

All Variances

Q.32 SARA Ltd. has furnished the following standard cost data per' unit of production:

NB	Material 15 kg @ ₹ 15 per kg.
PN	Labour 6 hours @ ₹ 5 per hour
	Variable overhead 6 hours @ ₹ 12 per hour.
	Fixed overhead ₹ 4,50,000 per month (Based on a normal volume of 30,000 labour hours.)

The actual cost data for the month of August 2023 are as follows:

Material used 65,000 kg at a cost of ₹ 9,85,000.

Labour paid ₹ 1,40,000 for 31,500 hours worked.

Variable overheads ₹ 3,60,200

Fixed overheads ₹ 4,70,000

Actual production 4,800 units.

CALCULATE:

- Material Cost Variance.
- Labour Cost Variance.
- Fixed Overhead Cost Variance.
- Variable Overhead Cost Variance.

MTP 1 MAY 2024

Q.33 SP Limited produces a product 'Tempex' which is sold in a 10 Kg. packet. The standard cost card per packet of 'Tempex' are as follows:

NB		(₹)
PN	Direct materials 10 kg @ ₹ 45 per kg	450
	Direct labour 8 hours @ ₹ 50 per hour	400
	Variable Overhead 8 hours @ ₹ 10 per hour	80
	Fixed Overhead	200
		1,130

Budgeted output for the third quarter of a year was 10,000 Kg. Actual output is 9,000 Kg. Actual cost for this quarter are as follows:

	(₹)
Direct Materials 8,900 Kg @ ₹ 46 per Kg.	4,09,400
Direct Labour 7,000 hours @ ₹ 52 per hour	3,64,000
Variable Overhead incurred	72,500
Fixed Overhead incurred	1,92,000

You are required to calculate:

- | | |
|--------------------------------------|------------------------------------|
| i) Material Usage Variance | ii) Material Price Variance' |
| iii) Material Cost Variance | iv) Labour Efficiency Variance |
| v) Labour Rate Variance | vi) Labour Cost Variance |
| vii) Variable Overhead Cost Variance | viii) Fixed Overhead Cost Variance |

MTP 1 MAY 2023

Q.34 Aaradhya Ltd.manufactures a commercial product for which the standard cost per unit is as follows:

NB		(₹)
PN	Material:	
	5 kg. @ ₹ 4 per kg.	20.00
	Labour:	
	3 hours @ ₹10 per hour	30.00
	Overhead	
	Variable: 3 hours @ ₹1	3.00
	Fixed: 3 hours @ ₹0.50	1.50
	Total	54.50

Standard Costing

During Jan. 20X8, 600 units of the product were manufactured at the cost shown below:

	(₹)
Materials purchased:	
5,000 kg. @ ₹4.10 per kg.	20,500
Materials used:	
3,500 kg.	
Direct Labour:	
1,700 hours @ ₹ 9	15,300
Variable overhead	1,900
Fixed overhead	900
Total	38,600

The flexible budget required 1,800 direct labour hours for operation at the monthly activity level used to set the fixed overhead rate.

COMPUTE:

- | | |
|---|---------------------------------|
| (a) Material price variance; | (b) Material Usage variance; |
| (c) Labour rate variance; | (d) Labour efficiency variance; |
| (e) Variable overhead expenditure variance; | |
| (f) Variable overhead efficiency variance; | |
| (g) Fixed overhead expenditure variance; | |
| (h) Fixed overhead volume variance; | |
| (i) Fixed overhead capacity variance; and | |
| (j) Fixed overhead efficiency variance. | |

Also RECONCILE the standard and actual cost of production.

MTP1 MAY2020

- Q.35** A company has three factories situated in North, East and South with its Head Office in Mumbai. The Management has received the following summary report on the operations of each factory for a period:

Factory	Sales		Profit	
	Actual	Over / (Under) Budget	Actual	Over / (Under) Budget
North	1,100	(400)	135	(180)
East	1,450	150	210	90
South	1,200	(200)	330	(110)

CALCULATE the following for each factory and for the company as a whole for the period:

- Fixed Cost
- Break-even Sales

PYQ NOV 2014

Miscellaneous

Q.36 Compute the sales variances (total, price and volume) from the following figures:

NB	Product	Budgeted Quantity	Budgeted Price per Unit (₹)	Actual Quantity	Actual Price per Unit (₹)
PN	P	4000	25	4800	30
	Q	3000	50	2800	45
	R	2000	75	2400	70
	S	1000	100	800	105

MTP MAY 2012

Q.37 SB Constructions Limited has entered into a big contract at an agreed price of ₹ 1,50,00,000 subject to an escalation clause for material and labour as spent out on the contract and corresponding actual are as follows

NB	Material:	Standard Quantity (Tonnes)	Rate per Tonne (₹)	Actual Quantity (Tonnes)	Rate per Tonne (₹)
PN	A	3,000	1,000	3,400	1,100
	B	2,400	800	2,300	700
	C	500	4,000	600	3,900
	D	100	30,000	90	31,500
	Labour:	Hours	Hourly Rate (₹)	Hours	Hourly Rate (₹)
	L1	60,000	15	56,000	18
	L2	40,000	30	38,000	35

You are required to:

Calculate the following variances and verify them :

- Material cost variance
- Material price variance
- Material usage variance
- Labour cost variance
- Labour rate variance
- Labour efficiency variance.

PYQ MAY 2010

Q.38 Compute the missing data indicated by the question marks from the following:

NB	Particulars	A	B
PN	Standard Price/unit	₹ 12	₹ 15
	Actual Price /unit	₹ 15	₹ 20
	Standard Input (kgs.)	50	?
	Actual Input (kgs.)	?	70
	Material Price Variance	?	?
	Material Usage Variance	?	₹ 300 Adverse
	Material Cost Variance	?	?

Material mix variance for both products together was ₹ 45 Adverse **RTP NOV 2008**

Q.39 Following data is extracted from the books of RAMZY Ltd. for the month of March:
(i) Estimation-

NB	Particulars	Quantity (kg.)	Price (₹)	Amount (₹)
PN	Material-A	1320	?	--
	Material-B	990	50	49,500
				--

Normal loss was expected to be 5% of total input materials.

(ii) Actuals-
2,500 kg of output produced.

Particulars	Quantity (kg.)	Price (₹)	Amount (₹)
Material-A	1500	?	--
Material-B	?	53	--
			98,000

(iii) Other Information-

Material Cost Variance = ₹ 5,500 (F)

Material Price Variance = ₹ 300 (F)

You are required to CALCULATE:

- Standard Price of Material-A;
- Actual Quantity of Material-B;
- Actual Price of Material-A;
- Revised standard quantity of Material-A and Material-B; and
- Material Mix Variance.

STUDY MAT

Additional Questions

Q.40 Ahaan Limited operates a system of standard costing in respect of one of its products 'AH1' which is manufactured within a single cost centre. Details of standard per unit are as follows:

NB

PN

- The standard material input is 20 kilograms at a standard price of ₹ 24 per kilogram.
- The standard wage rate is ₹ 72 per hour and 5 hours are allowed to produce one unit.
- Fixed production overhead is absorbed at the rate of 100% of wages cost.

During the month of April 2022, the following was incurred:

- Actual price paid for material purchased @ ₹ 22 per kilogram.
- Total direct wages cost was ₹ 43,92,000
- Fixed production overhead cost incurred was ₹ 45,00,000

Analysis of variances was as follows:

Variances	Favourable	Adverse
Direct material price	₹ 4,80,000	-
Direct material usage	₹ 48,000	
Direct labour rate	-	₹ 69,120
Direct labour efficiency	₹ 33,120	-
Fixed production overhead expenditure		₹1,80,000

You are required to CALCULATE the following for the month of April, 2022

- (i) Material cost variance
- (ii) Budgeted output (in units)
- (iii) Quantity of raw materials purchased (in kilograms)
- (iv) Actual output (in units)
- (v) Actual hours worked
- (vi) Actual wage rate per labour hour
- (vii) Labour cost variance
- (viii) Production overhead cost variance

RTP NOV 2022

- Q.41** Z. Ltd. uses standard costing system in manufacturing of its single product 'M'. The standard cost per unit of M is as follow:

	Rs.
Direct Material – 2 metres @ Rs. 6 per metre	12.00
Direct labour- 1 hour @ Rs. 4.40 per hour	4.40
Variable overhead- 1 hour @ Rs. 3 per hour	3.00

During July, 2016, 6,000 units of M were produced and the related data are as under:

Direct material acquired- 19,000 metres @ Rs.5.70 per metre.

Material consumed – 12,670 metres.

Direct labour- ? hours @ Rs. ? per hour Rs. 27,950

Variable overheads incurred Rs. 20,475

The variable overhead efficiency variance is Rs. 1,500 adverse. Variable overheads are based on direct labour hours. There was no stock of the material in the beginning

You are required to compute the missing figures and work out all the relevant variances.

MTP 1AUG 2018, STUDY MAT

- Q.42** A manufacturing firm produces a specific product and adopts standard costing system. The product is produced within a single cost centre.

NB
PN

Following information related to the product are available from the standard cost sheet of the product:

	Unit Cost (₹)
Direct material 5 kg @ ₹ 15 per kg	75.00
Direct wages 4 hours @ ₹ 20 per hour	80.00

During the month of October 2019, the firm purchased 3,50,000 kg of material at the rate of ₹ 14 per kg. Production records for the month exhibits the following actual results:

Material used	3,20,000 kg
Direct wages - 2,20,000 hours	₹ 46,20,000

The production schedule requires completion of 60,000 units in a month. However, the firm produced 62,000 units in the month of October, 2019. There are no opening and closing work-in-progress.

You are required to:

- Calculate material cost, price and usage variance.
- Calculate labour cost, Rate and efficiency variance and
- Calculate the amount of bonus, as an incentive scheme is in operation in the company whereby employees are paid a bonus of 50% of direct labour hour saved at standard direct labour hour rate.

PYQ NOV 2019

Q.43 Calculation of Earnings per share for three alternatives to finance the project

NB
PN

Particulars	Alternatives		
	I To raise debt of Rs.2,50,000 and equity of Rs. 22,50,000 Rs.	II To raise debt of Rs. 10,00,000 and equity of Rs. 15,00,000 Rs.	III To raise debt of Rs. 15,00,000 and equity of Rs. 10,00,000 Rs.
Earnings before interest and tax	5,00,000	5,00,000	5,00,000
Less: Interest on debt at the rate of	25,000 (10% on Rs. 2,50,000)	1,37,500 (10% on Rs. 2,50,000) (15% on Rs. 7,50,000)	2,37,500 (10% on Rs. 2,50,000) (15% on Rs. 7,50,000) (20% on Rs. 5,00,000)
Earnings before tax	4,75,000	3,62,500	2,62,500
Less: Tax (@ 50%)	2,37,500	1,81,250	1,31,250
Earnings after tax: (A)	2,37,500	1,81,250	1,31,250
Number of shares: (B) (Refer to working note)	15,000	10,000	8,000
Earnings per share: (A)/(B)	15.833	18.125	16.406

So, the earning per share (EPS) is higher in alternative II i.e. if the company finance the project by raising debt of Rs. 10,00,000 and issue equity shares of Rs. 15,00,000. Therefore the company should choose this alternative to finance the project.

Working Note:

	Alternatives		
	I	II	III
Equity financing : (A)	Rs. 22,50,000	Rs. 15,00,000	Rs. 10,00,000
Market price per share: (B)	Rs. 150	Rs. 150	Rs. 125
Number of equity share: (A)/(B)	15,000	10,000	8,000

CANCELLED

Q.44 NC Limited uses a standard costing system for the manufacturing of its product 'X'. The following information is available for the last week of the month:

NB

PN

- 25,000 kg of raw material were actually purchased for ₹ 3,12,500. The expected output is 8 units of product 'X' from each one kg of raw material. There is no opening and closing inventories. The material price variance and material cost variance, as per cost records, are ₹ 12,500 (F) and ₹ 1800 (A), respectively.
- The standard time to produce a batch of 10 units of product 'X' is 15 minutes. The standard wage rate per labour hour is 50. The company employs 125 workers in two categories, skilled and semi-skilled, in a ratio of 60:40. The hourly wages actually paid were ₹ 50 per hour for skilled workers and ₹ 40 per hour for semiskilled workers. The weekly working hours are 40 hours per worker. Standard wage rate is the same for skilled and semi- skilled workers.
- The monthly fixed overheads are budgeted at ₹ 76,480 Overheads are evenly distributed throughout the month and assume 4 weeks in a month. In the last week of the month, the actual fixed overhead expenses were ₹ 19,500.

Required:

- Calculate the standard price per kg and the standard quantity of raw material.
- Calculate the material usage variance, labour cost variance, and labour efficiency variance.
- Calculate the fixed overhead cost variance, the fixed overhead expenditure variance and the fixed overhead volume variance.

Note: Indicate the nature of variance i.e Favourable or Adverse.

PYQ MAY 2023

Q.45 PQR Alloys Ltd. uses a standard costing system.

Budgeted information for the year:

NB

PN

Budgeted output	84,000 units
Variable Factory Overhead per unit	₹ 16
Standard time for one unit of output	0.80 machine hour
Fixed factory overheads	₹ 6,72,000

Actual results for the year:

Actual output	87,600 units
Variable Overhead efficiency variance	₹ 67,200 (A)
Actual Fixed factory overheads	₹ 7,05,000
Actual variable factory overheads	₹ 14,37,000

Required:

Calculate the following variances clearly indicating Adverse(A) or Favourable (F):

- Variable factory overhead expenditure variance.
- Fixed factory overhead expenditure variance.
- Fixed factory overhead efficiency variance.
- Fixed factory overhead capacity variance.

PYQ NOV 2023

- Q.46** Y Ltd manufactures "Product M" which requires three types of raw materials - "A", "B" & "C". Following information related to 1st quarter of the F.Y. 2022-23 has been collected from its books of accounts. The standard material input required for 1,000 kg of finished product 'M' are as under:

Material	Quantity (Kg.)	Std. Rate per Kg. (₹)
A	500	25
B	350	45
C	250	55
	1100	
Standard Loss	100	
Standard Output	1000	

During the period, the company produced 20,000 kg of product "M" for which the actual quantity of materials consumed and purchase prices are as under:

Material	Quantity (Kg.)	Purchase price per Kg. (₹)
A	11,000	23
B	7,500	48
C	4,500	60

You are required to calculate:

- Material Cost Variance
- Material Price Variance for each raw material and Product 'M'
- Material Usage Variance for each raw material and Product 'M'
- Material Yield Variance

Note: Indicate the nature of variance i.e. Favourable or Adverse.

PYQ NOV 2022

- Q.47** The standard cost of a chemical mixture is as follows:

60% of Material A @ ₹ 50 per kg

40% Material B @ ₹ 60 per kg

A standard loss of 25% on output is expected in production. The cost records for a period has shown the following usage.

540 kg of Material A @ ₹ 60 per kg

260 kg of Material B @ ₹ 50 per kg

The quantity processed was 680 kilograms of good product.

From the above given information

Calculate:

- Material Cost Variance
- Material Price Variance
- Material Usage Variance
- Material Mix Variance
- Material Yield Variance.

PYQ NOV 2019

Q.48 Following are the details given:

NB	Budgeted Days	25
	Budgeted Fixed Overheads	1,00,000
PN	Budgeted Production	800 units per day
	Actual Production	21,000 units
Fixed Overheads are absorbed @ ₹ 10 per hour.		
	Fixed overheads efficiency variance	10,000A
	Fixed overheads calendar variance	8,000F
	Fixed overheads cost variance	15,000A

You are required to CALCULATE:

- (a) Actual Fixed Overheads
- (b) Actual Days
- (c) Actual Hours
- (d) Fixed overheads Expenditure variance
- (e) Fixed overheads volume variance
- (f) Fixed overheads capacity variance

MTP 1MAR 2022

Q.49 Broyhill Furnitures makes curio cabinets for various museums and art galleries. It makes 7 curio cabinets per hour by employing 5 skilled, 10 semiskilled and 20 unskilled workers. The standard wage rate is ₹ 24 per labour hour. During the last week workers worked for 56 hours and made 400 curio cabinets. 2% of the time paid was lost due to the abnormal reasons. The actual hourly rate paid to skilled, semiskilled and unskilled workers were ₹30, ₹24 and ₹18 respectively.

You are required to calculate

- (i) Labour Cost Variance
- (ii) Labour Rate Variance
- (iii) Labour Efficiency Variance and
- (iv) Idle Time Variance.

RTP 2009

Q.50 A company is considering four alternative proposals for a new toy manufacturing Machine launched in the market. New machine is expected to produce approximately 25,000 toys every year. The proposals are as follows:

- | | |
|----|---|
| NB | (i) Purchase and maintain the new toy manufacturing Machine and bear all related costs. These machines will run on fuel. The average cost of a Machine is ₹ 10,00,000. Life of the machine is 4 years with annual production of 25,000 toys and the Resale value is ₹ 2,00,000 at the end of the fourth year. |
| PN | (ii) Hire from Agency-A: It can hire the machine from the Agency-A and pay hire charges at the rate of ₹ 20 per toy and bear no other cost. |

- (iii) Hire from Agency-B: It can hire the machine from the Agency-B and pay hire charges at the rate of ₹ 12 per toy and also bear insurance costs. All other costs will be borne by Agency-B.
- (iv) Hire from Agency-C: Hire machine from Agency-C at ₹ 2,50,000 per year. These machines are more advanced and run on electricity and therefore, the running cost is considerably low. The company will have to bear costs of electricity, licensing fees and spare parts. However, Repairs and maintenance and Insurance cost are borne by Agency-C.

The following further details are available:

The cost of Fuel is ₹ 8 per toy, the cost of spare parts is ₹ 0.20 per toy and the cost of electricity is ₹ 2 per toy. Further, the cost of Repairs and maintenance is ₹ 0.25 per toy, the amount of licensing fees to be paid is ₹ 5,000 per machine per annum and the cost of Insurance to be paid is ₹ 25,000 per machine per annum. Consider no taxes.

You are required to:

- (i) Calculate the relative costs of four proposals on cost per toy basis.
- (ii) Rank the proposals on the basis of total cost for 25,000 toys per year.
- (iii) Recommend the best proposal to company in view of (ii) above.

CANCELLED

Q.51 Following information relates to labour of KAY PEE Ltd.:

NB		Skilled	Semi-skilled	Unskilled	Total
PN	Number of workers in standard gang	12	8	5	25
	Standard rate per hour (₹)	75	50	40	-
	Number of workers in actual gang				25
	Actual rate per hour (₹)	80	48	42	

The standard output of gang was 12 units per hour of the product M. The gang was engaged for 200 hours during the month of March 2019 out of which 20 hours were lost due to machine breakdown and 2,295 units of product M were produced. The actual number of skilled workers was 2 times the semi-skilled workers. Total labour mix variance was ₹ 10,800 (A).

You are required to calculate the following:

- (i) Actual number of workers in each category.
- (ii) Labour rate variance.
- (iii) Labour yield variance.
- (iv) Labour efficiency variance

PYQ MAY 2019

Q.52 In a manufacturing unit, a gang of employees usually consists of 20 skilled employees and 15 unskilled employees, paid at standard hourly rates of ₹ 65 and ₹ 55, respectively. In a normal working week of 50 hours, the gang is expected to produce 5000 units of output.

NB

PN

In a certain week, the gang consisted of 25 skilled employees and 20 unskilled employees. Actual hourly rates paid were ₹ 70 and ₹ 50 respectively. Five hours were lost due to abnormal idle time and 5500 units of outputs were produced.

You are required to calculate the following variances showing adverse (A) or favourable

(F):

- (a) Labour Cost Variance
- (b) Labour Rate Variance
- (c) Labour Efficiency Variance
- (d) Labour Idle Time Variance

PYQ JUL 2021

Progress Sheet

	Class Work	1 st Practice	2 nd Practice		Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐	Question 27	☐	☐	☐
Question 2	☐	☐	☐	Question 28	☐	☐	☐
Question 3	☐	☐	☐	Question 29	☐	☐	☐
Question 4	☐	☐	☐	Question 30	☐	☐	☐
Question 5	☐	☐	☐	Question 31	☐	☐	☐
Question 6	☐	☐	☐	Question 32	☐	☐	☐
Question 7	☐	☐	☐	Question 33	☐	☐	☐
Question 8	☐	☐	☐	Question 34	☐	☐	☐
Question 9	☐	☐	☐	Question 35	☐	☐	☐
Question 10	☐	☐	☐	Question 36	☐	☐	☐
Question 11	☐	☐	☐	Question 37	☐	☐	☐
Question 12	☐	☐	☐	Question 38	☐	☐	☐
Question 13	☐	☐	☐	Question 39	☐	☐	☐
Question 14	☐	☐	☐	Question 40	☐	☐	☐
Question 15	☐	☐	☐	Question 41	☐	☐	☐
Question 16	☐	☐	☐	Question 42	☐	☐	☐
Question 17	☐	☐	☐	Question 43	☐	☐	☐
Question 18	☐	☐	☐	Question 44	☐	☐	☐
Question 19	☐	☐	☐	Question 45	☐	☐	☐
Question 20	☐	☐	☐	Question 46	☐	☐	☐
Question 21	☐	☐	☐	Question 47	☐	☐	☐
Question 22	☐	☐	☐	Question 48	☐	☐	☐
Question 23	☐	☐	☐	Question 49	☐	☐	☐
Question 24	☐	☐	☐	Question 50	☐	☐	☐
Question 25	☐	☐	☐	Question 51	☐	☐	☐
Question 26	☐	☐	☐	Question 52	☐	☐	☐

14

MARGINAL COSTING

Q.1 A company earned a profit of ₹ 30,000 during the year 2011. If the marginal cost and selling price of the product are ₹ 8 and ₹ 10 per unit respectively, find out the amount of margin of safety. **STUDY MAT**

Q.2 Product Z has a profit-volume ratio of 28%. Fixed operating costs directly attributable to product Z during the quarter II of the financial year 2009-10 will be ₹ 2,80,000. Calculate the sales revenue required to achieve a quarterly profit of ₹ 70,000. **PYQ MAY 2009**

Q.3 If P/V ratio is 60% and the Marginal cost of the product is ₹ 20. What will be the selling price? **STUDY MAT**

Q.4 A company has fixed cost of ₹ 90,000, Sales ₹ 3,00,000 and Profit of ₹ 60,000. Required

NB

i) Sales volume if in the next period, the company suffered a loss of ₹ 30,000.

PN

i) What is the margin of safety for a profit of ₹ 90,000? **PYQ MAY 2008**

Q.5 A company had incurred fixed expenses of ₹ 4,50,000, with sales of ₹ 15,00,000 and earned a profit of ₹ 3,00,000 during the first half year. In the second half, it suffered a loss of ₹ 1,50,000.

NB

Calculate:

PN

i) The profit-volume ratio, break-even point and margin of safety for the first half year.

ii) Expected sales volume for the second half year assuming that selling price and fixed expenses remained unchanged during the second half year.

iii) The break-even point and margin of safety for the whole year. **STUDY MAT**

Q.6 MNP Ltd sold ₹ 2,75,000 units of its product at ₹ 37.50 per unit. Variable costs are ₹ 17.50 per unit (manufacturing costs of ₹ 14 and selling cost ₹ 3.50 per unit). Fixed costs are incurred uniformly throughout the year and amount to ₹ 35,00,000 (including depreciation of ₹ 15,00,000). There is no beginning or ending inventories.

NB

Required:

PN

i) Estimate break even sales level quantity and cash break even sales level quantity.

ii) Estimate the P/V ratio.

iii) Estimate the number of units that must be sold to earn an income (EBIT) of ₹ 2,50,000.

iv) Estimate the sales level achieve an after-tax income (PAT) of ₹ 2,50,000. Assume 40% corporate income tax rate. **PYQ MAY 2010**

Q.7 ABC Baggage Ltd. sells different styles of laptop bags with identical purchase costs and selling prices. The company is trying to find out the profitability of opening another store which will have the following expenses and revenues:

NB
PN

	Amount per piece (₹)
Selling Price	600
Variable costs:	
Material cost	410
Salesmens's commission	60
Total variable cost	470
Annual fixed expenses are:	(₹)
- Rent	6,00,000
- Office and administrative expenses	20,00,000
- Advertising	8,00,000
- others fixed expenses	2,00,000

For the each following independent situation you are required to:

- Calculate the annual break-even point in units and in value. Also Determine the profit or loss if 35,000 units of bags are sold.
- The sales commissions are proposed to be discontinued, but instead a fixed amount of ₹ 9,00,000 is to be incurred in fixed salaries. A reduction in selling price of 5% is also proposed. What will be the break-even point in units?
- It is proposed to pay the store manager ₹ 5 per piece as further commission. The selling price is also proposed to be increased by 5%. What would be the break-even point in units?

PYQ MAY 2009

Q.8 A laboratory carrying out various tests on products produced by various drug companies to ascertain whether drugs are fit for medical use or not. At present, the laboratory carries out 10,000 tests each year and a survey carried out by the laboratory shows a rise in number of tests to 15,000 tests a year, to carrying out all these tests would require an additional shift to be worked.

NB
PN

The current cost of carrying out a full test is:

	₹ per test
Materials	1,500
Technicians' fees	130
Variable expenses	25
Fixed cost	100

Working the additional shift would

- require a shift premium of 50 per cent to be paid to the technicians on the additional shift;
 - enable a quantity discount of 10 per cent to be obtained for all materials if an order was placed to cover 15,000 tests;
 - increase fixed costs by ₹ 5,00,000 per year.
- The current fee per test is ₹ 2,000.

PYQ NOV 2004

Q.9

		(₹)
NB	(i) Ascertain profit, when sales	= 2,00,000
PN	Fixed Cost	= 40,000
	BEP	= 1,60,000
	(ii) Ascertain sales, when fixed cost	= 20,000
	Profit	= 10,000
	BEP	= 40,000

RTP MAY 2012**Q.10** SHA Limited provides the following trading results:

	Year	Sale	Profit
NB	2012-13	₹ 25,00,000	10% of Sale
PN	2013-14	₹ 20,00,000	8% of Sale

You are required to calculate:

Fixed Cost

Break Even Point

Amount of profit, if sale is ₹ 30,00,000

Sale, when desired profit is ₹ 4,75,000

Margin of Safety at a profit of ₹ 2,70,000

PYQ MAY 2014**Q.11** You are given the following data:

	Sales	Profit
NB	Year 2010	₹ 1,20,000
PN	Year 2011	₹ 1,40,000
		13,000

Find out –

- P/V ratio,
- B.E. Point,
- Profit when sales are ₹ 1,80,000,
- Sales required earn a profit of ₹ 12,000,
- Margin of safety in year 2011.

STUDY MAT**Q.12** Answer the following:

Following information are available for the year 2008 and 2009 of PIX Limited:

	Year	2008	2009
NB	Sales	₹ 32,00,000	₹ 57,00,000
PN	Profit/(Loss)	₹ 3,00,000)	₹ 7,00,000

Calculate –(a) P/V ratio, (b) Total fixed cost, and (c) Sales required to earn a Profit of ₹ 12,00,000.

PYQ MAY 2018, RTP NOV 2017

- Q.13** MFN Limited started its operation in 2011 with the total production capacity of 2,00,000 units. The following data for two years is made available to you:

NB		2011	2012
PN	Sales units	80,000	1,20,000
	Total cost (₹)	34,40,000	45,60,000

There has been no change in the cost structure and selling price and it is expected to continue in 2013 as well. Selling price is ₹ 40 per unit.

You are required to calculate:

Break-Even Point (in units)

Profit at 75% of the total capacity in 2013

PYQ MAY 2013

- Q.14** A company sells its product at ₹ 15 per unit. In a period, if it produces and sells ₹ 8,000 units, it incurs a loss of ₹ 5 per unit. If the volume is raised to 20,000 units, it earns a profit of ₹ 4 per unit.

Calculate break-even point both in terms of rupees as well as in units.

RTP MAY 2013

- Q.15** When volume is 4,000 units; average cost is ₹ 3.75 per unit. When volume is 5,000 units, average cost is ₹ 3.50 per unit. The Break-Even point is 6,000 units.

Calculate: (i) Variable Cost per unit (ii) Fixed Cost and (iii) Profit Volume Ratio.

PYQ NOV 2019

- Q.16** A company has three factories situated in north, east and south with its Head Office in Mumbai. The management has received the following summary report on the operations of each factory for a period: (₹ in '000)

NB PN		Sales		Profit	
		Actual	Over/(Under) Budget	Actual	Over/(Under) Budget
	North	1,100	(400)	135	(180)
	East	1,450	150	210	90
	South	1,200	(200)	330	(110)

Calculate for each factory and for the company as a whole for the period:

- (i) the fixed cost (ii) break-even sales

STUDY MAT

Q.17 Zed Limited sells its product at ₹ 30 per unit. During the quarter ending on 31st March, 2014, it produced and sold 16,000 units and suffered a loss of ₹ 10 per unit. If the volume of sales is raised to 40,000 units, it can earn a profit of ₹ 8 per unit.

NB

You are required to calculate:

PN

Break Even Point in Rupees.

Profit if the sale volume is 50,000 units.

Minimum level of production where the company needs not to close the production if unavoidable fixed cost is ₹ 1,50,000.

PYQ NOV 2014

Q.18 Mr. X has ₹ 2,00,000 investments in his business firm. He wants a 15 per cent return on his money. From an analysis of recent cost figures, he finds that his variable cost of operating is 60 per cent of sales, his fixed costs are ₹ 80,000 per year. Show computations to answer the following questions:

NB

PN

- What sales volume must be obtained to break even?
- What sales volume must be obtained to get 15 per cent return on investment?
- Mr. X estimates that even if he closed the doors of his business, he would incur ₹ 25,000 as expenses per year. At what sales would he be better off by locking his business up?

STUDY MAT

Q.19 If margin of safety is ₹ 2,40,000 (40% of sales) and P/V ratio is 30% of AB Ltd, calculate its (1) Break even sales, and (2) Amount of profit on sales of ₹ 9,00,000.

NB

PN

X Ltd. has earned a contribution of ₹ 2,00,000 and net profit of ₹ 1,50,000 of sales of ₹ 8,00,000. Calculate Profit, P/V ratio, Nos.

STUDY MAT

Q.20 The ratio at variable cost to sales is 60%. The break-even point occurs at 80% of the capacity sales.

NB

PN

- Find the capacity sales when fixed costs are ₹ 1,60,000
- Compute profit at 80% of the capacity sales.
- Find profit if sales is ₹ 5,70,000 and fixed cost remain same as above.
- Find sales, if desired profit ₹ 44,000 and fixed cost is ₹ 1,42,000

RTP MAY 2013

Q.21 A Ltd. Maintains margin of safety of 37.5% with an overall contribution to sales ratio of 40%. Its fixed costs amount to ₹ 5 lakhs.

NB

PN

Calculate the following:

Break-even sales

Total sales

Total variable cost

Current profit

New 'margin of safety' if the sales volume is increased by 7 ½ %.

RTP MAY 2007

Q.22 A company produces single product which sells for ₹ 20 per unit. Variable cost is ₹ 15 per unit and Fixed overhead for the year is ₹ 6,30,000.

NB

Required:

PN

- Calculate sales value needed to earn a profit of 10% on sales.
- Calculate sales price per unit to bring BEP down to 1,20,000 units.
- Calculate margin of safety sales if profit is ₹ 60,000.

PYQ MAY 2007

Q.23 The P/V Ratio of Delta Ltd. is 50% and margin of safety is 40%. The company sold 500 units for ₹ 5,00,000.

NB

You are required to calculate:

PN

- Break- even point, and
- Sales in units to earn a profit of 10% on sales

PYQ NOV 2011

Q.24 A company has introduced a new product and marketed 20,000 units. Variable cost of the product is ₹ 20 per unit and fixed overheads are ₹ 3,20,000.

NB

You are required to:

PN

- Calculate selling price per unit to earn a profit of 10% on sales value, BEP and Margin of Safety.
- If the selling price is reduced by the company by 10%, demand is expected to increase by 5000 units, then what will be its impact on Profit, BEP and Margin of Safety?
- Calculate Margin of Safety if profit is ₹ 64,000.

RTP NOV 2014

Q.25 The following figures are related to LM Limited for the year ending 31st March, 2012: Sales - 24,000 units @ ₹ 200 per unit; P/V Ratio 25% and Break-even Point 50% of sales.

NB

You are required to calculate:

PN

- Fixed cost for the year
- Profit earned for the year
- Units to be sold to earn a target net profit of ₹ 11,00,000 for a year.
- Number of units to be sold to earn a net income of 25% on cost.
- Selling price per unit if Break-even Point is to be brought down by 4,000 units.

PYQ NOV 2012

Q.26 A Chinese soft drink company is planning to establish a subsidiary company in India to produce mineral water. Based on the estimated annual sales of 40,000 bottles of the mineral water, cost studies produced the following estimates for the Indian subsidiary:

NB

PN

	Total annual costs	Percent of Total Annual Cost which is variable
Material	2,10,000	100%
Labour	1,50,000	80%
Factory Overheads	92,000	60%
Administration Expenses	40,000	35%

The Indian production will be sold by manufacturer's representatives who will receive commission of 8% of the sale price. No portion of the Chinese office expenses is to be allocated to the Indian subsidiary.

You are required to

- Compute the sale price per bottle to enable the management to realize an estimated 10% profit on sale proceeds in India.
- Calculate the break-even point in Rupee sales as also in number of bottles for the Indian subsidiary on the assumption that the sale price is ₹ 14 per bottle.

STUDY MAT

Q.27 The following information was obtained from the records of a manufacturing unit:

NB PN	₹	
	Sales 80,000 units @ ₹ 25	20,00,000
	Material consumed	8,00,000
	Variable Overheads	2,00,000
	Labour Charges	4,00,000
	Fixed Overheads	17,60,000
	Net Profit	2,40,000

Calculate:

- The number of units by selling which the company will neither lose or nor gain anything.
- The sales needed to earn a profit of 20% on sales.
- The extra units which should be sold to obtain the present profit if it is proposed to reduce the selling price by 20% and 25% .
- The selling price to be fixed to bring down its Break –even Point to 10,000 units under present conditions.

MTP 1 MAY 2021

Q.28 Maxim Ltd manufactures a product "N-joy". In the month of August 2014, 14,000 units of Product "N-joy" were sold, the details are as under:

NB PN	(₹)	
	Sale Revenue	2,52,000
	Direct Material	1,12,000
	Direct Labour	49,000
	Variable Overheads	35,000
	Fixed Overheads	28,000

A forecast for the month of September 2014 has been carried out by the General manager Of Maxim Ltd. As per the forecast, price of direct material and variable overhead will be Increased by 10% and 5% respectively.

Required to calculate:

- Number of units to be sold to maintain the same quantum of profit tha made in August 2014.
- Margin of safety in the month of August 2014 and September 2014.

RTP MAY 2016

Q.29 J Ltd. manufactures a Product-Y. Analysis of income statement indicated a profit of ₹ 250 lakhs on a sales volume of 5,00,000 units. Fixed costs are ₹ 1,000 lakhs which appears to be high. Existing selling price is ₹ 680 per unit. The company is considering revising the profit target to ₹ 700 lakhs. You are required to COMPUTE –

NB

PN

- Break- even point at existing levels in units and in rupees.
- The number of units required to be sold to earn the target profit.
- Profit with 10% increase in selling price and drop in sales volume by 10%.
- Volume to be achieved to earn target profit at the revised selling price as calculated in (ii) above, if a reduction of 10% in the variable costs and ₹ 170 lakhs in the fixed cost is envisaged.

MTP AUG 2018

Q.30 PQR Ltd. has furnished the following data for the two years:

NB

PN

	2011	2012
Sales	₹ 8,00,000	?
Profit/Volume Ratio (P/V ratio)	50%	37.5%
Margin of Safety sales as a % of total sales	40%	21.875%

There has been substantial savings in the fixed cost in the year 2012 due to the restructuring process. The company could maintain its sales quantity level of 2011 in 2012 by reducing selling price.

You are required to calculate the following:

- Sales for 2012 in ₹
- Fixed cost for 2012
- Break-even sales for 2012 in Rupees.

STUDY MAT

Q.31 During a particular period ABC Ltd has furnished the following data:

Sales ₹10,00,000

NB

Contribution to sales ratio 37% and

PN

Margin of safety is 25% of sales.

A decrease in selling price and decrease in the fixed cost could change the "contribution to sales ratio" to 30% and "margin of safety" to 40% of the revised sales. Calculate:

- Revised Fixed Cost.
- Revised Sales and
- New Break-Even Point.

PYQ MAY 2021

Q.32 The following information is given by Star Ltd.:

Margin of Safety	₹ 1,87,500
Total Cost	₹ 1,93,750
Margin of Safety	3,750 units
Break-even Sales	1,250 units Required :
Calculate Profit, P/V Ratio, BEP Sales (in ₹) and Fixed Cost.	

STUDY MAT

Q.33 PQ Ltd. reports the following cost structure at two capacity levels:

	(100% capacity)	(75% capacity)
	2,000 units	1,500 units
Production overhead I	₹ 3 per unit	₹ 4 per unit
Production overhead II	₹ 2 per unit	₹ 2 per unit

If the selling price, reduced by direct material and labour is ₹ 8 per unit, what would be its break-even point?

PYQ NOV 2008

Q.34 A company has a P/V ratio of 40%. By what percentage must sales be increased to offset: 20% reduction in selling price?

STUDY MAT

Q.35 A dairy product company manufacturing baby food with a shelf life of one year furnishes the following information:

- | | |
|----|---|
| NB | (i) On 1st January, 2016, the company has an opening stock of 20,000 packets whose variable cost is ₹ 180 per packet. |
| PN | (ii) In 2015, production was 1,20,000 packets and the expected production in 2016 is 1,50,000 packets. Expected sales for 2016 is 1,60,000 packets. |
| | (iii) In 2015, fixed cost per unit was ₹ 60 and it is expected to increase by 10% in 2016. The variable cost is expected to increase by 25%. Selling price for 2016 has been fixed at ₹ 300 per packet. |

You are required to calculate the Break-even volume in units for 2016.

RTP NOV 2023

Q.36 A single product company sells its product at ₹ 60 per unit. In 2010, the company operated at a margin of safety of 40%. The fixed costs amounted to ₹ 3,60,000 and the variable cost ratio to sales was 80%.

In 2011, it is estimated that the variable cost will go up by 10% and the fixed cost will increase by 5%. Find the selling price required to be fixed in 2011 to earn the same P/V ratio as in 2010.

Assuming the same selling price of ₹ 60 per unit in 2011, find the number of units required to be produced and sold to earn the same profit as in 2010.

STUDY MAT

Q.37 By noting “P/V will increase or P/V will decrease or P/V will not change”, as the case may be, state how the following independent situations will affect the P/V ratio:

NB
PN

- An increase in the physical sales volume;
- An increase in the fixed cost;
- A decrease in the variable cost per unit;
- A decrease in the contribution margin;
- An increase in selling price per unit;
- A decrease in the fixed cost;
- A 10% increase in both selling price and variable cost per unit;
- A 10% increase in the selling price per unit and 10% decrease in the physical sales volume;
- A 50% increase in the variable cost per unit and 50% decrease in the fixed cost.
An increase in the angle of incidence.

STUDY MAT

Q.38 A Company sells two products, J and K. The sales mix is 4 units of J and 3 units of K. The contribution margins per unit are ₹ 40 for J and ₹ 20 for K. Fixed costs are ₹ 6,16,000 per month.

Compute the break-even point.

PYQ NOV 2009

Q.39 Marlboro Ltd. Has factories for producing cigarettes of identical quality. The figures of F/Y 2011 – 12 are as follows:

NB
PN

	Factory - A	Factory - B
Selling price per packet (₹)	75	75
Variable cost per packet (₹)	60	65
Fixed cost (₹)	3,10,000	2,15,000
Sales (units)	35,000	40,000
Production capacity (units)	40,000	45,000

Fixed cost includes depreciation on plant and machinery in factory A and factory B ₹ 40,000 and ₹ 38,000 respectively. You are required to calculate:

- Break – even Point in sales and units for each factory separately.
- Cash BEP in units for each factory separately.
- BEP in units for company as a whole. Current product mix of factory A and factory B is 1:2.

RTP MAY 2012

Q.40 The product mix of a Gama Ltd. is as under:

NB
PN

	Products	
	M	N
Units	54,000	18,000
Selling price	₹ 7.50	₹ 15.00
Variable cost	₹ 6.00	₹ 4.50

Find the break-even points in units, if the company discontinues product 'M' and replace with product 'O'. The quantity of product 'O' is 9,000 units and its selling price and variable costs respectively are ₹ 18 and ₹ 9. Fixed Cost is ₹ 15,000.

STUDY MAT

Q.41 A company, with 90% Capacity utilization, is manufacturing a product and makes a sale of ₹ 9,45,000 at ₹ 30 per unit. The cost data is as under :

NB	Materials	₹ 9.00 per unit
PN	Labour	₹ 7.00 per unit
	Semi variable cost	
	(including variable cost of ₹ 4.25 per unit)	₹ 2,10,000

Fixed cost is ₹ 94,500 upto 90 % level of output (capacity). Beyond this, an additional amount of ₹ 15,000 will be incurred.

You are required to calculate :

- Level of output at break – even point
- Number of units to be sold to earn a net income of 10% of sales
- Level of output needed to earn a profit of ₹ 1,41,375

PYQ NOV 2017

Q.42 Omega Ltd manufactures a product, currently utilising 75% capacity with a turnover of ₹ 99,00,000 at ₹ 275 per unit. The cost data is as under.

NB		Amount (₹)
PN	Direct Material per unit	96
	Direct wages per unit	42
	Variable overhead per unit	18
	Semi - variable overheads	7,32,000
	P/V ratio	40%

Fixed overhead cost is ₹ 28,81,000 upto 80% level of activity, beyond this level, an additional ₹ 2,38,500 will be incurred.

Required:

- Break - even point in units and activity level at Break - even point.
- Number of units to be sold to earn profit of ₹ 25 per unit

PYQ NOV 2019

Q.43 Maryanne Petrochemicals Ltd. is operating at 80% capacity and presents the following information

NB	Break-even Sales	₹ 400 crores
PN	P/V Ratio	30%
	Margin of Safety	₹ 120 crores

Maryanne's management has decided to increase production to 95% capacity level with the following modification

- The selling price will be reduced by 10%
- The variable cost will be increased by 2% on sales
- The fixed costs will be increased by ₹ 50 crores, including depreciation on additions, but excluding interest on additional capital

Required:

- Indicate the sales figure, with the working, that will be needed to earn ₹ 20 crores over and above the present profit and also meet 15% interest on the additional capital
- What will be the revised
 - Break-even Sales
 - PV Ratio
 - Margin of Safety

RTP MAY 2014

Q.44 You are given the following data for the year 2015 of Rio Co. Ltd.

NB	Variable cost	60,000	60%
PN	Fixed cost	30,000	30%
	Net profit	10,000	10%
	Sales	1,00,000	100%

Find out (a) Break-even point. (b) P/V ratio, and (c) Margin of safety. Also draw a break-even chart showing contribution and profit.

RTP MAY 2007

Q.45 Arnav Ltd. Manufacture and sales its product R-9. The following figures have been collected from cost records of last year for the product R-9.

NB	Elements of Cost	Variable Cost prortion	Fixed Cost
PN	Direct Material	30% of Cost of Goods Sold	-
	Direct Labour	15% of Cost of Goods Sold	-
	Factory Overhead	10% of Cost of Goods Sold	₹ 2,30,000
	General & Administration Overhead	2% of Cost of Goods Gold	₹ 71,000
	Selling &Distription Overhead	4% of Cost of Sales	₹ 68,000

Last Year 5,000 units were sold at ₹ 185 per unit. From the given data find the following:

- Break-even Sales (in rupees)
- Profit earned during last year
- Margin of safely (in %)
- Profit if the sales were 10% less then the actual sales.

RTP MAY 2015

Decision Making

Q.46 Aditya Limited manufactures three different products and the following information has been collected from the books of accounts:

NB
PN

	Products		
	S	T	U
Sales Mix	35%	35%	30%
Selling Price	₹ 300	₹ 400	₹ 200
Variable Cost	₹ 150	₹ 200	₹ 120
Total Fixed Costs			₹ 18,00,000
Total Sales			₹ 60,00,000

The company has currently under discussion, a proposal to discontinue the manufacture of Product U and replace it with Product M, when the following results are anticipated:

	Products		
	S	T	U
Sales Mix	50%	25%	25%
Selling Price	₹ 300	₹ 400	₹ 300
Variable Cost	₹ 150	₹ 200	₹ 150
Total Fixed Costs			₹ 18,00,000
Total Sales			₹ 64,00,000

Required

- COMPUTE the PV ratio, total contribution, profit and Break-even sales for the existing product mix.
- COMPUTE the PV ratio, total contribution, profit and Break-even sales for the proposed product mix.

MTP 2 NOV 2021, RTP MAY 2022

Q.47 A company can make any one of the 3 products X, Y or Z in a year. It can exercise its option only at the beginning of each year. Relevant information about the products for the next year is given below.

NB
PN

	X	Y	Z
Selling Price (Rs. / unit)	100	120	120
Variable Costs (Rs. / unit)	60	90	70
Market Demand (unit)	3,000	2,000	1,000
Production Capacity (unit)	2,000	3,000	900
Fixed Costs (Rs.)	3,00,000		

Required

COMPUTE the opportunity costs for each of the products.

STUDY MAT, MTP1 MAY 2020

Q.48 M.K. Ltd. manufactures and sells a single product X whose selling price is ₹ 40 per unit and the variable cost is ₹ 16 per unit.

NB

PN

- (i) If the Fixed Costs for this year are ₹ 4,80,000 and the annual sales are at 60% margin of safety, calculate the rate of net return on sales, assuming an income tax level of 40%
- (ii) For the next year, it is proposed to add another product line Y whose selling price would be ₹ 50 per unit and the variable cost ₹ 10 per unit. The total fixed costs are estimated at ₹ 6,66,600. The sales mix of X : Y would be 7 : 3. At what level of sales next year, would M.K. Ltd. break even? Give separately for both X and Y the break- even sales in rupee and quantities.

STUDY MAT

Q.49 PH Gems Ltd. is manufacturing readymade suits. It has annual production capacity of 2,000 pieces. The Cost Accountant has presented following information for the year to the management:

NB

PN

Particulars	Amount (₹)	Amount (₹)
Sales 1,500 pieces @ ₹ 1,800 per piece		27,00,000
Direct Material	5,94,200	
Direct Labour	4,42,600	
Overheads (40% Fixed)	11,97,000	22,33,800
Net Profit		4,66,300

Evaluate following options:

- (i) If selling price is increased by ₹ 200, the sales will come down to 60% of the total annual capacity. Should the company increase its selling price?
- (ii) The company can earn a profit of 20% on sales if the company provide TIEPIN with ready-made suit. The cost of each TIEPIN is ₹ 18. Calculate the sales to earn a profit of 20% on sales.

PYQ MAY 2018

Q.50 Following data is available from the costing department of Aarya Ltd. which manufactures and markets a single product:

NB

PN

Material	Rs. 32 per unit	Fixed Cost (Rs.)	Rs. 10,00,000
Conversion Cost (Variable)	Rs. 24 per unit	Present Sales (units)	90,000
Dealer's Margin (10% of Sales)	Rs. 8 per unit	Capacity Utilization	60 %
Selling Price	Rs. 80 per unit		

There is acute competition in the market, thus extra efforts are necessary to enhance the sales. For this, following suggestions have been proposed:

- (i) Reducing selling price by 5 per cent.
- (ii) Increasing dealer's margin by 20 per cent over the existing rate.

Which of these two suggestions would you RECOMMEND, if the company desires to maintain the present profit? GIVE REASONS.

MTP 2MAY 2021

Q.51 The profit for the year of R.J. Ltd. works out to 12.5% of the capital employed and the relevant figures are as under:

NB	Sales	₹ 5,00,000
	Direct Materials	₹ 2,50,000
PN	Direct Labour	₹ 1,00,000
	Variable Overheads	₹ 40,000
	Capital Employed	₹ 4,00,000

The new Sales Manager who has joined the company recently estimates for next year a profit of about 23% on capital employed, provided the volume of sales is increased by 10% and simultaneously there is an increase in Selling Price of 4% and an overall cost reduction in all the elements of cost by 2%.

Required

Find out by computing in detail the cost and profit for next year, whether the proposal of Sales Manager can be adopted.

STUDY MAT

Q.52 LR Ltd. is considering two alternative methods to manufacture a new product it intends to market. The two methods have a maximum output of 50,000 units each and produce identical items with a selling price of ₹ 25 each. The costs are:

NB		Method-1 Semi-Automatic (₹)	Method-2 Fully-Automatic (₹)
PN	Variable cost per unit	15	10
	Fixed costs	1,00,000	3,00,000

You are required to calculate:

- (1) Cost Indifference Point in units. Interpret your results.
- (2) The Break-even Point of each method in terms of units.

PYQ JUL 2021

- Q.53** The following are cost data for three alternative ways of processing the clerical work for cases brought before the LC Court System:

NB		A Manual (₹)	B Semi-Automatic (₹)	C Fully-Automatic (₹)
PN	Monthly fixed costs:			
	Occupancy	15,000	15,000	15,000
	Maintenance contract	---	5,000	10,000
	Equipment lease	---	25,000	1,00,000
	Unit variable costs (per report):			
	Supplies	40	80	20
	Labour	₹200 (5 hrs × ₹40)	₹60 (1 hr × ₹60)	₹20 (0.25 hr × ₹80)

STUDT MAT

Required

- Calculate cost indifference points. Interpret your results.
- If the present case load is 600 cases and it is expected to go up to 850 cases in near future, which method is most appropriate on cost considerations?

- Q.54** XY Ltd. makes two products X and Y, whose respective fixed costs are F1 and F2. You are given that the unit contribution of Y is one fifth less than the unit contribution of X, that the total of F1 and F2 is ₹ 1,50,000, that the BEP of X is 1,800 units (for BEP of X F2 is not considered) and that 3,000 units is the in difference point between X and Y. (i.e. X and Y make equal profits at 3,000 unit volume, considering their respective fixed costs). There is no inventory build up as whatever is produced is sold.

Required

Find out the values F1 and F2 and units contributions of X and Y.

STUDT MAT

- Q.55** X Ltd. supplies spare parts to an air craft company Y Ltd. The production capacity of X Ltd. facilitates production of any one spare part for a particular period of time. The following are the cost and other information for the production of the two different spare parts A and B:

NB		Part A	Part B
PN	Per unit		
	Alloy usage	1.6 kgs.	1.6 kgs.
	Machine Time: Machine A	0.6 hrs.	0.25 hrs.
	Machine Time: Machine B	0.5 hrs.	0.55 hrs.
	Target Price (₹)	145	115
	Total hours available:	Machine A 4,000 hours	Machine B 4,500 hours
	Alloy available is 13,000 kgs. @ ₹ 12.50 per kg.		
	Variable overheads per machine hours:	Machine A: ₹ 80	Machine B: ₹ 100

Required

- Identify the spare part which will optimize contribution at the offered price.
- If Y Ltd. reduces target price by 10% and offers ₹ 60 per hour of unutilized machinehour, what will be the total contribution from the spare part identified above?

STUDT MAT

Q.56 Moon Ltd. produces products 'X', 'Y' and 'Z' and has decided to analyse its production mix in respect of these three products - 'X', 'Y' and 'Z'.

You have the following information :

	X	Y	Z
NB Direct Materials ₹ (per unit)	160	120	80
Variable Overheads ₹ (per unit)	8	20	12
PN Direct labour :			

Departments:	Rate per Hour (₹)	Hours per unit	Hours per unit	Hours per unit
		X	Y	Z
Department-A	4	6	10	5
Department-B	8	6	15	11

From the current budget, further details are as below :

	X	Y	Z
Annual Production at present (in units)	10,000	12,000	20,000
Estimated Selling Price per unit (₹)	312	400	240
Sales departments estimate of possible sales in the coming year (in units)	12,000	16,000	24,000

There is a constraint on supply of labour in Department-A and its manpower cannot be increased beyond its present level.

Required:

- Identify the best possible product mix of Moon Ltd.
- Calculate the total contribution from the best possible product mix.

PYQ NOV 2020

Additional Questions

- Q.57** A company manufactures and sells a product, the price of which is controlled by the Government. Raw material required for this product is also made available at a fixed controlled price. The following figures have been called for the previous two accounting years of the company:

NB

PN

	Year- I	Year- II
Quantity Sold (tones)	1,26,000	1,44,000
Price per tone	₹ 185	₹ 185
(₹ In thousands)		
Sales Value	23,310	26,640
Raw Materials	11,340	12,960
Direct Labour	1,512	1,872
Factory, Administration and Selling Expenses	9,702	11,232
Profit	756	576

During the year II direct labour rates increased by $8\frac{1}{3}\%$. Increases in factory, administration and selling expenses during the year were ₹ 8,10,000 on account of factors other than the increased quantities produced and sold. The managing director desires to know, what quantity if they had produced and sold would have given the company the same net profit per tonne in Year II as it earned during the Year I Advise him.

MTP 2 SEP 2024

- Q.58** At budget activity of 80% of total capacity, a company earns a P/V ratio of 30% and a profit of 15% of total sales. Due to covid pandemic resulting in poor demand, the company has to reduce its selling price by 10%. The company was able to achieve a production and sales volume for the year equivalent to 50% of total capacity. The sales value at this level was ₹ 27,00,000 at a reduced price of ₹ 18 per unit. Due to reduction in production, the actual variable cost went up by 5% of the budget.

NB

PN

You are required to:

- (i) PREPARE statement of profitability at budget and actual activity.
- (ii) FIND P/V ratio and BES (in ₹ and unit of the actual sales activity).

MTP 1 MAY 2022

Q.59 A company makes 1,500 units of a product for which the profitability statement is given below:

NB		(₹)
PN	Sales	1,20,000
	Direct Materials	30,000
	Direct Labour	35,000
	Variable Overheads	15,000
	Fixed Cost	16,800
	Profit	22,200

After the first 500 units of production, the company has to pay a premium of ₹ 5 per unit towards overtime labour. The premium so paid has been included in the direct labour cost of ₹ 35,000 given above.

MTP 2NOV 2022

Q.60 R Ltd. produces and sells 60,000 units of product 'AN', at its Noida Plant. The selling price of the product is ₹ 15 per unit. The variable cost is 80% of selling price per unit. Fixed cost during this period is ₹ 4,20,000. The company is continuously suffering losses, and management plans to shut down the Noida Plant.

NB	
PN	The fixed cost is expected to be reduced by ₹ 2,50,000.
	Additional costs of plant shut down are expected at ₹ 25,000.

You are required to comment on:

- Whether the Noida plant be shut down?
- Find the shut-down point in units.

PYQ NOV 2023

Q.61 An agriculture based company having 210 hectares of land is engaged in growing three different cereals namely, wheat, rice and maize annually. The yield of the different crops and their selling prices are given below:

NB		Wheat	Rice	Maize
PN	Yield (in kgs per hectare)	2,000	500	100
	Selling Price (₹ per kg)	20	40	250

The variable cost data of different crops are given below:

(All figures in ₹ per kg)

Crop	Labour charges	Packing Materials	Other variable expenses
Wheat	8	2	4
Rice	10	2	1
Maize	120	10	20

Crop	Maximum Area (in hectares)	Minimum Area (in hectares)
Wheat	160	100
Rice	50	40
Maize	60	10

You are required to:

- Rank the crops on the basis of contribution per hectare.
- Determine the optimum product mix considering that all the three cereals are to be produced.
- Calculate the maximum profit which can be achieved if the total fixed cost per annum is ₹ 21,45,000.

(Assume that there are no other constraints applicable to this company)

PYQ NOV 2022

Q.62 A dairy product company manufacturing baby food with a shelf life of one year furnishes the following information:

NB

- On 1st April, 2023, the company has an opening stock of 20,000 packets whose variable cost is ₹ 180 per packet.

PN

- In 2022-23, production was 1,20,000 packets and the expected production in 2023-24 is 1,50,000 packets. Expected sales for 2023-24 is 1,60,000 packets.
- In 2022-23, fixed cost per unit was ₹ 60 and it is expected to increase by 10% in 2023-24. The variable cost is expected to increase by 25%. Selling price for 2023-24 has been fixed at ₹ 300 per packet.

You are required to calculate the Break-even volume in units for 2023-24.

RTP NOV 2023

Q.63 RPP Manufacturers is approached by an international customer for one-time special order similar to one offered to its domestic customers. Per unit data for sales to regular customers is provided below:

NB

PN

Direct material	₹ 693
Direct labour	₹ 315
Variable manufacturing support	₹ 504
Fixed manufacturing support	₹ 1092
Total manufacturing costs	₹ 2604
Markup (50%)	₹ 1302
Targeted selling price	₹ 3906

It is provided that RPP Manufacturers has excess capacity.

It is provided that RPP Manufacturers has excess capacity.

Required:

- (i) WHAT is the full cost of the product per unit?
- (ii) WHAT is the contribution margin per unit?
- (iii) WHICH costs are relevant for making the decision regarding this one-time special order? WHY?
- (iv) For RPP Manufacturers, WHAT is the minimum acceptable price of this onetime-special order only
- (v) For this one-time-only special order, SHOULD RPP Manufacturers consider a price of ₹ 2100 per unit? WHY or why not?

RTP NOV 2022

Q.64 The lab corner of Newlife Hospital Trust operates two types of specialist MRI scanning machine- MR10 and MR59. Following details are estimated for the next period:

NB PN	Machine	MR10	MR59
	Running hours	1,100	2,000
		(₹)	(₹)
	Variable running costs excluding special technology	68,750	1,60,000
	Fixed Costs	50,000	2,43,750

A brain scan is normally carried out on machine type MR10. This task uses special technology costing ₹ 100 each and takes four hours of machine time. Because of the nature of the process, around 10% of the scans produce blurred and therefore seless results.

Required:

- (i) CALCULATE the total cost of a satisfactory brain scan on machine type MR10.
- (ii) Brain scans can also be done on machine type MR59 and would take only 1.8 hours per scan with a reduced reject rate of 6%. However, the cost of the special technology would be ₹ 137.50 per scan. ADVISE which type should be used, assuming sufficient capacity is available on both types of machines. Consider fixed costs will remain unchanged.

RTP NOV 2022

Q.65 NG Ltd. has an annual fixed cost of ₹ 98,50,000. In the year 2022-23, sales amounted to ₹ 7,80,60,000 as compared to ₹ 5,93,10,000 in the preceding year 2021-22. Profit in the year 2022-23 is ₹ 37,50,000 more than that in 2021-22.

Required:

- (i) CALCULATE Break-even sales of the company.
- (ii) DETERMINE profit/ loss on a forecasted sales volume of ₹ 8,20,00,000.
- (iii) If there is a reduction in selling price by 10% in the financial year 2022-23 and company desires to earn the same amount of profit as in 2021-22, COMPUTE the required sales amount?

MTP NOV 2023

- Q.66** A manufacturing concern was operating at margin of safety of 40% in the year 2018 and was selling its product at ₹ 75 per unit. Variable cost ratio to sales was 80% and fixed costs amounted to ₹ 5,40,000.

NB

In the year 2019, the concern anticipates an increase in the variable costs and fixed costs by 15% and 5% respectively.

PN

You are required to:

Find out the selling price to be fixed in the year 2019 keeping in view that concern is willing to maintain the same P/V ratio as it was in the year 2018.

PYQ NOV 2018

- Q.67** MNP Company Limited produces two products 'A' and 'B'. The relevant cost and sales data per unit of output is as follows.

NB

PN

Particulars	Product A	Product B
	(₹)	(₹)
Direct material	55	60
Direct labour	35	45
Variable factory overheads	40	20
Selling Price	180	175

The availability of machine hours is limited to 55,000 hours for the month. The monthly demand for product 'A' and product 'B' is 5,000 units and 6,000 units, respectively. The fixed expenses of the company are ₹ 1,40,000 per month. Variable factory overheads are ₹ 4 per machine hour. The company can produce both products according to the market demand.

Required:

Calculate the product mix that generates maximum profit for the company in the situation and also calculate profit of the company.

PYQ MAY 2023

- Q.68** Top-tech a manufacturing company is presently evaluating two possible machines for the manufacture of superior Pen-drives. The following information is available:

NB

PN

Particulars	Machine A	Machine B
Selling price per unit	₹ 400.00	₹ 400.00
Variable cost per unit	₹ 240.00	₹ 260.00
Total fixed costs per year	₹ 350 lakhs	₹ 200 lakhs
Capacity (in units)	8,00,000	10,00,000

Required:

- Recommend which machine should be chosen?
- Would you change your answer, if you were informed that in near future demand will be unlimited and the capacities of the two machines are as follows?
Machine A - 12,00,000 units
Machine B - 12,00,000 units
Why?

PYQ MAY2022

Q.69 Two manufacturing companies A and B are planning to merge. The details are as follows:

NB		A	B
PN	Capacity utilisation (%)	90	60
	Sales (₹)	63,00,000	48,00,000
	Variable Cost (₹)	39,60,000	22,50,000
	Fixed Cost (₹)	13,00,000	15,00,000

Assuming that the proposal is implemented, calculate:

- Break-Even sales of the merged plant and the capacity utilization at that stage.
- Profitability of the merged plant at 80% capacity utilization.
- Sales Turnover of the merged plant to earn a profit of ₹ 60,00,000.
- When the merged plant is working at a capacity to earn a profit of ₹ 60,00,000, what percentage of increase in selling price is required to sustain an increase of 5% in fixed overheads.

PYQ JAN 2021

Q.70 AZ company has prepared its budget for the production of 2,00,000 units. The variable cost per unit is ₹ 16 and fixed cost is ₹ 4 per unit. The company fixes its selling price to fetch a profit of 20% on total cost.

You are required to calculate:

- Present break-even sales (in ₹ and in quantity).
- Present profit-volume ratio.
- Revised break-even sales in ₹ and the revised profit-volume ratio, if it reduces its selling price by 10%.
- What would be revised sales- in quantity and the amount, if a company desires a profit increase of 20% more than the budgeted profit and selling price is reduced by 10% as above in point (iii).

PYQ DEC 2021

Q.71 A company which manufactures and sells three products furnishes the following details for a month:

NB	Products	A	B	C
PN	Number of units sold	50,000	19,000	23,000
	Selling Price per unit (₹)	25	40	30
	Variable cost per unit (₹)	17	26	12

The fixed costs of the company amount to ₹ 6,15,000 per month.

Required:

- Calculate the current monthly Profit volume ratio and Break-even sales (in ₹) of the company.

- (ii) Company plans to reduce selling price of product C to increase the sales volume. By implementing the plan, it is expected that the profit volume ratio of the product C will be reduced to 50%. Determine the sales price per unit and sales units of product C required to maintain the existing amount of the contribution of the company. Also compute the effect on the company's profit volume ratio and BEP (in ₹).
- (iii) It has been proposed to undertake an intensive advertisement campaign involving an expenditure of ₹ 60,000 per month and to reduce selling price of product C to ₹ 24. Calculate the additional sales units required per month of product C to justify the expenditure on advertisement while maintaining existing contribution.

PYQ DEC 2021

Q.72 LNP Ltd. and MNT Ltd. are engaged in manufacturing of identical products. Existing revenue and cost data is as follows:

		LNP Ltd. (₹)	MNT Ltd. (₹)
NB	Sales	13,60,000	17,00,000
PN	Variable Cost	10,88,000	10,20,000
	Fixed Cost	1,72,000	5,80,000

You are required to calculate:

- (i) Break-even point (in Value) for each company
 Sales at which each company will earn a profit of ₹ 5,00,000.
 Sales at which both companies will have same profits.

RTP 2009

Q.73 Arnav Ltd. is producing a single product, has the profit-volume ratio of 40%. The company wishes to increase the selling price by 10% which will increase the variable cost by 5%. The fixed overheads will increase from its present level of Rs.20,00,000 to Rs.30,00,000.

Required:

- (i) Compute the company's original break-even point sales and the break-even point sales after the increase.
- (ii) You are also required to ascertain the sales value for the firm to make a profit of Rs.4,50,000 after the increase.

MTP 2 NOV 2018

Q.74 The M-Tech Manufacturing Company is presently evaluating two possible processes for the manufacture of a toy. The following information is available:

NB	Particulars	Process A (₹)	Process B (₹)
PN	Variable cost per unit	12	14
	Sales price per unit	20	20
	Total fixed costs per year	30,00,000	21,00,000
	Capacity (in units)	4,30,000	5,00,000
	Anticipated sales (Next year, in units)	4,00,000	4,00,000

Suggest:

1. Identify the process which gives more profit.
2. Would you change your answer as given above, if you were informed that the capacities of the two processes are as follows:
A - 6,00,000 units; B - 5,00,000 units?

RTP NOV 2023

Progress Sheet

	Class Work	1 st Practice	2 nd Practice		Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐	Question 29	☐	☐	☐
Question 2	☐	☐	☐	Question 30	☐	☐	☐
Question 3	☐	☐	☐	Question 31	☐	☐	☐
Question 4	☐	☐	☐	Question 32	☐	☐	☐
Question 5	☐	☐	☐	Question 33	☐	☐	☐
Question 6	☐	☐	☐	Question 34	☐	☐	☐
Question 7	☐	☐	☐	Question 35	☐	☐	☐
Question 8	☐	☐	☐	Question 36	☐	☐	☐
Question 9	☐	☐	☐	Question 37	☐	☐	☐
Question 10	☐	☐	☐	Question 38	☐	☐	☐
Question 11	☐	☐	☐	Question 39	☐	☐	☐
Question 12	☐	☐	☐	Question 40	☐	☐	☐
Question 13	☐	☐	☐	Question 41	☐	☐	☐
Question 14	☐	☐	☐	Question 42	☐	☐	☐
Question 15	☐	☐	☐	Question 43	☐	☐	☐
Question 16	☐	☐	☐	Question 44	☐	☐	☐
Question 17	☐	☐	☐	Question 45	☐	☐	☐
Question 18	☐	☐	☐	Question 46	☐	☐	☐
Question 19	☐	☐	☐	Question 47	☐	☐	☐
Question 20	☐	☐	☐	Question 48	☐	☐	☐
Question 21	☐	☐	☐	Question 49	☐	☐	☐
Question 22	☐	☐	☐	Question 50	☐	☐	☐
Question 23	☐	☐	☐	Question 51	☐	☐	☐
Question 24	☐	☐	☐	Question 52	☐	☐	☐
Question 25	☐	☐	☐	Question 53	☐	☐	☐
Question 26	☐	☐	☐	Question 54	☐	☐	☐
Question 27	☐	☐	☐	Question 55	☐	☐	☐
Question 28	☐	☐	☐	Question 56	☐	☐	☐

Progress Sheet

	Class Work	1 st Practice	2 nd Practice		Class Work	1 st Practice	2 nd Practice
Question 57	☐	☐	☐	Question 66	☐	☐	☐
Question 58	☐	☐	☐	Question 67	☐	☐	☐
Question 59	☐	☐	☐	Question 68	☐	☐	☐
Question 60	☐	☐	☐	Question 69	☐	☐	☐
Question 61	☐	☐	☐	Question 70	☐	☐	☐
Question 62	☐	☐	☐	Question 71	☐	☐	☐
Question 63	☐	☐	☐	Question 72	☐	☐	☐
Question 64	☐	☐	☐	Question 73	☐	☐	☐
Question 65	☐	☐	☐	Question 74	☐	☐	☐



**BUDGETS
AND
BUDGETARY
CONTROL**

Flexible Budgets

Q.1 A factory which expects to operate 7,000 hours, i.e., at 70% level of activity, furnishes details of expenses as under:

NB	Variable expenses	₹ 1,260
PN	Semi-variable expenses	₹ 1,200
	Fixed expenses	₹ 1,800

The semi-variable expenses go up by 10% between 85% and 95% activity and by 20% above 95% activity. Construct a flexible budget for 80, 90 and 100 per cent activities.

STUDY MAT

Q.2 A department of Company X attains sale of ₹ 6,00,000 at 80 per cent of its normal capacity and its expenses are given below:

NB	Administration costs:	(₹)
PN	Office salaries	90,000
	General expenses	2 per cent of sales
	Depreciation	7,500
	Rates and taxes	8,750
	Selling costs:	
	Salaries	8 percent of sales
	Travelling expenses	2 percent of sales
	Sales office expenses	1 percent of sales
	General expenses	1 per cent of sales
	Distribution costs:	
	Wages	15,000
	Rent	1 percent of sales
	Other expenses	4 percent of sales

Draw up flexible administration, selling and distribution costs budget, operating at 90 per cent, 100 per cent and 110 per cent of normal capacity.

STUDY MAT

- Q.3** M/s NNSG Ltd, specialized in manufacturing of piston rings for motor vehicle. It has prepared budget for 8,000 units per annum at budgeted cost of ₹ 21,64,400 as detailed below:

NB PN		(₹)	(₹)
	Fixed cost (Manufacturing)		2,28,000
	Variable costs:		
	Power		
	Repairs, etc.	18,000	
	Other variable cost	16,000	
	Direct material	6,400	
	Direct labour	6,16,000	
		12,80,000	
			19,36,400
			21,64,400

Considering the possible impact on sales turnover by market trends, the company decides to prepare flexible budget with a production target of 4,000 and 6,000 units. On behalf of the company you are required to prepare a flexible budget for production levels at 50% and 75%.

Assuming the selling price per unit is maintained at ₹ 400 as at present, indicate the effect on net profit. Administration, selling and distribution overheads continue at ₹ 72,000.

RTP MAY 2013

- Q.4** Pentax Limited has prepared its expense budget for 20,000 units in its factory for the year 2013 as detailed below:

NB PN		(₹ per unit)
	Direct Materials	50
	Direct Labour	20
	Variable Overhead	15
	Direct Expenses	6
	Selling Expenses (20% fixed)	15
	Factory Expenses (100% fixed)	7
	Administration expenses (100% fixed)	4
	Distribution expenses (85% variable)	12
	Total	129

Prepare an expense budget for the production of 15,000 units and 18,000 units.

PYQ MAY 2013

- Q.5** RST, Limited is presently operating at 50% capacity and producing 30000 units. The entire output is sold at a price of ₹ 200 per unit. The cost structure at the 50% level of activity is as under

NB		(₹)
PN	Direct Material	25 per unit
	Direct Wages	25 per unit
	Variable Overheads	15 per unit
	Direct Expenses	20 per unit
	Factory Expenses (25% fixed)	10 per unit
	Selling and Distribution Exp. (80% variable)	5 per unit
	Office and Administrative Exp. (100% fixed)	75 per unit

The company anticipates that the variable costs will go up by 10% and fixed costs will go up by 15%.

You are required to prepare an Expense budget, on the basis of marginal cost for the company at 50% and 60% level of activity and find out the profits at respective levels.

PYQ MAY 2014

- Q.6** S Ltd. has prepared budget for the coming year for its two products A and B.

NB		Product A (₹)	Product B (₹)
PN	Production & Sales unit	6,000 units	9,000 units
	Raw material cost per unit	60.00	42.00
	Direct labour cost per unit	30.00	18.00
	Variable overhead per unit	12.00	6.00
	Fixed overhead per unit	8.00	4.00
	Selling price per unit	120.00	78.00

After some marketing efforts, the sales quantity of the Product A & B can be increased by 1,500 units and 500 units respectively but for this purpose the variable overhead and fixed overhead will be increased by 10% and 5% respectively for the both products.

You are required to prepare flexible budget for both the products:

- Before marketing efforts
- After marketing efforts.

RTP MAY 2015. RTP MAY 2019

- Q.7** ABC Ltd. is currently operating at 75% of its capacity. In the past two years, the levels of operations were 55% and 65% respectively. Presently, the production is 75,000 units. The company is planning for 85% capacity level during 20X3-20X4. The cost details are as follows:

NB		55% (₹)	65% (₹)	75% (₹)
PN	Direct Materials	11,00,000	13,00,000	15,00,000
	Direct Labour	5,50,000	6,50,000	7,50,000
	Factory Overheads	3,10,000	3,30,000	3,50,000
	Selling Overheads	3,20,000	3,60,000	4,00,000
	Administrative Overheads	1,60,000	1,60,000	1,60,000
		24,40,000	28,00,000	31,60,000

Profit is estimated @ 20% on sale

The following increases in costs are expected during the year

Profit is estimated @ 20% on sale

The following increases in costs are expected during the year

Direct material 8%

Direct labour 5%

Variable factory overheads 5%

Variable selling overheads 8%

Fixed factory overheads 10%

Fixed selling overheads 15%

Prepare flexible budget for the period 20X3-20X4 at 85% level of capacity. Also ascertain profit and contribution.

STUDY MAT

- Q.8** The accountant of manufacturing company provides you the following details for year 2012

NB		(₹)		(₹)
PN	Direct material	1,75,000	Other variable costs	80,000
	Direct wages	1,00,000	Other fixed costs	80,000
	Fixed factory overheads	1,00,000	Profit	1,15,000
	Variable factory overheads	1,00,000	Sales	7,50,000

During the year, the company manufactured two products A and B and the output and costs were:

	A	B
Output (units)	2,00,000	1,00,000
Sell price per unit	2	3.5
Direct materials per unit	0.5	0.75
Direct wages per unit	0.25	0.5

Variable factory overhead is absorbed as a percentage of direct wages. Other variable costs have been computed as: Product A ₹ 0.25 per unit; and B ₹ 0.30 per unit.

During 2013, it is expected that the demand for product A will fall by 25 % and for B by 50%.

It is decided to manufacture a further product C, the cost for which are estimated as follows:

	Product C
Output (units)	2,00,000
Selling price per unit	1.75
Direct materials per unit	0.4
Direct wages per unit	0.25

It is anticipated that the other variable costs per unit will be the same as for product A.

Prepare a budget to present to the management, showing the current position and the position for 2013. Comment on the comparative results.

STUDY MAT

Q.9 The information of Z Ltd. for the year ended 31st March 2020 is as below:

NB		Amount (₹)
PN	Direct materials	17,50,000
	Direct wages	12,50,000
	Variable factory overhead	9,50,000
	Fixed factory overhead	12,00,000
	Other variable costs	6,00,000
	Other fixed costs	4,00,000
	Profit	8,50,000
	Sales	70,00,000

During the year, the company manufactured two products, X and Y, and the output and cost were:

	X	Y
Output (units)	8,000	4,000
Selling price per unit (₹)	600	550
Direct material per unit (₹)	140	157.50
Direct wages per unit (₹)	90	132.50

Variable factory overheads are absorbed as a percentage of direct wages and other variable costs are computed as:

Product X – ₹40 per unit and Product Y- ₹70 per unit.

For the FY 2020-21, due to a pandemic, it is expected that demand for product X and Y will fall by 20% & 10% respectively. It is also expected that direct wages cost will raise by 20% and other fixed costs by 10%. Products will be required to be sold at a discount of 20%.

You are required to:

- PREPARE product- wise profitability statement on marginal costing method for the FY 2019-20 and
- PREPARE a budget for the FY 2020-21.

MTP 1MAR 2021

Q.10 Action Plan Manufacturers normally produce 8,000 units of their product in a month, in their Machine Shop. For the month of January, they had planned for a production of 10,000 units. Owing to a sudden cancellation of a contract in the middle of January, they could only produce 6,000 units in January.

NB

PN

Indirect manufacturing costs are carefully planned and monitored in the Machine Shop and the Foreman of the shop is paid a 10% of the savings as bonus when in any month the indirect manufacturing cost incurred is less than the budgeted provision.

The Foreman has put in a claim that he should be paid a bonus of ₹ 88.50 for the month of January. The Works Manager wonders how anyone can claim a bonus when the Company has lost a sizeable contract. The relevant figures are as under:

Indirect manufacturing	Expenses for a month (₹)	Planned for January (₹)	Actual in January (₹)
Salary of foreman	1,000	1,000	1,000
Indirect labour	720	900	600
Indirect material	800	1,000	700
Repairs and maintenance	600	650	600
Power	800	875	740
Tools consumed	320	400	300
Rates and taxes	150	150	150
Depreciation	800	800	800
Insurance	100	100	100
	5,290	5,875	4,990

Do you agree with the Works Manager? Is the Foreman entitled to any bonus for the performance in January? Substantiate your answer with facts and figures.

STUDY MAT

Q.11 Tricon Co. furnishes the following information for the month of September, 2020.

NB	Particulars	Budget Details	Static Budget	Actual
PN	Units produced & Sold		4,000	3,200
			(Rs.)	(Rs.)
	Direct Material	3 kg p.u. @ Rs. 30 per kg.	3,60,000	3,10,000
	Direct Labour	1 hr. p.u. @ Rs. 72 per hr.	2,88,000	2,25,600
	Variable Overhead	1 hr. p.u. @ Rs. 44 per hr.	1,76,000	1,47,200
	Fixed Overhead		1,80,000	1,68,000
	Total Cost		10,04,000	8,50,800
	Sales		12,00,000	8,96,000
	Profit		1,96,000	45,200

During the month 10,000 kg. of materials and 3,100 direct labour hours were utilized. Required:

- PREPARE a flexible budget for the month.
- DETERMINE the material usage variance and the direct labour rate variance for the actual vs the flexible budget.

MTP 2 APR 2021 OLD+NEW

Q.12 Float glass Manufacturing Company requires you to present the Master budget for the next year from the following information:

NB	Sales:	
PN	Toughened Glass	₹ 6,00,000
	Bent Glass	₹ 2,00,000
	Direct material cost	60% of sales
	Direct wages	20 workers @ ₹ 150 per month
	Factory overheads:	
	Indirect labour –	
	Works manager	₹ 500 per month
	Foreman	₹ 400 per month
	Stores and spares	2.5% on sales
	Depreciation on machinery	₹ 12,600
	Light and power	₹ 3,000
	Repairs and maintenance	₹ 8,000
	Others sundries	10% on direct wages
	Administration, selling and distribution expenses	₹ 36,000 per year

STUDY MAT

Functional Budgets

Q.13

NB

PN

Quarters	I	II	III	IV
No. of units to be sold	18,000	22,000	25,000	27,000

The year is expected to open with an inventory of 6,000 units of finished products and close with inventory of 8,000 units. Production is customarily scheduled to provide for 70% of the current quarter's sales demand plus 30% of the following quarter demand. The budgeted selling price per unit is ₹ 40. The standard cost details for one unit of the product are as follows:

Variable Cost ₹ 34.50 per unit

Fixed Overheads 2 hours 30 minutes @ ₹ 2 per hour based on a budgeted production volume of 1,10,000 direct labour hours for the year. Fixed overheads are evenly distributed through- out the year.

You are required to:

- Prepare Quarterly Production Budget for the year.
- In which quarter of the year, company expected to achieve break-even point.

PYQ MAY 2012

Q.14 A single product company estimated its sales for the next year quarter-wise as under:

NB

PN

Quarter	
I	Sales (Units)
	30,000
II	37,500
III	41,250
IV	45,000

The opening stock of finished goods is 10,000 units and the company expect to maintain the closing stock of finished goods at 16,250 units at the end of the year. The production pattern in each quarter is based on 80% of the sales of the current quarter and 20% of the sales of the next quarter.

The opening stock of raw materials in the beginning of the year is 10,000 kg. and the closing stock at the end of the year is required to be maintained at 5,000 kg. Each unit of finished output requires 2 kg. of raw materials.

The company proposes to purchase the entire annual requirement of raw materials in the first three quarters in the proportion and at the prices given below:

Quarter	Purchase of raw material % to total annual requirement in quantity	Price per kg.
I	30%	2
II	50%	3
III	20%	4

The value of the opening stock of raw materials in the beginning of the year is ₹ 20,000.

You are required to present the following for the next year, quarter wise:

- Production budget (in units).
- Raw material consumption budget (in quantity).
- Raw material purchase budget (in quantity and value).
- Priced stores ledger card of the raw material using First in First out method

STUDY MAT

Q.15 Jigyasa Ltd. is drawing a production plan for its two products Minimax (MM) and Heavy high (HH) for the year 2013-14. The company's policy is to hold closing stock of finished goods at 25% of the anticipated volume of sales of the succeeding month.

The following are the estimated data for two products:

	Minimax (MM)	Heavy high (HH)
Budgeted Production units	1,80,000	1,20,000
Direct material cost per unit	₹ 220	₹ 280
Direct labour cost per unit	₹ 130	₹ 120
Manufacturing overhead	₹ 4,00,000	₹ 5,00,000

The estimated units to be sold in the first four months of the year 2013-14 are as under

	April	May	June	July
Minimax	8,000	10,000	12,000	16,000
Heavy high	6,000	8,000	9,000	14,000

Prepare production budget for the first quarter in month wise.

STUDY MAT

Q.16 XYZ Limited is drawing a production plan for its two products – Product 'xml' and 'Product 'yml' for the year 2015 – 16. The company's policy is to maintain closing stock of finished goods at 25% of the anticipated volume of sales of the succeeding month.

NB

PN

The following are the estimated data for the two products:

	xml	yml
Budgeted Production (in units)	2,00,000	1,50,000
Direct Material (per unit)	₹ 220	₹ 280
Direct Labour (per unit)	₹ 130	₹ 120
Direct Manufacturing Expenses	₹ 4,00,000	₹ 5,00,000

The estimated units to be sold in the first four months of the year 2015 – 16 are as under:

	April	May	June	July
xml	8,000	10,000	12,000	16,000
yml	6,000	8,000	9,000	14,000

Prepare:

- Production Budget (Month wise)
- Production cost Budget (for first quarter of the year)

PYQ MAY 2005

Q.17 A Light Motor Vehicle manufacturer has prepared sales budget for the next few months, and the following draft figures are available:

NB	Month	No. of vehicles
PN	October	4,000
	November	3,500
	December	4,500
	January	6,000
	February	6,500

To manufacture a vehicle a standard cost of ₹ 2,85,700 is incurred and sold through dealers at a uniform selling price of ₹ 3,95,600 to customers. Dealers are paid 12.5% commission on selling price on sale of a vehicle.

Apart from other materials four units of Part-X are required to manufacture a vehicle. It is a policy of the company to hold stocks of Part-X at the end of each month to cover 40% of next month's production. 4,800 units of Part- X are in stock as on 1st October.

There are 950 nos. of completed vehicles are in stock as on 1st October and it is policy to have stocks at the end of each month to cover 20% of the next month's sales.

You are required to:

- Prepare Production budget (in nos.) for the month of October, November, December and January.
- Prepare a Purchase budget for Part-X (in units) for the months of October, November and December.
- Calculate the budgeted gross profit for the quarter October to December.

PYQ NOV 2004

- Q.18** XY Co. Ltd manufactures two products viz., X and Y and sells them through two divisions, East and West. For the purpose of Sales Budget to the Budget Committee, following information has been made available for the year 2014-15:

NB PN	Product	Budgeted Sales		Actual Sales	
		East Division	West Division	East Division	West Division
	X	400 units at ₹9	600 units at ₹9	500 units at ₹9	700 units at ₹9
	Y	300 units at ₹21	500 units at ₹21	200 units at ₹21	400 units at ₹21

Adequate market studies reveal that product X is popular but under-priced. It is expected that if the price of X is increased by ₹ 1, it will, find a ready market. On the other hand, Y is overpriced and if the price of Y is reduced by ₹ 1 it will have more demand in the market. The company management has agreed for the aforesaid price changes. On the basis of these price changes and the reports of salesmen, following estimates have been prepared by the Divisional Managers:

Percentage increase in sales over budgeted sales

Product	East Division	West Division
X	+ 10%	+ 5%
Y	+ 20%	+ 10%

With the help of intensive advertisement campaign, following additional sales (over and above mentioned estimated sales by Divisional Managers) are possible:

Product	East Division	West Division
X	60 units	70 units
Y	40 units	50 units

You are required to prepare Sales Budget for 2015-16 after incorporating above estimates and also show the Budgeted Sales and Actual Sales of 2014-15.

RTP NOV 2023

- Q.19** PSV Ltd. manufactures and sells a single product and estimated the following related information for the period November, 2020 to March, 2021.

NB PN	Particulars	November, 2020	December, 2020	January, 2021	February, 2021	March, 2021
	Opening Stock of Finished Goods (in Units)	7,500	3,000	9,000	8,000	6,000
	Sales (in Units)	30,000	35,000	38,000	25,000	40,000
	Selling Price per unit (in ₹)	10	12	15	15	20

Additional Information:

- Closing stock of finished goods at the end of March, 2021 is 10,000 units.
- Each unit of finished output requires 2 kg of Raw Material 'A' and 3 kg of Raw Material 'B'.

You are required to prepare the following budgets for the period November, 2020 to March, 2021 on monthly basis:

- Sales Budget (in ₹)
- Production budget (in units) and
- Raw material Budget for Raw material 'A' and 'B' separately (in units)

PYQ JUL 2021

- Q.20** Aditya Ltd. manufactures two products K and H. The sales director has anticipated to sale 8,000 units of Product K and 4,200 units of Product H. The Standard cost data for the products for next year are as follows:

NB PN		Product - K Per unit	Product- H Per unit
	Direct materials:		
	-Material X @ ₹ 15 per kg.	12 kg.	15 kg.
	-Material Y @ ₹ 16 per kg.	15 kg.	6 kg.
	-Material Z @ ₹ 5 per ltr.	8 ltr.	14 ltr.
	Direct wages:		
	-Unskilled @ ₹ 40 per hour	12 hours	10 hours
	-Skilled @ ₹ 75 per hour	8 hours	5 hours

Budgeted stocks for next year are as follows:

		Product- K (Units)	Product- H (Units)
1st April, 2016		800	1,600
31st March, 2017		1,000	2,100
	Material-X (kg)	Material-Y (kg)	Material-Z (ltr)
1st April, 2016	25,000	30,000	14,000
31st March, 2017	30,000	18,000	7,500

RTP MAY 2021

Q.21 V Ltd. produces and markets a very popular product called 'X'. The company is interested in presenting its budget for the second quarter of 2019.

The following information are made available for this purpose:

- (i) It expects to sell 50,000 bags of 'X' during the second quarter of 2019 at the selling price of Rs. 900 per bag.
- (ii) Each bag of 'X' requires 2.5 kgs. of a raw – material called 'Y' and 7.5 kgs. of raw – material called 'Z'.
- (iii) Stock levels are planned as follows:

Particulars	Beginning of Quarter	End of Quarter
Finished Bags of 'X' (Nos.)	15,000	11,000
Raw – Material 'Y' (Kgs.)	32,000	26,000
Raw – Material 'Z' (Kgs.)	57,000	47,000
Empty Bag (Nos.)	37,000	28,000

- (iv) 'Y' cost Rs.120 per Kg., 'Z' costs Rs.20 per Kg. and 'Empty Bag' costs Rs.80 each.
- (v) It requires 9 minutes of direct labour to produce and fill one bag of 'X'. Labour cost is Rs.50 per hour.
- (vi) Variable manufacturing costs are Rs.45 per bag. Fixed manufacturing costs Rs.30,00,000 per quarter.
- (vii) Variable selling and administration expenses are 5% of sales and fixed administration and selling expenses are Rs.20,50,000 per quarter.

Required

- (i) PREPARE a production budget for the said quarter.
- (ii) PREPARE a raw – material purchase budget for 'Y', 'Z' and 'Empty Bags' for the said quarter in quantity as well as in rupees.
- (iii) COMPUTE the budgeted variable cost to produce one bag of 'X'.
- (iv) PREPARE a statement of budgeted net income for the said quarter and show both per unit and total cost data.

MTP 1NOV 2019

Q.22 G Ltd. manufactures two products called 'M' and 'N'. Both products use a common raw material Z. The raw material Z is purchased @ ₹ 36 per kg from the market. The company has decided to review inventory management policies for the forthcoming year.

The following forecast information has been extracted from departmental estimates for the year ended 31st March 2016 (the budget period):

NB

PN

	Product M	Product N
Sales (units)	28,000	13,000
Finished goods stock increase by year-end	320	160
Post-production rejection rate (%)	4	6
Material Z usage (per completed unit, net of wastage)	5 kg	6 kg
Material Z wastage (%)	10	5

Additional information:

Usage of raw material Z is expected to be at a constant rate over the period.

Annual cost of holding one unit of raw material in stock is 11% of the material cost.

The cost of placing an order is ₹ 320 per order.

The management of G Ltd. has decided that there should not be more than 40 orders in a year for the raw material Z.

Required:

- Prepare functional budgets for the year ended 31st March 2016 under the following headings:
 - Production budget for Products M and N (in units).
 - Purchases budget for Material Z (in kgs and value).
- Calculate the Economic Order Quantity for Material Z (in kgs).
- If there is a sole supplier for the raw material Z in the market and the supplier do not sale more than 4,000 kg. of material Z at a time. Keeping the management purchase policy and production quantity mix into consideration, calculate the maximum number of units of Product M and N that could be produced.

RTP NOV 2017

Q.23 Concorde Ltd. manufactures two products using two types of materials and one grade of labour, shown below is an extract from the company's working papers of the next month's budget:

	Product-A	Product-B
Budgeted sales (in units)	2,400	3,600
Budgeted material consumption per unit (in kg):		
Material-x	5	3
Material-y	4	6
Standard labour hours allowed per unit of product	3	5

Material-X and Material-Y cost ₹ 4 and ₹6 per kg and labour are paid ₹ 25 per hour. Overtime premium is 50% and is payable, if a worker works for more than 40 hours a week. There are 180 direct workers.

The target productivity ratio (or efficiency ratio) for the productive hours worked by the direct workers in actually manufacturing the products is 80%. In addition the non-productive down-time is budgeted at 20% of the productive hours worked.

There are four 5-days weeks in the budgeted period and it is anticipated that sales and production will occur evenly throughout the whole period.

It is anticipated that stock at the beginning of the period will be:

Product-A	4000 units
Product-B	200 units
Material-X	1,000 kgs.
Material-Y	500 kgs.

The anticipated closing stocks for budget period are as below:

Product-A	4 days sales
Product -B	5 days sales
Material-X	10 days consumption
Material-B	6 days consumption

Required:

Calculate the Material Purchas Budget and the Wages Budget for the direct workers, showing the quantities and values, for the next month.

STUDY MAT

Q.24 Dee Cee Limited manufactures and sells two products 'Super' and 'Deluxe'.

Dee Cee Limited's budget department gathered the following data to prepare the budgets for 2021-22

NB

PN

	Super	Deluxe
Expected sales (in units)	48,000	72,000
Selling price p.u.	₹ 750	₹ 950
Expected inventory as at 01-04-2021 (units)	3,900	7,600
Target inventory as at 31-03-2022 (units)	10% of production	8% of production

Company uses materials A and B in the manufacture of products "Super and Deluxe". Projected data for 2021-22 with respect to direct materials are as follows

Material	Cost per kg (₹)	Normal Wastage	Material required per unit of output		Expected inventory as at 01.04.2021
			Super	DeLuxe	
A	60	4%	2 kg	4 kg	32,500 kg
B	80	4%	3 kg	2.4 kg	28,800 kg

Cost of opening stock of materials A and B is ₹ 57 per kg and ₹ 75 per kg respectively. Target inventory as on 31-03-2022 for material A and B will be 10% more than the opening inventory. Company accounts for direct materials using FIFO method.

You are required to prepare the following budgets for the year 2021-22:

- (i) Production budget (in units).
- (ii) Direct material usage budget (in quantities and rupees both).
- (iii) Direct material purchase budget (in units).

PYQ JUL 2021

Q.25 A company is engaged in the manufacture of specialized sub-assemblies required for certain electronic equipment. The company envisages that in the forthcoming month, December, 2012, the sales will take a pattern in the ratio of 3:4:2 respectively of sub-assemblies, ACB, MCB and DP.

The following is the schedule of components required for manufacture:

NB PN	Sub assembly	Selling price	Base board	Component Requirement		
				IC08	IC12	IC26
	ACB	520	1	8	4	2
	MCB	500	1	2	10	6
	DP	350	1	2	4	8
	Purchase Price	-	60	20	12	

The direct labour time and variable overheads required for each of the sub-assemblies are:

Labour hours per sub-assembly			
	Grade A	Grade B	Variable overheads per sub-assembly (₹)
ACB	8	16	36
MCB	6	12	24
DP	4	8	24
Direct wage rate per hour (₹)	5	4	-

The labourers work 8 hours a day for 25 days a month. The opening stocks of sub-assemblies and Components for December, 2012 areas under:

Sub-assemblies		Components	
ACB	800	Base Board	1,600
MCB	1,200	IC08	1,200
DP	2,800	IC12	6,000
		IC26	4,000

Fixed overheads amount to ₹ 7,57,200 for the month and a monthly profit target of ₹ 12 lacs have been set.

The company is eager for a reduction of closing inventories for December, 2012 of sub-assemblies and components by 10% of quantity as compared to the opening stock.

Prepare the following budgets for December 2012:

- i) Sales budget in quantity and value.
- ii) Production budget in quantity
- iii) Component usage budget in quantity.
- iv) Component purchase budget in quantity and value.
- v) Manpower budget showing the number of workers and the amount of wages payable.

STUDY MAT

Budget Ratios

Q.26 Calculate efficiency and activity ratio from the following given data:

Capacity ratio	=	75%
Budgeted output	=	6000 units
Actual output	=	5000 units
Standard time per unit	=	4 hours.

PYQ MAY 2009

Q.27 Blueberry Ltd. Is producing two products namely I – Phone and Tablet PC. Each unit of I –phone and Tablet PC takes 12 hours and 14 hours respectively for production. During the F/Y 2011 – 12 Blueberry produced 15,000 units of I – Phone and 10,000 units of Tablet PC. Budgeted machine hours were 3,10,000 hours. Actual hours were 3,00,000. You are required to compute various control ratios.

RTP NOV 2009

Q.28 Following data is available for DKG and Co.:

Standard working hours	8 hours per day of 5 days per week
Maximum capacity	50 employees
Actual capacity	40 employees
Actual hours expected to be worked per four weeks	6,400 hours
Std. hours expected to be worked per four weeks	8,000 hours
Actual hours worked in the four-week period	6,000 hours
Std. hours earned in the four-week period	7,000 hours.

The related period is of 4 weeks. In this period there was a one special day holiday due to national event. CALCULATE the following ratios:

- (1) Efficiency Ratio,
- (2) Activity Ratio,
- (3) Calendar Ratio,
- (4) Standard Capacity Usage Ratio,
- (5) Actual Capacity Usage Ratio.
- (6) Actual Usage of Budgeted Capacity Ratio

STUDY MAT

Additional Questions

Q.29

Aman International School has a total of 180 students consisting of 6 sections with 30 students per section. The school plans for a picnic around the city during the week-end to places such as Prayag zoo, the Capi Park, Azad planetarium etc. A private transport operator has come forward to lease out the buses for taking the students. Each bus will have a maximum capacity of 50 (excluding 2 seats reserved for the teachers accompanying the students). The school will employ two teachers for each bus, paying them an allowance of ₹ 500 per teacher. It will also lease out the required number of buses. The following are the other cost estimates:

NB

PN

	Cost per student (₹)
Breakfast	50
Lunch	100
Tea	10
Entrance fee at zoo	20

Rent ₹ 6500 per bus.

Special permit fee ₹ 500 per bus.

Block entrance fee at the planetarium ₹ 2500.

Prizes to students for games ₹ 500.

No cost are incurred in respect of the accompanying teachers (except the allowance of ₹ 500 per teacher).

You are required to PREPARE:

- A flexible budget estimating the total cost for the levels of 60, 90, 120, 150 and 180 students. Each item of cost is to be indicated separately.
- COMPARE the average cost per student at these levels.
- WHAT will be your conclusions regarding the break-even level of student if the school proposes to collect ₹ 400 per student?

PYQ NOV 2010

- Q.30** PS Limited is a manufacturing company and is operating at 75% capacity utilization. The PV ratio at this level of activity is 40%.

NB

PN

The flexible budget drafted by the company for two levels of activity is given below:

	Capacity utilization (75 %)	Capacity utilization (100 %)
	Amount in ₹ (Lakhs)	Amount in ₹ (Lakhs)
Direct materials	180	240
Direct wages	120	160
Power and fuel	12	16
Repairs and maintenance	18	21
Consumables	21	28
Supervision	20	20
Indirect labour	36	42
Administrative expenses	21	21
Selling expenses	18	18
Depreciation	54	54

You are required to:

- CALCULATE the profit earned by PS Limited at 75% level of activity.
- CALCULATE the break-even level of activity.

MTP 1 NOV 2022

- Q.31** HL Limited produces and sells four varieties of beverage. The past data shows different demand patterns for various quarters during the year. The sales quantity and selling price for the month of September 2023 is as follows:

NB

PN

	Sales Quantity	Selling Price per unit
Hot Coffee	1,40,000 Units	₹ 20/-
Cold Coffee	3,40,000 Units	₹ 40/-
Fruit Juice	4,20,000 Units	₹ 20/-
Carbonated Soft Drink	2,70,000 units	₹ 20/-

For the quarter October to December 2023, it is estimated that due to climate changes the demand for Hot Coffee would increase every month by 50% of the previous month and the demand for Cold Coffee would decrease every month by 30% of the previous month. The demand for Fruit Juice would decrease by 20% in the month of October 2023 and thereafter it will remain constant. HL Limited would be able to sell only 60,000 units, 50,000 units and 30,000 units of Carbonated Soft Drink respectively during the months of October, November and December 2023. There would be no change in the selling price of all the products during the next quarter.

Standard Quantity of closing stock for the period September 2023 to December 2023 is as follows:

	Hot Coffee	Cold Coffee	Fruit Juice	Carbonated Soft Drink
September 2023	12,000	13,000	11,000	7,500
October 2023	15,000	14,000	12,000	5,500
November 2023	13,000	15,000	10,000	6,000
December 2023	11,000	16,000	13,000	7,000

You are required to prepare a Production Budget (in units) and Sales Budget (in units and sales value) for the months of October, November and December 2023.

PYQ NOV 2023

- Q.32** PQR Limited manufactures three products - Product X, Product Y and Product Z. The output for the current year is 2,50,000 units of Product X, 2,80,000 units of Product Y and 3,20,000 units of Product Z respectively.

NB

PN

Selling price of Product X is 1.25 times of Product Z whereas Product Y can be sold at double the price at which product Z can be sold. Product Z can be sold at a profit of 20% on its marginal cost.

Other information are as follows:

	Product X	Product Y	Product Z
Direct Material Cost (Per unit)	₹ 20	₹ 20	₹ 20
Direct Wages Cost (per unit)	₹ 16	₹ 24	₹ 16

Raw material used for manufacturing all the three products is the same. Direct Wages are paid @ ₹ 4 per labour hour, Total overhead cost of the company is ₹ 52,80,000 for the year, out of which ₹ 1 per labour hour is variable and the rest is fixed.

In the next year it is expected that sales of product X and product Z will increase by 12% and 15% respectively and sale of product Y will decline by 5%. The total overhead cost of the company for the next year is estimated at ₹ 55,08,000. The variable cost of ₹ 1 per labour hour remains unchanged.

It is anticipated that all other costs will remain same for the next year and there is opening and closing stock. Selling Price per unit of each product will remain unchanged in the next year.

Required:

Prepare a budget showing the current position and the position for the next year clearly indicating the total product-wise contribution and profit for the company as a whole.

PRQ MAY 2023

Q.33 SR Ltd. is a manufacturer of Garments. For the first three months of financial year 2022-23 commencing on 1st April 2022, production will be constrained by direct labour. It is estimated that only 12,000 hours of direct labour hours will be available in each month.

NB

PN

For market reasons, production of either of the two garments must be at least 25% of the production of the other. Estimated cost and revenue per garment are as follows:

	Shirt (₹)	Short (₹)
Sales price	60	44
Raw Materials		
Fabric @12 per metre	24	12
Dyes and cotton	6	4
Direct labour @ 8 per hour	8	4
Fixed Overhead @ 4 per hour	4	2
Profit	18	22

From the month of July 2022 direct labour will no longer be a constraint. The company expects to be able to sell 15,000 shirts and 20,000 shorts in July, 2022. There will be no opening stock at the beginning of July 2022.

Sales volumes are expected to grow at 10% per month cumulatively thereafter throughout the year. Following additional information is available:

- The company intends to carry stock of finished garments sufficient to meet 40% of the next month's sale from July 2022 onwards.
- The estimated selling price will be same as above.

Required:

- Calculate the number of shirts and shorts to be produced per month in the first quarter of financial year 2022-2023 to maximize company's profit.
- Prepare the following budgets on a monthly basis for July, August and September 2022:
 - Sales budget showing sales units and sales revenue for each product.
 - Production budget (in units) for each product.

PYQ MAY 2023

Q.34 Maharatna Ltd., a public sector undertaking (PSU), produces product A. The company is in process of preparing its revenue budget for the year 2022. The company has the following information which can be useful in preparing the budget:

NB

PN

- It has anticipated 12% growth in sales volume from the year 2021 of 4,20,000 tonnes.
- The sales price of ₹23,000 per tonne will be increased by 10% provided Wholesale Price Index (WPI) increases by 5%.
- To produce one tonne of product A, 2.3 tonnes of raw material are required. The raw material cost is ₹4,500 per tonne. The price of raw material will also increase by 10% if WPI increase by 5%.

- (iv) The projected increase in WPI for 2022 is 4%
- (v) A total of 6,000 employees works for the company. The company works 26 days in a month.
- (vi) 85% of employees of the company are permanent and getting salary as per 5- year wage agreement. The earnings per manshift (means an employee cost for a shift of 8 hours) is ₹ 3,000 (excluding terminal benefits). The new wage agreement will be implemented from 1st July 2022 and it is expected that a 15% increase in pay will be given.
- (vii) The casual employees are getting a daily wage of ₹ 850. The wages are linked to Consumer Price Index (CPI). The present CPI is 165.17 points and it is expected to be 173.59 points in year 2022.
- (viii) Power cost for the year 2021 is ₹ 42,00,000 for 7,00,000 units (1 unit = 1 Kwh). 60% of power is used for production purpose (directly related to production volume) and remaining are for employee quarters and administrative offices.
- (ix) During the year 2021, the company has paid ₹ 60,00,000 for safety and maintenance works. The amount will increase in proportion to the volume of production.
- (x) During the year 2021, the company has paid ₹ 1,20,000 for the purchase of diesel to be used in car hired for administrative purposes. The cost of diesel will increase by 15% in year 2022.
- (xi) During the year 2021, the company has paid ₹ 6,00,000 for car hire charges (excluding fuel cost). In year 2022, the company has decided to reimburse the diesel cost to the car rental company. Doing this will attract 5% GST on Reverse Charge Mechanism (RCM) basis on which the company will not get GST input credit.
- (xii) Depreciation on fixed assets for the year 2021 is ₹ 80,40,00,000 and it will be 15% lower in 2022.

Required:

From the above information PREPARE Revenue (Flexible) budget for the year 2022 and also show the budgeted profit/ loss for the year.

RTP MAY 2022

- Q.35** Raja Ltd manufactures and sells a single product and has estimated sales revenue of ₹ 302.4 lakh during the year based on 20% profit on selling price. Each unit of product requires 6 kg of material A and 3 kg of material B and processing time of 4 hours in machine shop and 2 hours in assembly shop. Factory overheads are absorbed at a blanket rate of 20% of direct labour. Variable selling & distribution overheads are ₹ 60 per unit sold and fixed selling & distribution overheads are estimated to be ₹ 69,12,000.

The other relevant details are as under:

Purchase Price:	Material A	₹ 160 per kg
	Materials B	₹ 100 per kg
Labour Rate:	Machine Shop	₹ 140 per hour
	Assembly Shop	₹ 70 per hour

	Finished Stock	Material A	Material B
Opening Stock	2,500 units	7,500 kg	4,000 kg
Closing Stock	3,000 units	8,000 kg	5,500 kg

Required

- CALCULATE number of units of product proposed to be sold and selling price per unit,
- PREPARE Production Budget in units and
- PREPARE Material Purchase Budget in units.

RPT SEP 2024

Q.36 Following data is available for XYZ Ltd. for the month of February 2024:

NB	standard working hours	8 hours per day of 6 days per week
PN	No. of weeks in the month	4
	Maximum capacity	150 employees
	Actual working	125 employees
	Actual usage of Budgeted Capacity Ratio	86%
	Efficiency Ratio	110%

You are required to calculate the following:

- Actual Hours worked.
- Standard Hours for actual output.
- Activity Ratio.
- Standard Capacity Usage Ratio.

PYQ MAY 2024

Q.37 A factory is currently working at 60% capacity and produces 12,000 units of a product. Management is thinking to increase the working capacity either to 70% or 90% level. It is estimated that at both the levels, it will be able to sell all the produced units. The other details are as under:

- At 70% capacity, the cost of raw materials increases by 4% and the selling price falls by 3%.
- At 90% capacity, the cost of raw materials increases by 5% and selling price falls by 4%.
- At 60% capacity, the product cost is ₹ 360 per unit and it is sold at ₹ 400 per unit.
- The unit cost of 360 consists of the following:

Material	₹ 200
Labour	₹ 60
Factory overhead	₹ 60 (50 % fixed)
Administrative & Selling overhead	₹ 40 (60 % fixed)

- Additional advertising cost of ₹ 20,000 is to be incurred for selling the product above 80% capacity.

You are required to:

- (i) Calculate the profits of the company when the factory works at 60%, 70% and 90% capacity level.
- (ii) Offer your comments regarding increase in the capacity based on profit calculated.

PYQ MAY 2024

Progress Sheet

	Class Work	1 st Practice	2 nd Practice		Class Work	1 st Practice	2 nd Practice
Question 1	☐	☐	☐	Question 20	☐	☐	☐
Question 2	☐	☐	☐	Question 21	☐	☐	☐
Question 3	☐	☐	☐	Question 22	☐	☐	☐
Question 4	☐	☐	☐	Question 23	☐	☐	☐
Question 5	☐	☐	☐	Question 24	☐	☐	☐
Question 6	☐	☐	☐	Question 25	☐	☐	☐
Question 7	☐	☐	☐	Question 26	☐	☐	☐
Question 8	☐	☐	☐	Question 27	☐	☐	☐
Question 9	☐	☐	☐	Question 28	☐	☐	☐
Question 10	☐	☐	☐	Question 29	☐	☐	☐
Question 11	☐	☐	☐	Question 30	☐	☐	☐
Question 12	☐	☐	☐	Question 31	☐	☐	☐
Question 13	☐	☐	☐	Question 32	☐	☐	☐
Question 14	☐	☐	☐	Question 33	☐	☐	☐
Question 15	☐	☐	☐	Question 34	☐	☐	☐
Question 16	☐	☐	☐	Question 35	☐	☐	☐
Question 17	☐	☐	☐	Question 36	☐	☐	☐
Question 18	☐	☐	☐	Question 37	☐	☐	☐
Question 19	☐	☐	☐				

