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PREFACE TO THIS EDITION

CA INTER - COST FAST TRACK PRACTICAL BOOK

Through the medium of this book, we present to you the **Cost & Management Accounting** concepts in a refined and simplified manner. Each chapter has been covered through detailed questions to help in learning by practising. Effort has been done to write this book in a way which makes it easy to understand and remember.
I am thankful to God, my family, my friends and most importantly my students for always loving me and having faith in my hard work.
Also, the sincere effort, persistence and determination of our associated teachers, staff members, well Wishers and students are highly appreciated.
Every effort has been taken to avoid any errors / omissions, but errors are inevitable. Any mistake may kindly be brought to our notice and it shall be dealt with suitably.
We welcome your valuable suggestions and feedback in developing this book further.

As per ICAI
Under the Revised Scheme of Education and Training, at the **Intermediate Level**, **students are expected** not only to acquire professional knowledge but also to develop the ability to apply the knowledge in real-life business situations. The process of learning should also help the students in imbibing professional skills, i.e., the intellectual skills and communication skills, necessary for achieving the desired professional competence.

In our book
Every effort has been taken to present this subject in a manner that students are able to acquire the skill set as prescribed by ICAI.

The entire syllabus has been covered in two books.
Book 1 - Presents practical questions.
The concepts shall be covered in class and students will be able to acquire knowledge to solve questions.
We shall be doing about 65% of all the questions in class and the rest shall be given as homework.
The solution set for homework questions will be provided in soft copy in your batch.

Book 2 - Presents theory questions.
We will discuss these questions in separate theory classes.
You must read theory well to be able to write theoretical answers and solve MCQs

Multiple Choice Questions (MCQs) will be presented on our www.canitinguru.com

Thank You !!
CA. Nitin Guru

ABOUT THE AUTHOR

CA Nitin Guru is a Post Graduate in Commerce & a Member of The Institute of Chartered Accountants of India.

- He is the lead trainer for various courses for Costing and Financial management at **CA NITIN GURU CLASSES**.
- He is a First Class Graduate from Delhi College of Arts and Commerce.
- He is a College Topper & a Gold Medallist.
- His areas of specialisation are Cost & Management Accounting, Financial Management, Economics for Finance and Strategic Financial Management.
- At a young age, he has amassed vast experience of teaching over 60,000 students.
- His style of teaching, techniques and guidelines for preparing for examination are well accepted & acknowledged by all the students. His friendly and interactive approach makes him popular amongst the students.
- He has maintained a very high passing rate. He has been a Visiting Faculty to various Professional Institutes & MBA Colleges in the past.

CLASS ATTRACTIONS

- Start the topic from the base.
- Explains reasons and logic inbuilt behind concepts and has a unique method of making students understand them.
- Real life examples make classes interesting & lively.

CLASSES AVAILABLE ON WWW.CANITINGURU.COM

- CA Inter - Cost & Management Accounting (Regular & Fast Track)
- CA Inter - Financial Management (Regular & Fast Track)
- CA Final - Advanced Financial Management

Thank You !!
CA Nitin Guru

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CA INTER - COST REGULAR COURSE PRACTICAL BOOK

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Material Cost

Question 1 - Study Material, PYQ

Two components, A and B are used as follows:

Normal usage : 50 units per week each
Maximum usage : 75 units per week each
Minimum usage : 25 units per week each
Reorder quantity : 'A'- 300; 'B'- 500
Re-order period : 'A' - 4 to 6 weeks, 'B' - 2 to 4 weeks

Calculate for each component:

(a) Reorder level,
(b) Minimum level,
(c) Maximum level and
(d) Average Stock level.

Question 2 - Study Material, MTP

In manufacturing its products a company uses three raw materials A, B, C in respect of which the following apply

Raw Materials	Usage per unit of Product (Kg.)	Reorder Quantity (Kg.)	Price Per Kg. (₹.)	Delivery Period (Weeks)	Order Level (Kg.)	Minimum Level (Kg.)
A	10	10,000	0.10	1 to 3	8,000	-
B	4	5,000	0.30	3 to 5	4,750	-
C	6	10,000	0.15	2 to 4	-	2,000

Weekly production varies from 175 to 225 units, averaging 200.

What would you expect the quantities of the following to be:

(a) Minimum Stock of A,
(b) Maximum Stock level of B,
(c) Re-order level of C, and
(d) Average Stock level of A?

Question 3 - PYQ, Study Material

PQR Ltd., manufactures a special product, which requires 'ZED'.

The following particulars were collected for the year 2005-06:

Monthly demand of Zed : 7,500 units
Cost of placing an order : ₹500
Re-order period : 5 to 8 weeks
Cost per unit : ₹60
Carrying cost % p.a. : 10%
Normal usage : 500 units per week
Minimum usage : 250 units per week
Maximum usage : 750 units per week

Required:

(i) Reorder quantity.
(ii) Reorder level.
(iii) Minimum stock level.
(iv) Maximum stock level.
(v) Average stock level.

Question 4 - PYQ

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 get 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.(Assume a year consists of 360 days), You are required to **determine:**

(I) The Economic Order Quantity (EOQ) and the frequency of order
(II) The Re-order point.
(III) The Economic Order Quantity (EOQ) if the valve cost ₹4.50 each instead of 1.50 each.

Question 5 - PYQ

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

Cost of placing an order	: ₹800 per order
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) Reorder level
(iii) Maximum stock level
(iv) Average stock level

Question 6 - PYQ

Following details are related to a manufacturing concern:

Re-order Level	: 1,60,000 units
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 & maximum lead time	: 4 days

Calculate:

(i) Maximum consumption per day
(ii) Minimum consumption per day

Question 7 - PYQ, Study Material

You are required to **calculate** the following levels for part No. 123456 from the information given here under:

(a) Re-ordering level,
(b) Maximum level,
(c) Minimum level,
(d) Danger level,
(e) Average Stock level.

The following data May be used to calculate the re-ordering quantity.

Total Cost of purchasing relating to the order	₹20
Number of units to be purchased during the year	5,000
Purchase Price per unit including transportation	₹50
Annual Cost of storage of one unit	₹5
Lead Times	
Average	10 days
Maximum	15 days
Minimum	6 days
Maximum for emergency purchase	4 days
Rate of Consumption	
Average	15 units per day
Maximum	20 units per day

Question 8 - RTP

M/s Tanishka Materials Private Limited produces a product which is named "ESS". The consumption of raw material for the production of "ESS" is 210 Kgs to 350 Kgs per week. Consider 365 days in a year.

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

You are required to **Calculate** the followingEconomic Order Quantity

(1) Reorder Level (ROL)
(2) Maximum Stock Level
(3) Minimum Stock Level

(4) Average Stock Level
(5) Number of orders to be placed per year
(6) Total Inventory Cost
(7) If the supplier is willing to offer a 1% discount on purchase of total annual quantity in two orders , is the offer acceptable?
(8) If the answer is no, what should be the counter offer w.r.t. percentage of discount?

Question 9 - PYQ

A company manufactures a product from a raw material, which is purchased at ₹60 per kg. The company incurs a handling cost of ₹360 plus freight of ₹390 per order. The incremental carrying cost of inventory of raw material is Re. 0.50 per kg. per month. In addition, the cost of working capital finance on the investment in inventory of raw material is ₹9 per kg. per annum. The annual production of the product is 1,00,000 units and 2.5 units are obtained from one kg of raw material. You are required to:
(i) Calculate the economic order quantity of raw materials.
(ii) Advice, how frequently should orders for procurement be placed.
(iii) If the company proposes to rationalize placement of orders on a quarterly basis, **what** percentage of discount in the price of raw materials should be negotiated?

Question 10 -

The India Gate Ltd buys and then sells (as bread) 5.2 million kgs of rice annually. The rice must be purchased in multiples of 2000 kgs. Ordering cost, which includes grain lifting removal charges of ₹7,000 are ₹10,000 per order. Annual carrying costs are 4% of the purchase price per kg of ₹10. The company maintains a safety stock of 4,00,000 kgs. The delivery time is six weeks. Required:
(a) What is the E.O.Q.?
(b) At what inventory level should reorder be placed to prevent the drawal on the safety stock?
(c) What was the total inventory cost?
(d) The rice processor agrees to pay the lifting and removal charges if India Gate Ltd will purchase rice in quantities of 6,50,000 kgs. **Would it be** to the India Gate advantage to order under this alternative

Question 11 -

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:
(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 the bank on the Cash Credit facility is 13.76%.(Take 364 days for a year). To place an order the 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.

Question 12 - PYQ

ZED Company supplies plastic crockery to fast food restaurants in metropolitan cities. 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 bowls has been forecasted at a fairly steady rate of 40,000 packs every year. The company purchases the bowl directly from the 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% percent per annum of average inventory investment. You are required to:
(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 the next order is to be placed. (Assuming that the company does maintain a safety stock and that the present inventory level is 333 packs with a year of 360 working days.)
(v) Determine when the next order is to be placed. (Assuming that the company does maintain a safety stock and that the present inventory level is 555 packs with a year of 360 working days.)

Question 13 - MTP

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 manager,expecting the trend will continue for the entire year. The ratio of input and output is 8:5.

Other Information about Raw Material Ae is as follows:

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. **CALCULATE:**

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

Question 14 -

(i) If the minimum stock level and average stock level of raw-material A are 4,000 and 9,000 units respectively, **find out** its 'Re-order quantity'.
(ii) The annual carrying cost of material 'X' is ₹3.6 per unit and its total carrying cost is ₹ 9000 per annum. **What** would be the Economic order quantity for material 'X', if there is no safety stock of material X?
(iii) The demand for a certain product is random. It has been estimated that the monthly demand of the product has a normal distribution with a mean of 390 units. The unit price of the product is ₹25. Ordering cost is ₹40 per order and inventory carrying cost is estimated to be 35 per cent per year.
Calculate Economic Order Quantity (EOQ).

Ordering at different levels in slab

Question 15 - PYQ

X Ltd. is reviewing its stock policy, and has the following alternatives available for the evaluation of stock:

Purchase stock twice in a month : 400 units
Purchase monthly : 800 units
Purchase every three months : 2,400 units
Purchase six monthly : 4,800 units
Purchase annually : 9,600 units

It is ascertained that the purchase price per unit is ₹40 for deliveries upto 2,000 units. A 5% discount is offered by the supplier on the whole order where deliveries are 2,001 to 4,000 units and 10% reduction on the total order for deliveries in excess of 4,000 units. Each purchase order incurs administration costs of ₹250. Interest on capital and other storage costs are ₹12.50 per unit of average stock quantity held.
Calculate the Optimal order size.

Question 16 - Study Material

(a) EXE Limited has received an offer of quantity discounts on its materials as under:

Price per Tonne (₹)	Tonnes (Nos.)
1,200	Less than 500
1,180	500 and less than 1,000
1,160	1,000 and less than 2,000
1,140	2,000 and less than 3,000
1,120	3,000 and above.

The annual requirement for the material is 5,000 tons. The ordering cost per order is ₹1,200 and the stock holding cost is estimated at 20% of material cost per annum.
You are required to **COMPUTE** the most economical purchase level.
(b) WHAT will be your answer to the above question if there are no discounts offered and the price per ton is ₹1,500?

Inventory Turnover Ratio

Question 17 - Study Material, PYQ

The following data are available in respect of material X for the year ended 31st March,2007:

Opening Stock : ₹90,000
Purchases during the year :₹2,70,000
Closing Stock : ₹1,10,000

Calculate:

(i) Inventory turnover Ratio; and
(ii) The number of days for which the average inventory is held.

Question 18 - Study Material, PYQ

From the following data for the year ended 31st December, 2006, **calculate** the inventory turnover ratio of the two items and put forward your comments on them.

Particulars	Material A (₹)	Material B (₹)
Opening stock 1.1.2006	10,000	9,000
Purchase during the year	52,000	27,000
Closing stock 31.12.2006	6,000	11,000

ABC Analysis

Question 19 - Study Material

A factory uses 4,000 varieties of inventory. **Classify** stock A, B and C. In terms of inventory holding and inventory usage, the following information is compiled.

No. of varieties of inventory	%	% value of inventory holding (average)	% of inventory usage (in end- product)
3,875	96.875	20	5
110	2.750	30	10
15	0.375	50	85
4,000	100.00	100	100

Question 20 - PYQ

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

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.

Just-in-Time-Purchases (JIT)

Question 21 -

The Apple Corporation manufactures I pods. Apple is deciding whether to implement a JIT production system, which would require annual tooling costs of ₹150,000.

Apple estimates that the following annual benefits would arise from JIT production:

(a) Average inventory would decline by ₹7,00,000 from ₹9,00,000 to ₹2,00,000.
(b) Insurance, space, materials-handling, and setup costs, which currently total ₹2,00,000, would decline by 30%.
(c) The emphasis on quality inherent in JIT systems would reduce rework costs by 20%. Apple currently incurs ₹3,50,000 on rework.
(d) Better quality would enable Apple to raise the selling prices of its products by ₹3 per unit. Apple sells 30,000 units each year. Apple's required rate of return on inventory investment is 12% per year.

Calculate the net benefit or cost to the Apple Corporation from implementing a JIT production system.

Stores Ledger

Question 22 -

Transactions below are extracted from books of Accounts of a factory as on 31st December 2011, **compute:**
(a) consumption value of raw materials in the month and
(b) value of closing stock as on 31st December, 2011, under the following methods of pricing issues:
(i) FIFO **(ii)** LIFO **(iii)** Moving Weighted Average Cost (end of month).
Show the results in a **tabular** form.

2011 December	Quantity in Units	Rate per Unit
1 Opening Stock	300	9.70
3 Purchases	250	9.80
11 Issues	400	
15 Purchases	300	10.05
20 Issues	210	
25 Purchases	150	10.30
29 Issues	100	

Question 23 - Study Material, PYQ

A. T. Ltd. furnishes the following store transaction for September, 2002:

01.9.02	**Opening balance**	25 Units ₹162.50
04.9.02	**Issues Req. No. 85**	8 Units
06.9.02	**Receipts from B & Co. GRN No. 26**	50 Units @ ₹5.75 per unit
07.9.02	**Issues Req. No. 97**	12 Units
10.9.02	**Returns to B & Co.**	10 Units
11.9.02	**Issues Req. No. 108**	15 Units
13.9.02	**Issues Req. No. 110**	20 units
15.9.02	**Receipts from M & Co. GRN No. 33**	25 Units @ ₹6.10 per unit
17.9.02	**Issues Req. No. 121**	10 units
19.9.02	**Received replacement-from B & Co. GRN No. 38**	10 Units
20.9.02	**Returned from department material of M & Co. MRR No. 4**	5 Units
22.9.02	**Transfer from Job 182 to Job 187 in the Dept. MTR 6**	5 Units
26.9.02	**Issues Req. No. 146**	10 Units
29.9.02	**Transfer from Dept. "A" to Dept. 'B' MIR 10**	5 Units
30.9.02	**Shortage in stock taking**	2 units

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

Question 24 - PYQ

Prepare a Store Ledger Account from the following transactions of XY Company Ltd:

April, 2011	Particulars
01.04.11	**Opening balance 200 units @ ₹10 per unit.**
05.04.11	**Receipt 250 units costing ₹2,000**
08.04.11	**Receipt 150 units costing ₹1,275**
10.04.11	**Issue 100 units**
15.04.11	**Receipt 50 units costing ₹500**
20.04.11	**Shortage 10 units**
21.04.11	**Receipt 60 units costing ₹540**
22.04.11	**Issue 400 units**

The issues upto 10-4-11 will be priced at LIFO and from 11-4-11 issues will be priced at FIFO.
Shortage will be charged as overhead.

Question 25 - MTP

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, 2022:

Receipts:

Date	Quantity (kg.)	Rate per kg. (₹)
April 10,2022	1,600	50.00
April 20,2022	2,400	49.00
May 5,2022	1,000	51.00

May 17,2022	1,100	52.00
May 25,2022	800	52.50
June 11,2022	900	54.00
June 24,2022	1,400	55.00

There was 1,500 kg. in stock on April 1, 2022 which was valued at ₹48.00 per kg.

Issues:

Date	Quantity (kg.)
April 4,2022	1,100
April 24,2022	1,600
May 10,2022	1,500
May 26,2022	1,700
June 15,2022	1,500
June 21,2022	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, 2022 and 60 kgs. on 30th June, 2022.
You are required to **prepare** a Stores Ledger Account.

Question 26 - MTP

S & Sons, an unregistered supplier under GST, purchases material from V Ltd. which is a GST registered supplier.
The following information is available for one lot of 5,000 units of material purchased:

Listed price of one lot : ₹ 5,00,000
Trade discount : @10% on listed price
CGST and SGST (Credit Not available) : 18% (9% CGST + 9% SGST)
Cash discount : @10% (Will be given only if payment is made within 30 days.)
Toll Tax paid : ₹ 1,800
Freight and Insurance : ₹ 36,000
Demurrage paid to transporter : ₹ 5,000
Commission and brokerage on purchases : ₹ 10,000
Amount deposited for returnable containers : ₹ 30,000
Amount of refund on returning the container : ₹ 26,000
Other Expenses : @ 2% of total cost

5% of material shortage is due to normal reasons. The payment to the supplier was made within 21 days of the purchases.
You are required to **calculate** cost per unit of material purchased by S & Sons.

Computation of Landed Cost

Question 27 - PYQ

A manufacturer of Surat purchased three chemicals A, B and C from Bombay. The invoice gave the following information:

Particulars	Cost (₹)
Chemical	
A - 3,000 kg. @ ₹4.20 Per Kg.	12,600
B - 5,000 Kg. @ ₹3.80 Per Kg.	19,000
C - 2,000 kg. @ ₹4.75 Per Kg.	9,500
Sales tax	2,055
Railway freight	1,000
Total Cost	**44,155**

A shortage of 200 kg. in chemical A, of 280 Kg. in chemical B and of 100 Kg. in chemical C was noticed due to breakages. At Surat, the manufacturer paid octroi duty of Re. 0.10 per Kg. He also paid a cartage of ₹63.12 for chemical B and ₹31.80 for chemical C.
Calculate the stock rate that you would suggest for pricing issue of chemicals assuming a provision of 5% towards further deterioration.

Question 28 - RTP, PYQ

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:

(1) The company has to pay 15% p.a. to the bank for a cash credit facility.

(2) Input credit is available on GST paid on materials.You are required to:

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

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

EOQ – Stock Out – Reorder Point

Question 29 - PYQ

IPL Limited uses a small costing 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 results 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 as follows:

Delivery Time (Days)	Percentage of Occurrence
6	75
7	10
8	5
9	5
10	5

You are required to :

(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, the company estimates that when the waste and inefficiency caused by inventories are considered, the true costs 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?

Reorder Level – Stock Out Costs – Probability Analysis

Question 30 - RTP

ABC Ltd distributes a wide range of Water purifier systems. One of its best-selling items is a standard water purifier. The management of ABC Ltd uses the EOQ decision model to determine the optimal number of standard water purifiers to order. Management now wants to determine how much safety stock to hold.

ABC Ltd estimates the annual demand (360 working days) to be 36,000 standard water purifiers.

Using the EOQ decision model, the Company orders 3,600 standard water purifiers at a time.

The lead-time for an order is 6 days. The annual carrying cost of one standard purifier is ₹450.

Management has also estimated the additional stock-out costs would be ₹900 for shortage of each standard water purifier.

ABC Ltd. has analyzed the demand during 200 re-order periods.

The records indicate the following patterns:

Demand during Lead Time	Number of Quantity was demand
540	6
560	12
580	16
600	130
620	20
640	10
660	6
Total	**200**

You are Required to :

(1) Determine the level of safety stock for standard water purifiers that ABC Ltd. should maintain in order to minimize expected stock-out costs and carry costs. When computing carrying costs, assume that the safety stock is on hand at all times and that there is no overstocking caused by decrease in expected demand (consider safety stock level of 0, 20, 40, and 60 units).

(2) What would be ABC's new re-order point?

(3) What factors **ABC** Ltd. should have considered in estimating stock-out costs?

Employee Cost & Direct Expenses

Types of wage payments and Bonus plans

Question 1 - Pyq

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.

You are required to **calculate** wages of Mr. 'A' under each of the following methods:

(a) Time rate,
(b) Piece -rate with a guaranteed weekly wage,
(c) Halsey Premium Plan,
(d) Rowan Premium Plan.

Suggest which bonus plan i.e. Halsey Premium Plan or Rowan Premium Plan, the company should follow.

Question 2 - Study Material

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. P a machine man has been paid wages under the Rowan Incentive Plan and he has earned an effective hourly rate of ₹37.50 on the manufacture of that particular product.

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

Question 3 - Pyq

A worker takes 15 hours to complete a piece of work for which time allowed is 20 hours. His wage rate is ₹5 per hour. Following additional information are also available:

Material cost of work : ₹50
Factory overheads : 100% of wages

Calculate the factory cost of work under the following methods of wage payments:

(i) Rowan Plan
(ii) Halsey Plan

Question 4 - Pyq

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

Calculate normal hourly rate of wages of workman B.

Question 5 - Pyq

A skilled worker engaged in machining of component 'WYE' receives an ordinary wage rate of ₹ 504 per day of 8 hoursThe standard output for machining the component has been fixed at 64 pieces per hour (time as fixed for premium bonus).

In a certain week of 48 hours, the output of the worker on this machine is 3,456 pieces.

You are required to **calculate** the total weekly earnings of workers under the following :

(i) Rowan premium bonus system ;
(ii) Hasley Weir premium plan ;
(iii) If a bonus of ₹ 1.50 is paid per piece in excess of standard output.

Question 6 - Study Material

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 work overheads are absorbed on the job at ₹7.50 per labour hour worked. The factory cost of the job comes to ₹2,600 irrespective of the workman engaged.

Find out the hourly wage rate and cost of raw material input. Also show cost against each element of cost included in a factory cost. **[Hourly wage rate is ₹10 and cost of raw material input is ₹2,000]**

Halsey And Rowan Scheme's with complex adjustments-

Question 7 - Pyq

You are given the following information of a worker:

Name of worker : 'X'
Ticket No. : 002
Work started : 01-04-11 at 8 a.m.
Work finished : 05-04-11 at 12 noon
Work allotted : Production of 2,160 units
Time done and approved : 2,000 units
Time and units allowed : 40 units per hour
Wage rate : ₹25 per hour
Bonus : 40% of time saved
Worker X worked : 9 hours a day.

You are required to **calculate** the remuneration of the worker on the following basis:
(i) Halsey plan and **(ii)** Rowan plan

Question 8 - Pyq

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 : 4
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 the Halsey scheme, workers get a bonus equal to 50% of wages of time saved.
Calculate earnings of workers under Halsey and Rowan's premium scheme.

Question 9 - Pyq

ZED Limited is working by employing 50 skilled workers. It is considering the introduction of an 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 the 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, 2004.

Hourly rate of wages (guaranteed) : ₹30
Average time for producing one unit by one worker at the previous performance : 1.975 hours
(This may be taken as time allowed)
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

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

Question 10 - Pyq

The following information of a work is given:

Weekly working hours : 45
Wage Rate per hour (₹) : 8.00
Piece Rate per Unit (₹) : 4.00
Normal time taken per piece : 20 Minutes
Normal Output Per Week : 100 Pieces
Actual Output for the week : 120 Pieces
Differential Piece Rate - : 80% of Piece Rate when actual output is below normal output that is 100 pieces; and 120% of Piece Rate when actual output is above normal output.

You are required to **calculate** the earnings of a worker for a week under:
(a) Halsey Premium Scheme. **(b)** Differential Piece Rate System.

Question 11 - Mtp

The following particulars have been compiled in respect of three workers:

Particulars	M	N	O
Actual hours worked	380	100	540
Hourly rate of wages (in ₹)	90	100	110
Productions in units:			
- Product A	210	-	600
- Product B	360	-	1350
- Product C	460	250	-
Standard time allowed per unit of each product is:	**A**	**B**	**C**
Minutes	15	20	30

For the purpose of piece rate, each minute is valued at ₹1.50.
You are required to **CALCULATE** the wages of each worker under:
(i) Guaranteed hourly rate basis.
(ii) Piece work earning basis but guaranteed at 75% of basic pay (Guaranteed hourly rate if his earnings are less than 50% of basic pay.)

Labour Turnover

Question 12 - Pyq

The rate of change of labour force in a company during the year ending 31st March, 2013 was calculated as 13%, 8% and 5% respectively under 'Flux method', 'Replacement method' and 'Separation method' respectively. The number of workers separated during the year is 40. You are required to **calculate:**
(i) Average number of workers on roll.
(ii) Number of workers replaced during the year.
(iii) Number of new accessions i.e., new recruitment.
(iv) Number of workers at the beginning of the year.

Question 13 - Study Material

The Cost Accountant of Y Ltd. has computed labour turnover rates for quarter ended 31st March, 2007 as 10%, 5% and 3% respectively under 'Flux method', 'Replacement method' and 'Separation method' respectively. If the number of workers replaced during that quarter is 30. **Find** out the number of:
(1) Workers recruited and joined. **(2)** Workers left and were discharged.

Question 14 - Pyq

Following information is given of a newly setup organization for the year ended on 31st March, 2021.

Number of workers replaced during the period	50
Number of workers left and discharged during the period	25
Average no. of workers on the roll during the period	500

The organization was set up on 31st January, 2021. You are **required** to :
(i) Compute the Employee Turnover Rates using the Separation Method and Flux Method.
(ii) Equivalent Employee Turnover Rates for (i) above.

Effects of Labour Turnover on Profit or Loss

Question 15 - Study Material, Pyq

The management of Bina and Rina Ltd. are worried about their increasing labour turnover in the factory and before analyzing the causes and taking remedial steps, they want to have an idea of the profit foregone as a result of labour turnover in the last year.
Last year sales amounted to ₹83,03,300 and P/V ratio was 20% . The total number of actual hours worked by the Direct Labour force was 4.45 lakhs. As a result of the delays by the Personnel Department in filling vacancies due to labour turnover, 1,00,000 potentially productive hours were lost. The actual direct labour hours included 30,000 hours attributable to training new recruits, out of which half of the hours were unproductive.
The costs incurred consequent on labour turnover revealed, on analysis, the following:
Settlement costs due of leaving : ₹43,820
Recruitment costs : ₹26,740

Selection costs : ₹12,750
Training : ₹30,490
Assuming that the potential production lost as a consequence of labour turnover could have been sold at prevailing prices, **find** the profit foregone last year on account of labour turnover.

Question 16 - Pyq
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 the 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.

Overtime wage calculation

Question 17 - Study Material
In a factory, the basic wage rate is ₹100 per hour and overtime rates are as follows:
Before and after normal working hours : 175% of basic wage rate
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 : 5,000 hours
Total : **1,25,000 hours**

The following hours have been worked on job **'Z'**
Normal : 1,000 hours
Overtime before and after working hours : 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:
(a) Where overtime is worked regularly throughout the year as a policy due to the workers' shortage.
(b) Where overtime is worked irregularly to meet the requirements of production.
(c) Where overtime is worked at the request of the customer to expedite the job.

Question 18 - Rtp
Textile Ltd. pays following overtime premium for its labour beside normal wages of ₹100 per hour:
Before and after normal working hours : 80% of basic wage rate
Sundays and holidays : 150% of basic wage rate

During the previous year 2019-20, the following hours were worked:
Normal time : 3,00,000 hours
Overtime before and after normal working hours : 60,000 hours
Overtime on Sundays and holidays : 15,000 hours
Total : **3,75,000 hours**

During the current year 2020-21, the following hours have been worked on job **'Spinning':**

Normal	: 4,000 hours
Overtime before and after normal working hours	: 400 hours
Overtime on Sundays and holidays	: 100 hours
Total	: 4500 hours

You are required to **CALCULATE** the labour cost chargeable to job 'Spinning' and overhead in each of the following instances:

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

Calculation of employee cost and net wages

Question 19 - Rtp (Adapted)

Calculate the Labour Cost per man-day from the following data:

Basic Salary	: ₹200 per day
Dearness Allowance	: ₹2.50 per every point over 100 cost of living for the working class. (Current cost of Living Index = 700 points.)
Leave Salary	: 10% of (Basic + DA)
Employer's Contribution to PF, ESI and Associated Costs	: 20% of (Basic + DA + Leave Salary)
Expenditure on amenities to Labour per month	: ₹600 per worker.
Working Days per month	: 25 days of 8 hours each.

Question 20 - Study Material

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.

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.

Question 21 - Study Material

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.

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.

Question 22 - Pyq

Following are the Particulars of two workers 'R' and 'S' for a month:

Particulars	R	S
Basic Wages (₹)	15,000	30,000
Dearness Allowance	50%	50%
Contribution to EPF (on basic wages)	7%	7.5%
Contribution to ESI (on basic wages)	2%	2%
Overtime (hours)	20	-

The normal working hours for the month are 200 hrs. Overtime is paid at double the total of normal wages and dearness allowance. Employer's contributions to State Insurance and Provident Fund are at equal rates with employees' contributions. Both workers were employed on jobs A, B and C in the following proportions :

Jobs	A	B	C
R	75%	10%	15%
S	40%	20%	40%

Overtime was done on job 'A'. You are **required** to :

(i) Calculate ordinary wage rate per hour of 'R' and 'S'.
(ii) Allocate the worker's cost to each job 'A', 'B' and 'C'.

Question 23 - Mtp

Archika Tyre Manufacturing Private Limited has four workers Ram, Shyam, Mohan & Kundan who are paid wages on the basis of ₹100 per day, ₹120 per day, ₹130 per day & ₹2500 per month respectively.
Standard working days in a week are six of 8 hours per day. For the month of October 2022, there was only one holiday other than Sunday for which no payment was made to employees except Kundan who was paid for the full month. Sundays are considered paid holidays i.e. employees are paid for Sunday also even if there is no working on that day. Provident fund contribution is 8% of monthly wages by employer and employee each. ESI contribution is 5% of monthly wages by employer and 4% of monthly wages by employee.
On the basis of above information, you are required to **CALCULATE** (regarding the month of October 2022):
(1) Amount of net wages receivable by each employee from the employer.
(2) What is the total amount of Provident Fund required to be deposited by employer?
(3) What is the total amount of ESI required to be deposited by the employer?
(4) What is the total labour cost to the employer?
If total material cost is ₹20,000 for October 2022 and overheads are charged equal to labour cost, **calculate** total cost for the month.

Job Costing and Labour Cost

Question 24 - Pyq

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

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

Direct Expenses

Question 25 - Study Material

Aditya Ltd. is an engineering manufacturing company producing job orders on the basis of specifications given by the customer. During the last month it has completed three job works namely A, B and C.
The following are the items of expenditures which are incurred apart from direct materials and direct employee cost:

Office and administration cost	: ₹3,00,000
Product blueprint cost for job A	: ₹1,40,000
Hire charges paid for machinery used for job work B	: ₹40,000
Salary to office attendants	: ₹50,000
One time license fee paid for software used to make computerised graphics for job C	: ₹50,000
Salary paid to marketing manager	: ₹1,20,000

CALCULATE direct expenses attributable to each job.

Question 26 - Study Material

The following expenditures were incurred in Aditya Ltd. For the month of March 2023:

	Particulars	(₹)
(i)	**Paid for power & fuel**	4,80,200
(ii)	**Wages paid to factory workers**	8,44,000
(iii)	**Bill paid to job workers**	9,66,000
(iv)	**Royalty paid for production**	8,400
(v)	**Fee paid to technician hired for the job**	96,000
(vi)	**Administrative overheads**	76,000
(vii)	**Commission paid to sales staffs**	1,26,000

You are required to **CALCULATE** direct expenses for the month.

Overheads-Absorption Costing Method

Direct Distribution Method

Question 1 - Rtp

TRI-D has three production Departments – Extrusion, Machining and Finishing and a Service Department known as production services which for the Production Departments in the ratio of 3:2:1.

The following which represent normal activity levels have been budgeted for the ending 31st December:

Cost (In ₹)	Extrusion	Machining	Finishing	Production Services	Total
Direct Wages	58,000	72,000	90,000	-	2,20,000
Direct Materials	40,000	29,000	15,000	-	84,000
Indirect Wages	15,000	21,000	8,000	58,000	1,02,000
Depreciation					84,000
Rent					22,000
Power					1,80,000
Personnel Department Expenses					60,000
Insurance					48,000
Other Data:					
Direct Labour Hours	7,250	9,000	15,000	-	31,250
Machine Hours	15,500	20,000	2,500	2,000	40,000
Floor Area (sqm)	800	1,200	1,000	1,400	4,400
Fixed Assets (₹)	1,60,000	1,40,000	30,000	70,000	4,00,000
Employees	40	56	94	50	240

(1) Prepare an Overhead Analysis Sheet and **calculate** Overhead Absorption Rates for the production Departments.

(2) The following data are available for the actual result of the Extrusion Department for the period:

Actual Overheads = ₹2,11,820,

Actual Labour Hours = 7,380,

Actual Machine Hours = 16,250.

Calculate the Under/Over Recovery of Overheads for the Extrusion Department.

Step Ladder Method

Question 2 - Pyq

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:

Particulars		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 departments 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

You are required to:

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

Question 3 - Study Material

The expenses of two production departments A and B and two service department X and Y are as under:

Particulars	Amount (₹)	Apportionment Basis		
		Y	A	B
X	2,000	25%	40%	35%
Y	1,500	-	40%	60%
A	3,000			
B	3,200			

You are **required** to do Secondary Distribution.

Question 4 - PYQ

RST Ltd. has two production departments: Machining and Finishing.
There are three service departments: Human Resource (HR), Maintenance and Design.

The budgeted costs in these service departments are as follows:

Particulars	HR (₹)	Maintenance (₹)	Design (₹)
Variable	1,00,000	1,60,000	1,00,000
Fixed	4,00,000	3,00,000	6,00,000
	5,00,000	4,60,000	7,00,000

The usage of these Service Departments output during the year just completed is as follows:

Provision of service output (in hours of service)

Users of Service	Providers of Service		
	HR	Maintenance	Design
HR	-	-	-
Maintenance	500	-	-
Design	500	500	-
Machining	4,000	3,500	4,500
Finishing	5,000	4,000	1,500
Total	**10,000**	**8,000**	**6,000**

Required:
(i) Use the **direct method** to **re-apportion** RST Ltd's service department cost to its production departments.
(ii) **Determine** the proper sequence to use in re-apportioning the firm's service department cost by step-down method.
(iii) Use the **step-down method** to **reapportion** the firm's service department cost.

Fixed & Variable expense distribution base

Question 5 - PYQ

Self-help Ltd has Gen sets and produces its own power.

Data for Power Costs are as follows:

Particulars	Production Department		Service Department	
	A	B	X	Y
Needed at Capacity Production (HP hours)	10,000	20,000	12,000	8,000
Used during a month (HP hours)	8,000	13,000	7,000	6,000

During the month, costs for generating power amounted to ₹9,300, of this ₹2,500 is Fixed Cost.
Service Department X renders service to Departments A, B and Y in the ratio 13: 6: 1, while Y renders service to Departments A and B in the ratio 31: 3.
Given that the Direct Labour Hours in Departments A and B are 1,650 hours and 2,175 hours respectively, **find** out the Power Cost per Labour Hour in each of these two Departments.

Re – Apportionment – Repeated Distribution Method and Simultaneous Equation Method

Question 6 - Study Material

Modern Manufactures Ltd. has three Production Departments P1, P2, P3 and two Service Departments S1and S2 details pertaining to which are as under:

Particulars	P_1	P_2	P_3	S_1	S_2
Direct wages (₹)	3,000	2,000	3,000	1,500	195
Working hours	3,070	4,475	2,419	-	-
Value of machines (₹)	60,000	80,000	1,00,000	5,000	5,000
H.P. of machines	60	30	50	10	-
Light points	10	15	20	10	5
Floor space (sp. ft.)	2,000	2,500	3,000	2,000	500

The following figures extracted from the Accounting records are relevant:

Particulars	(₹)
Rent and Rates	5,000
General Lighting	600
Indirect wages	1,939
Power	1,500
Depreciation on machines	10,000
Sundries	9,695

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%	-

FIND OUT 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 ₹50 and Direct Labour Cost is ₹30.

Question 7 - PYQ

Delta Ltd. is a manufacturing concern having two production departments PI and P2 and two service departments S1 and S2. After making a primary distribution of factory overheads, the total overheads of all departments are as under:

Department	(₹)
P_1	4,02,000
P_2	2,93,000
S_1	3,52,000
S_2	33,000

Overheads of service departments are reapportioned as below :

	P_1	P_2	S_1	S_2
S_1	40%	50%	-	10%
S_2	50%	40%	10%	-

A product 'Z' passes through all the two production departments – P_1 and P_2 and each unit of product remains there in process for 2 and 3 hours respectively. The material and labour cost of one unit of product 'Z' is ₹500 and ₹350 respectively. The company runs for all 365 days of the year and 16 hours per day.
You are required: **(i)** To **make** secondary distribution of overheads of service departments by applying **Simultaneous Equation method** and **(ii) Determine** the total cost of one unit of product Z.

Question 8 - Study Material, PYQ

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, 2012:

Item	Total Amount	Production Departments			Service Departments	
	(₹)	X (₹)	Y (₹)	Z (₹)	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	Z	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:

	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.

High and Low Points of segregating Semi-Variable Costs

Question 9 - PYQ

Following information is available for the first and second quarter of the year 2008-09 of ABC Limited:

Quarter	Production (in units)	Semi-variable cost (₹)
Quarter I	36,000	2,80,000
Quarter II	42,000	3,10,000

You are required to **segregate** the semi-variable cost and **calculate :**
(a) Variable cost per unit; and **(b)** Total fixed cost.

Question 10 - PYQ

Beginners & Co. has recorded the following data in the two most recent periods:

Total Cost of Production (₹)	Volume of Production (Units)
14,600	800
19,400	1,200

What is the best estimate of the Firm's Fixed Costs per period?

Various Methods of Absorption and Job Costs

Question 11 - Rtp

The following figures have been extracted from the books of a manufacturing Company.
All jobs pass through the Company's two Departments:

Particulars	Welding Department	Finishing Department
Material	₹60,000	₹50,000
Direct Labour	₹30,000	₹15,000
Factory Overheads	₹18,000	₹12,000
Direct Labour Hours	12,000 hours	5,000 hours
Machine Hours	10,000 hours	2,000 hours
The following information relates to Job 27:		
Material	₹1,200	₹100
Direct Labour	₹650	₹250
Direct Labour Hours	265 hours	70 hours
Machine Hours	255 hours	25 hours

(1)List 5 methods of absorbing Factory OH by jobs, showing the rate for each Department under the methods.
(2)Prepare a statement showing the different cost results for Job 27 under each of the methods referred to.

Question 12 - Study Material, PYQ

A factory has three production departments.

The policy of the factory is to recover the production overheads of the entire factory by adopting a single blanket rate based on the percentage of total factory overheads to total factory wages.

The relevant data for a month are given below:

Department	Direct Materials (₹)	Direct Wages (₹)	Factory Overheads (₹)	Direct Labour Hour	Machine Hours
Budget					
Machining	6,50,000	80,000	3,60,000	20,000	80,000
Assembly	1,70,000	3,50,000	1,40,000	1,00,000	10,000
Packing	1,00,000	70,000	1,25,000	50,000	-
Actual					
Machining	7,80,000	96,000	3,90,000	24,000	96,000
Assembly	1,36,000	2,70,000	84,000	90,000	11,000
Packing	1,20,000	90,000	1,35,000	60,000	-

The details of one of the representative jobs produced during the month are as under: **Job No. CW 7083:**

Department	Direct materials (₹)	Direct wages (₹)	Direct labour hour	Machine hours
Machining	1,200	240	60	180
Assembly	600	360	120	30
Packing	300	60	40	-

The factory adds 30% on the factory cost to cover administration and selling overheads and profit.

(i) Calculate the overhead absorption rate as per the current policy of the company and determine the selling price of the Job No. CW 7083.

(ii) Suggest any suitable alternative method(s) of absorption of the factory overheads and calculate the overhead recovery rates based on the method (s) so recommended by you.

(iii) Determine the selling price of Job CW 7083 based on the overhead application rates calculated in (ii) above.

(iv) Calculate the department wise and total under or over recovery of overheads based on the company's current policy and the method(s) recommended by you.

Computation of Over/Under Recovery

Treatment of Under Absorption

Question 13 - PYQ, Rtp

PQR manufactures – 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.

For a period of first six months of the financial year 2007-2008, 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 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

Works-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 25% 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.

Question 14 - Study Material

ABC Ltd. manufactures a single product and absorbs the production overheads at a predetermined rate of ₹ 10 per machine hour. At the end of financial year 2019-20, it has been found that actual production overheads incurred were ₹ 6,00,000. It included ₹ 45,000 on account of 'written off' obsolete stores and ₹ 30,000 being the wages paid for the strike period under an award.

The production and sales data for the year 2019-20 is as under:

Production:

Finished goods : 20,000 units

Work-in-progress : 8,000 units (50% complete in all respects)

Sales:

Finished goods : 18,000 units

The actual machine hours worked during the period were 48,000. It has been found that one-third of the under-absorption of production overheads was due to lack of production planning and the rest was attributable to normal increase in costs.

(i) CALCULATE the amount of under-absorption of production overheads during the year 2019-20; and

(ii) SHOW the accounting treatment of under-absorption of production overheads.

Question 15 - PYQ

A manufacturing company having a 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.

During the year, factory workers work 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.

Use of Rates Based on Actual Overhead Incurred

Accounting of Selling and Distribution Overhead

Question 16 - Study Material

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, 2006.

Particulars	Products			
	A	B	C	D
Sales (₹)	3,00,000	5,00,000	2,50,000	4,50,000
Cost of sales (₹)	2,00,000	4,50,000	2,10,000	2,25,000
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	30,000	Sq. Ft.
Depreciation	10,000	Parcel
Salesmen's salaries & expenses	50,000	Sales Volume
Administrative wages and salaries	50,000	No. of invoices
Variable Costs:		
Packing wages & materials	20 paise per parcel	
Commission	4% of sales	
Stationery	10 paise per invoice	

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

Machine Hour Rate

Question 17 - Study Material

A machine costing ₹10,000 is expected to run for 10 years At the end of this period its scrap value is likely to be ₹900. Repair during the whole life of the machine is expected to be ₹18,000 and the machine is expected to run 4,380 hours per year on the average. Its electricity consumption is 15 units per hour, the rate per unit being 5 paise. The machine occupies one-fourth of the area of the department and has two points out of a total of ten for lighting. The foreman has to devote about one sixth of his time to the machine. The monthly rent of the department is ₹300 and lighting charges amount to ₹80 per month. The foreman is paid a monthly salary of ₹960. **Find** out the machine hour rate, assuming insurance is @ 1% p.a and the expenses on oil, etc., are ₹9 per month.

Question 18 - Mtp

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

(i) The original cost of the machine used (Purchased in June 2013) was ₹ 1,00,000. Its estimated life is 10 years, the estimated scrap value at the end of its life is ₹ 10,000, 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 a cost of 90 paisa 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 ₹ 200 each time.

(iv) The estimated cost of maintenance per year is ₹ 12,000.

(v) Two attendants control the operation of the machine together with five other identical machines. Their combined weekly wages, insurance and the employer's contribution to holiday pay amount ₹1,200.

(vi) Departmental and general works overhead allocated to this machine for the current year amount to ₹ 20,000.

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

Question 19 - PYQ

M/s Zaina Private Limited has purchased a machine costing ₹29,14,800 and it is expected to have a salvage value of ₹1,50,000 at the end of its effective life of 15 year Ordinarily the machine is expected to run for 4,500 hours per annum but it is expected to run for 4,500 hours per annum but it is estimated that 300 hours per annum will be lost for normal repair & maintenance.

The other details in respect of the machine are as follows:

(i) Repair & maintenance during the whole life of the machine are expected to be ₹5,40,000

(ii) Insurance premium (per annum) 2% of the cost of the machine

(iii) Oil and lubricants required for operating the machine (per annum) ₹87,384

(iv) Power consumptions: 10 units per hour @ 7 per unit. No power consumption during repair and maintenance.

(v) Salary to the operator per month ₹24,000. The operator devotes one-third of his time to the machine.

You are required to **calculate** a comprehensive machine hour rate.

Question 20 - PYQ

Machine shop Cost Centre contains three machines of equal capacities. Three operators are employed on each machine, Payable ₹20 per hour each. The Factory works for forty-eight 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 addition, they paid a bonus of 10% of productive time. Costs are reported for this Company on the basis of thirteen four-weekly periods. 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 OH applicable to the Cost Centre are available:

(i) Depreciation 10% per annum on Original Cost of the Machine. Original Cost of each Machine is ₹52,000

(ii) Maintenance and Repairs per week per Machine is ₹60.

(iii) Consumable Stores per week per Machine are ₹75.

(iv) Power 20 units per hour per Machine at the rate of 80 paise per unit.

(v) Apportionment to the Cost Centre: Rent p.a. ₹5,400, Heat and Light p.a. ₹9720, and Foreman's Salary p.a. ₹12,960. **Calculate: (a)** Cost of running one machine for a four-week period, and **(b)** Machine Hour Rate.

Question 21 - PYQ

A machine shop has 8 identical machines manned 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 ₹ 32,00,000.

The following particulars are furnished for a six months period:

Normal available hours per month per operator : 208
Absenteeism (without pay) hours per operator : 18
Leave (with pay) hours per operator : 20
Normal unavoidable idle time-hours per operator : 10
Average rate of wages per day of 8 hours per operator : ₹100
Production bonus estimated : 10% on wages
Power consumed : ₹ 40,250
Supervision and Indirect Labour : ₹ 16,500
Lighting and Electricity : ₹ 6,000

The following particulars are given for a year:

Insurance : ₹ 3,60,000
Sundry work Expenses : ₹ 50,000
Management Expenses allocated : ₹ 5,00,000
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.

Question 22 - PYQ

From the details furnished below you are required to **compute** a comprehensive Machine-Hour Rate:

Original Purchase Price of the machine (subject to depreciation at 10% p.a. on Original Cost)	₹3,24,000
Normal working hours for the month (The machine works to only 75% of capacity)	200 hours
Wages of Machine man	₹125 per day (of 8 hours)
Wages for a Helper (Machine Attendant)	₹75 per day (of 8 hours)
Power Cost for the month for the time worked	₹15,000
Supervision Charges apportioned for the machine centre for the month	₹3,000
Electricity & Lighting for the month	₹7,500
Repairs & Maintenance (Machine) including Consumable Stores per month	₹17,500
Insurance of Plant & Building (apportioned) for the year	₹16,250
Other General Expenses per annum	₹27,500

The workers are paid a fixed Dearness Allowance (DA) of ₹1575 per month. Production Bonus payable to workers in terms of an award is equal to 33.33% of Basic Wages and DA. Add 10% of the Basic Wages and DA against Leave Wages and Holidays with pay to arrive at a comprehensive labour-wage for debit to production.

Question 23 - PYQ

You are given the following information of the three machines of a Manufacturing Department of X Ltd:

Preliminary Estimates of Expenses: (₹ per annum)

Particulars	Total	Machine A	Machine B	Machine C
Depreciation	20,000	7,500	7,500	5,000
Spare Parts	10,000	4,000	4,000	2,000
Power	40,000			
Consumable Stores	8,000	3,000	2,500	2,500
Insurance of Machinery	8,000			
Indirect Labour	20,000			
Building Maintenance Expenses	20,000			
Annual Interest on Capital Outlay	50,000	20,000	20,000	10,000
Monthly Charge for Rent and Rates	10,000			
Salary of Foreman (Per month)	20,000			
Salary of Attendant (per month)	5,000			

Note: The Foreman and the Attendant control all the three machines and spend equal time on them.

The following additional information is also available:

Particulars	Machine A	Machine B	Machine C
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 12 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 90% capacity throughout the year and 2% is reasonable for breakdown.

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 'B' & 'C' only.
- 20% general increase in Wage Rates.

Question 24 - Study Material

Gemini Enterprises undertakes three different jobs A, B and C. All of them require the use of a special machine and also the use of a computer. The computer is hired and the hire charges work out to ₹4,20,000 per annum. The expenses regarding the machine are estimated as follows:

Particulars	₹
Rent for the quarter	17,500
Depreciation per annum	2,00,000
Indirect charges per annum	1,50,000

During the first month of operation the following details were taken from the job register

Job	A	B	C
Number of hours the machine was used:			
-Without the use of the computer	600	900	-
- With the use of the computer	400	600	1000

You are required to **compute** the machine hour rate:

(a) For the firm as a whole for the month when the computer was used and when the computer was not used.

(b) For the individual jobs A, B and C.

Question 25 - PYQ

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

(a) Rated capacity

(b) Practical capacity

(c) Normal capacity

(d) Actual capacity.

Activity Based Costing

Activity Based Costing

Question 1 - Rtp

G-2020 Ltd. is a manufacturer of a range of goods.
The cost structure of its different products is as follows:

Particulars	Product A	Product B	Product C	
Direct materials	50	40	40	₹ / u
Direct labour @ ₹ 10/hour	30	40	50	₹ / u
Production overheads	30	40	50	₹ / u
Total cost	110	120	140	₹ / u
Quantity produced	10,000	20,000	30,000	Units

G-2020 Ltd. 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 Driver 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	order executed	2,10,000
Machine set up	Number of setups	12,00,000

The following information is also supplied:

Particulars	Product A	Product B	Product C
No. of set ups	360	390	450
No. of order executed	180	270	300
No. of production runs	750	1,050	1,200
No. of purchase requisitions	300	450	500

Required: CALCULATE activity based production cost of all the three products.

Question 2 - Rtp

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

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 Driver:

Cost driver	Product X	Product Y	Product Z	Total
No. of machine set ups	40	160	400	600
No. of purchase order	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 the same. Workers are paid at a 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.

(i) COMPUTE overhead cost per unit using activity based costing method.

(ii) DETERMINE the selling price of each product based on activity-based costing with the same profit mark-up on cost.

Traditional Costing & Activity Based Costing

Question 3 - Study Material

Woolmark Ltd. manufactures three types of products namely P, Q and R.
The data relating to a period are as under:

Particulars	P	Q	R
Machine hour per unit	10	18	14
Direct Labour hour per unit	4	12	8
Direct Material per unit (₹)	90	80	120
Production (units)	3,000	5,000	20,000

Currently the company uses a traditional costing method and absorbs all production overheads on the basis of machine hour. The machine hour rate of overheads is ₹ 6 per hour. Direct labour hour rate is ₹ 20 per hour.

The company proposes to use activity based costing system and the activity analysis is as under:

Particulars	P	Q	R
Batch size (units)	150	500	1,000
Number of purchase order per batch	3	10	8
Number of inspections per batch	5	4	3

The total production overheads are analysed as under:

Machine set up costs : 20%
Machine operation costs : 30%
Inspection costs : 40%
Material procurement related costs : 10%

(i) CALCULATE the cost per unit of each product using the traditional method of absorbing all production overheads on the basis of machine hour.
(ii) CALCULATE the cost per unit of each product using activity based costing principles.

Question 4 - Pyq

Star Limited manufactures 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:

Product	Labour Hrs. per unit	Machine Hrs. per unit	Materials per Unit	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 an 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

(i) Calculate the cost per unit for each product using the conventional method.
(ii) Calculate the cost per unit for each product using activity based costing method.

Question 5 - Mtp

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:

Product	A	B	C	D
Output in units	1,440	1,200	960	1,008
Cost per unit:				
Direct Materials	₹ 84	₹ 90	₹ 80	₹ 96
Direct Labour	₹ 20	₹ 18	₹ 14	₹ 16
Machine hour 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:

Particulars	(₹)
Machine department costs:	
Rent, deprecation 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 Driver 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	order 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. You are required to:

(i) CALCULATE the total cost of each product, if all overhead costs are absorbed on a machine- hour rate basis; and

(ii) CALCULATE the total cost of each product using activity-based costing.

Question 6 - Study Material

T Limited specializes in the distribution of pharmaceutical products. It buys from the pharmaceutical companies and resells to each of the three different markets.

(i) General Supermarket Chains **(ii)** Drugstore Chains **(iii)** Chemist Shops

The following data for the month of April, 2009 in respect of RST Limited has been reported:

Particulars	General Supermarket Chains (₹)	Drugstore Chains (₹)	Chemist Shops (₹)
Average revenue per delivery	84,975	28,875	5,445
Average cost of goods sold per delivery	82,500	27,500	4,950
Number of deliveries	330	825	2,750

In the past, RST Limited has used gross margin percentage to evaluate the relative profitability of its distribution channels. The company plans to use activity –based costing for analyzing the profitability of its distribution channels.

The Activity analysis of RST Limited is as under:

Activity Area	Cost Driver
Customer purchase order processing	Purchase order by customers
Line-item ordering	Line-items per purchase order
Store delivery	Store deliveries
Cartons dispatched to stores	Cartons dispatched to a store per delivery
Shelf-stocking at customer store	hour of shelf-stocking

The April, 2009 operating costs (other than cost of goods sold) of RST Limited are ₹ 8,27,970. These operating costs are assigned to five activity areas.
The cost in each area and the quantity of the cost allocation basis used in that area for April, 2009 are as follows:

Activity Area	Total costs in April, 2009 (₹)	Total Units of Cost Allocation Base used in April, 2009
Customer purchase order processing	2,20,000	5,500 order
Line-item ordering	1,75,560	58,520 line items
Store delivery	1,95,250	3,905 store deliveries
Cartons dispatched to store	2,09,000	2,09,000 cartons
Shelf-stocking at customer store	28,160	1,760 hour

Other data for April, 2009 include the following:

Particulars	General Supermarket Chains	Drugstore Chains	Chemist Shops
Total number of order	385	990	4,125
Average number of line items per order	14	12	10
Total number of store deliveries	330	825	2,750
Average number of cartons shipped per store delivery	300	80	16
Average number of hour of shelf-stocking per store delivery	3	0.6	0.1

(i) COMPUTE for April, 2009 gross-margin percentage for each of its three distribution channels and compute T Limited's operating income.
(ii) COMPUTE the April, 2009 rate per unit of the cost-allocation base for each of the five activity areas.
(iii) COMPUTE the operating income of each distribution channel in April, 2009 using the activity-based costing information. Comment on the results. What new insights are available with the activity-based cost information?
(iv) DESCRIBE four challenges one would face in assigning the total April, 2009 operating costs of ₹ 8,27,970 to five activity areas.

Amount of cost distortion

Question 7 - Study Material

ABC Ltd. Manufactures two types of machinery equipment Y and Z and applies/absorbs overheads on the basis of direct-labour hour. The budgeted overheads and direct-labour hours for the month of December, 2008 are ₹ 12,42,500 and 20,000 hours respectively.
The information about Company's products is as follows:

Particulars	Equipment Y	Equipment Z
Budgeted Production volume	2,500 units	3,125 units
Direct material cost	₹ 300 per unit	₹ 450 per unit
Direct labour cost		
Y : 3 hour @ ₹ 150 per hour		
X : 4 hour @ ₹ 150 per hour	₹ 450	₹ 600

ABC Ltd.'s overheads of ₹ 12,42,500 can be identified with three major activities:
Order Processing (₹ 2,10,000), machine processing (₹ 8,75,000), and product inspection (₹ 1,57,500). These activities are driven by number of order processed, machine hour worked, and inspection hour, respectively.
The data relevant to these activities is as follows:

Particulars	Order processed	Machine hour worked	Inspection hour
X	350	23,000	4,000
Y	250	27,000	11,000
Total	600	50,000	15,000

(i) Assuming use of direct-labour hour to absorb/apply overheads to production, **COMPUTE** the unit manufacturing cost of the equipment Y and Z, if the budgeted manufacturing volume is attained.
(ii) Assuming use of activity-based costing, **COMPUTE** the unit manufacturing costs of the equipment Y and Z, if the budgeted manufacturing volume is achieved.
(iii) ABC Ltd.'s selling prices are based heavily on cost. By using direct-labour hour as an application base, **CALCULATE** the amount of cost distortion (under-costed or over-costed) for each equipment.

Mixed concepts

Question 8 - Study Material

Humara - Apna' bank offers three products, viz., deposits, Loans and Credit Cards. The bank has selected 4 activities for a detailed budgeting exercise, following activity based costing methods. 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** **b) Rents** **c) Currency Replenishment Cost**	4,00,000 2,00,000 1,00,000	All fixed, no change. Fully fixed, no change. Expected to double during the budget period.
	7,00,000	(This activity is driven by no. of ATM transactions)
Computer Processing	5,00,000	Half this amount is fixed and no change is expected.The variable portion is expected to increase to three times the current level. (This activity is driven by the number of computer transactions)
Issuing Statements	18,00,000	Presently, 3 lakh statements are made. In the budget period, 5 lakh statements are expected. For every increase of one lakh statement, one lakh rupees is the budgeted increase.(This activity is driven by the number of statements)
Computer Inquiries	2,00,000	Estimated to increase by 80% during the budget period. (This activity is driven by telephone minutes)

The activity Driver and their budgeted quantifies are given below:

Activity Driver	Deposits	Loans	Credit Cards
No. of ATM Transactions	1,50,000	---	50,000
No. of Computer Processing Transactions	15,00,000	2,00,000	3,00,000
No. of Statements to be issued	3,50,000	50,000	1,00,000
Telephone Minutes	3,60,000	1,80,000	1,80,000

The bank budgets a volume of 58,600 deposit accounts, 13,000 loan accounts, and 14,000 Credit Card Accounts. You are required to:
(i) CALCULATE the budgeted rate for each activity.
(ii) PREPARE the budgeted cost statement activity wise.
(iii) COMPUTE the budgeted product cost per account for each product using (i) and (ii) above.

Question 9 - Study Material, Rtp

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 2019-20 for each product line:

Particulars	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 order placed	360	840	360
Number of deliveries received	300	2,190	660
hour 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 2019-20:

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 order for purchases	₹ 7,80,000	1,560 purchase order
Delivery	Physical delivery and receipt of goods	₹ 12,60,000	3,150 deliveries

Shelf stocking	Stocking of goods on store shelves and on - going restocking	₹ 8,64,000	8,640 hour of shelf-stocking time
Customer Support	Assistance provided to customers including check-out	₹ 15,36,000	15,36,000 items sold

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

Question 10 - Mtp
RVP Cinema provides the following data for the year 2020-21:

Particulars	Premium Hall (₹)	Recliner Hall (₹)	7D Hall (₹)	Cafeteria (₹)
Revenue	11,55,000	18,75,000	9,30,000	5,25,000
Cost of Goods sold	-	-	-	4,51,125
Digital media cost	6,19,800	9,46,875	4,02,900	-
Number of Credit Card transactions	75,000	90,000	60,000	45,000
Number of Tests	12,000	18,000	15,000	7,500
Number of Setups	225	450	150	75
Area in Square feet	3,000	4,500	2,250	750
Number of Customer contacts	2,62,500	3,00,000	1,50,000	37,500
Number of Customer online order	2,10,000	2,47,500	1,20,000	22,500

Cost analysis has revealed the following:

Activity	Activity Cost (₹)	Activity Driver	Activity Capacity
Marketing Expenses	2,25,000	Number of Customer contacts	7,50,000
Website Maintenance Expenses	1,50,000	Number of Customer online order	6,00,000
Credit Card Processing Fees	1,35,000	No. of Credit Card Transactions	2,70,000
Cleaning Equipment Cost	3,15,000	Number of square feet	10,500
Inspecting and testing costs	2,62,500	Number of tests	52,500
Setting up machine's costs	4,50,000	Number of set-ups	900

(i) If RVP Cinema allocates all costs (other than Cost of Goods sold and Digital Media costs) to the departments on the basis of Activity Based Costing system, **CALCULATE** the operating income and percentage of operating income of each department.
(ii) RVP Cinema operated for year under the assumption that profitability can be increased by increasing net revenue from Cafeteria. However, the Supervisor of RVP Cinema wants to shut down Cafeteria.
On the basis of (i) above, **STATE** whether the contention of the Supervisor is valid or not.

Cost of unused capacity
Question 11 - Pyq
PQR Ltd. is engaged in the production of three products P , Q , R.
The company calculates Activity Cost Rates on the basis of Cost Driver capacity which is provided as below:

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

The consumption of activities during the period is as under:

Activity/Products	P	Q	R
Direct Labour hour	10,000	8,000	6,000
Production Runs	200	180	160
Quality Inspections	3,000	2,500	1,500

You are required to:
(i) Compute the costs allocated to each Product from each activity.
(ii) Calculate the **cost of unused capacity for each Activity.**
(iii) A potential Customer has approached the company for the 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 hour	1,500 hour
No. of Production runs	15
No. of Quality Inspection	250

Prepare cost sheet segregating Direct and Indirect Costs and compute the Sale value per quarter of Product 'S' using ABC system considering a markup of 20% on Cost.

Question 12 - Study Material

MST Limited has collected the following data for its two activities. It calculates activity cost rates based on cost driver capacity.

Activity	Cost Driver	Capacity	Cost
Power	Kilowatt hour	5,000 kilowatt hour	₹ 2,00,000
Quality inspections	Number of inspections	10,000 inspections	₹ 3,00,000

The company makes three products M, S and T.

For the year ended March 31, 2009, the following consumption of cost Driver was reported:

Product	Kilowatt hour	Quality inspections
M	10,000	3,500
S	20,000	2,500
T	15,000	3,000

(i) COMPUTE the costs allocated to each product from each activity.
(ii) CALCULATE the cost of unused capacity for each activity.
(iii) DISCUSS the factors the management considers in choosing a capacity level to compute the budgeted fixed overhead cost rate.

Operating Income as a percentage

Question 13 - Rtp

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:

Particulars	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 analyzing 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	hour of shelf-stocking
Line-item ordering	3,45,400	Line-items per purchase order
Customer purchase order processing	4,40,000	Purchase order by customers

Other data for the month of April include the following:

Particulars	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 hour of shelf-stocking per store delivery	6	1.5
Average number of line items per order	14	12
Total number of order	770	1,980

You are required to:

(i) COMPUTE gross-margin percentage for each of its supermarket segments and compute PCP Limited's operating income.

(ii)COMPUTE the operating income of each supermarket segment using the activity- based costing information.

Question 14 - Pyq

PQR Ltd has decided to analyse the profitability of its five new customers.

It buys soft drink bottles in cases at ₹ 45 per case and sells them to retail customers at a list price of ₹ 54 per case.

The data pertaining to five customers are given below:

Particulars	Customers				
	A	B	C	D	E
Number of Cases Sold	9,360	14,200	62,000	38,000	9,800
List Selling Price (₹)	54	54	54	54	54
Actual Selling Price (₹)	54	53.40	49	50.20	48.60
Number of Purchase order	30	50	60	50	60
Number of customers visits	4	6	12	4	6
Number of Deliveries	20	60	120	80	40
Kilometer travelled per delivery	40	12	10	20	60
Number of expedite Deliveries	0	0	0	0	2

Its five activities and their cost Driver are:

Activity	Cost Driver
Order taking	₹ 200 per purchase order
Customer visits	₹ 300 per each visit
Deliveries	₹ 4.00 per delivery km travelled
Product Handling	₹ 2.00 per case sold
Expedited deliveries	₹ 100 per such delivery

You are required to:

(i) Compute the customer level operating income of each of five retail customers by using the Cost Driver rates.

(ii)Examine the results to give your comments on Customer 'D' in comparison with Customer 'C' and on Customer 'E' in comparison with Customer 'A'.

Question 15 - Pyq

ABC Bank is examining the profitability of its Premier Account, a combined Savings and Cheque account.

Depositors receive a 7% annual interest on their average deposit.

ABC Bank earns an interest rate spread of 3% (the difference between the rate at which it lends money and rate it pays to depositors) by lending money for home loan purposes at 10%.

The Premier Account allows depositors unlimited use of services such as deposits, withdrawals, cheque facility, and foreign currency drafts.

Depositors with Premier Account balances of ₹ 50,000 or more receive unlimited free use of services.

Depositors with a minimum balance of less than ₹ 50,000 pay ₹ 1,000-a-month service fee for their Premier Account.

ABC Bank recently conducted an activity-based costing study of its services.

The use of these services in 2005-06 by three customers is as follows:

Particulars	Activity- Based Cost Per Transaction	Account usage		
		Customer X	Customer Y	Customer Z
Deposits/withdrawal with teller	₹ 125	40	50	5
Deposits/withdrawal with automatic teller machine (ATM)	₹ 40	10	20	16
Deposits/withdrawal on prearranged monthly basis	₹ 25	0	12	60
Bank Cheques written	₹ 400	9	3	2
Foreign Currency drafts	₹ 600	4	1	6
Inquiries about Account balance	₹ 75	10	18	9
Average Premier Account balance for 2005-06		₹ 55,000	₹ 40,000	₹ 12,50,000

Assume Customer X and Z always maintain a balance above ₹ 50,000, whereas Customer Y always has a balance below ₹ 50,000.
You are required to:
(i) Compute the 2005-06 profitability of the customers X, Y and Z Premier Account at ABC Bank.
(ii) What evidence is there of cross-subsidisation among the three Premier Accounts? **Why** might ABC Bank worry about this **Cross-subsidisation**, if the Premier Account product offering is Profitable as a whole?
(iii) What changes would you recommend for ABC Bank's Premier Account?

Question 16 - Pyq

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:

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. The CEO of Luxury Designer Pvt. Ltd. wants to evaluate the profitability of his Company in the next year 2024.

The following data in context of four customers are available for 2023:

Particulars	Wholesale Customers		Retail Customers	
	WC-1	WC-2	RC-1	RC-2
Number of Purchase Orders	50	65	224	245
Number of Customers visits	10	13	25	22
Regular Deliveries	46	52	175	198
Kilometres travelled per delivery	20	15	10	25
Expedited Deliveries	5	16	50	62
Average Number of Shirts per order	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.

Cost Sheet

Question 1 - Rtp

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

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.

Question 2 - Study Material

The following data relates to the manufacture of a standard product during the month of April, 2018:

Particulars	Amount (₹)
Raw materials	1,80,000
Direct wages	90,000
Machine Hours worked (Hours)	10,000
Machine hour rate (per hour)	8
Administration overheads	35,000
Selling overheads (per unit)	5
Units produced	4,000
Units sold	3,600
Selling price per unit	125

You are required to **PREPARE** a cost sheet in respect of the above showing:
(i) Cost per unit
(ii) Profit for the month

Question 3 - Study Material

The following information has been obtained from the records of ABC Corporation for the period from June 1 to June 30, 2008:

Particulars	On June 1, 2008 (₹)	On June 30, 2008 (₹)
Cost of raw materials	60,000	50,000
Cost of work-in-process	12,000	15,000
Cost of stock of finished goods	90,000	1,10,000
Purchase of raw materials during June' 2008		4,80,000
Wages paid		2,40,000
Factory overheads		1,00,000
Administration overheads (related to production)		50,000
Selling & distribution overheads		25,000
Sales		10,00,000

PREPARE a statement giving the following information:
(a) Raw materials consumed;
(b) Prime cost;
(c) Factory cost;
(d) Cost of goods sold; and
(e) Net profit.

Question 4 - Pyq

The following data are available from the books and records of Q Ltd. for the month of April 2020:
Direct Labour Cost : ₹ 1,20,000 (120% of Factory Overheads)
Cost of Sales : ₹ 4,00,000
Sales : ₹ 5,00,000
Accounts show the following figures:

Particulars	1st April, 2020 (₹)	30th April, 2020 (₹)
Inventory:		
Raw material	20,000	25,000
Work-in-progress	20,000	30,000
Finished goods	50,000	60,000
Other details:		
Selling expenses		22,000
General & Admin. expenses		18,000

You are required to **prepare** a cost sheet for the month of April 2020 showing:
(i) Prime Cost
(ii) Works Cost

(iii) Cost of Production
(iv) Cost of Goods sold
(v) Cost of Sales and Profit earned.

Question 5 - Pyq

The following data are available from the books and records of A Ltd. for the month of April 2022:

Particulars	Amount (₹)
Stock of raw materials on 1st April 2022	10,000
Raw materials purchased	2,80,000
Manufacturing wages	70,000
Depreciation on plant	15,000
Expenses paid for quality control check activities	4,000
Lease Rent of Production Assets	10,000
Administrative Overheads (Production)	15,000
Expenses paid for pollution control and engineering & maintenance	1,000
Stock of raw materials on 30th April 2022	40,000
Primary packing cost	8,000
Research & development cost (Process related)	5,000
Packing cost for redistribution of finished goods	1,500
Advertisement expenses	1,300

- Stock of finished goods as on 1st April 2022 was 200 units having a total cost of ₹ 28,000.
- The entire opening stock of finished goods has been sold during the month.
- Production during the month of April, 2022 was 3,000 units.
- Closing stock of finished goods as on 30th April, 2022 was 400 units.

You are required to:

(a) Prepare a Cost Sheet for the above period showing the:

- Cost of Raw Material consumed
- Prime Cost
- Factory Cost
- Cost of Production
- Cost of goods sold
- Cost of Sales

(b) Calculate selling price per unit, if sale is made at a profit of 20% on sales.

Percentage based cost estimation

Question 6 - Study Material

A Ltd. Co. has capacity to produce 1,00,000 units of a product every month.

Its works cost at varying levels of production is as under:

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 ₹1,50,000 and fixed marketing expenses amount to ₹2,50,000 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:

(a) it gives gift items costing ₹30 per unit of sale;
(b) it has lucky draws every month giving the First prize of ₹50,000; 2nd prize of ₹25,000, 3rd prize of ₹10,000 and three consolation prizes of ₹5,000 each to customers buying the product.
(c) it spends ₹1,00,000 on refreshments served every month to its customers;
(d) it sponsors a television programme every week at a cost of ₹20,00,000 per month.

It can market 30% of its output at ₹550 per unit without incurring any of the expenses referred to in (a) to (d) above. **PREPARE** a cost sheet for the month showing total cost and profit at 30% and 100% capacity level.

Question 7 - Pyq

The Accountant of KPMR Ltd. has prepared for the following budget for the coming year 2022 for its two products 'AYE' and 'ZYE':

Particulars	Product 'AYE'	Product 'ZYE'
Production & Sales (in units)	4,000	3,000
	Amount (in ₹)	**Amount (in ₹)**
Selling price per unit	200	180
Direct material per unit	80	70
Direct labour per unit	40	35
Variable overhead per unit	20	25
Fixed overhead per unit	10	10

After reviewing the above budget, the management has called the marketing team to suggest some measures for increasing the sales. The marketing team has suggested that by promoting the products on social media, the sales quantity of both the products can be increased by 5%. Also, the selling price per unit will go up by 10%. But this will result in an increase in expenditure on variable overheads and fixed overhead by 20% and 5% respectively for both the products.

You are required to **prepare** flexible budget for both the products:

(i) Before promotion on social media,

(ii) After promotion on social media.

Question 8 -

The cost of sale of Product Z is made up as follows:

Particulars	₹
Materials used in manufacturing	5,500
Materials used in packing materials	1,000
Materials used in selling the product	150
Materials used in the factory	75
Materials used in the office	125
Primary Packing Costs	800
Quality Control Cost	600
Labour required in producing	1,000
Labour required for supervision of the Management – Factory	200
Freight inward of material used in manufacturing	1,000
Expenses – Indirect – Factory	100
Expenses – Office	125
Depreciation – Office Building and Equipment	75
Depreciation – Factory	175
Research and Development Costs	700
Recoveries on account of sale of scrap produced in the normal course of manufacture	100
Selling Expenses	350
Advertising	125

Assuming that all the products manufactured are sold, **what** should be the selling price to obtain a profit of 25% on selling price? **Show** the divisions of costs for Product Z.

Cost Sheet – Product Wise Cost Analysis and Apportionment

Question 9 - Pyq

Bright Shoe-Polish Company manufacturing black and brown polish in one standard size of tin retailing at ₹ 12 and ₹ 13.30 respectively.

Following information is supplied to you:

Opening Stock:	
Black polish	2,400 tins
Brown polish	8,000 tins
Closing Stock:	
Black polish	5400 tins

Brown polish	3,000 tins
Sales:	
Black polish	72,000 tins
Black polish	30,000 tins
Direct materials:	
Polish	₹ 2,46,000
Tins	₹ 1,20,000
Direct wages	₹ 2,04,000
Production overhead	₹ 3,06,000
Administration and selling overhead	₹ 1,02,000

The opening stock of black and brown polish was valued at its production cost.
The cost of raw materials for brown polish is 10 per cent higher than for black, but there is no difference in the cost of tins.
Direct wages for brown polish are 8 per cent higher than those of black polish and production overheads are considered to vary with direct wages.
Administration and selling overhead is absorbed at a uniform rate per tin of polish sold.
Prepare a statement to show the cost and profit per tin of polish.

Question 10 - Pyq

SK Engineering Company Limited manufactures two types of auto bearing type 'XD' and type 'XE'.
The company's records show the following Particulars for those bearing for the month of May, 2009:

Particulars	Amount (₹)
Direct Materials	38,10,000
Direct labour	20,10,000
Production overheads	6,03,000
Office Overheads	6,42,300

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

- Direct material cost per bearing for type 'XD' was 160 percent of those for type 'XE'.
- Direct labour cost per bearing for type 'XE' was 40 percent of those for type 'XD'.
- Production overheads were absorbed on the basis of direct labour cost.
- Office overheads were absorbed on the basis of factory cost.
- Selling and distribution overheads were ₹ 2 per bearing sold for each type.
- Stock of finished bearing on 1st May, 2009 was 15,000 bearings @ ₹15 of type 'XD' and 20,000 bearing @ ₹ 8 of type 'XE'.
- Production during the month of May, 2009 was 2,70,000 bearings of type 'XD' and 3,30,000 bearings of type 'XE ' and out of May's output 25,000 bearings of type 'XD' and 40,000 bearings of type 'XE' would be remains in stock on 31st May, 2009 which valued at cost of production. You are required to:

(1) Prepare a statement showing the cost of production of each type of bearings.
(2) Prepare, if the company desires at 20 percent profit on selling price.

Question 11 - Mtp

A manufacturing process yields the following products out of the raw materials introduced in the process:
Main Product X : 60% of Raw Materials
By-Product Y : 15% of Raw Materials
By Product Z : 20% of Raw Materials
Wastage : 5% of Raw Materials
Other information is as follows: **Total Cost:**
(a) Raw Materials 1,000 units of ₹ 9,200;
(b) Labour ₹ 8,200;
(c) Overheads ₹ 12,000
(d) One unit of product z requires ½ the raw materials required for one unit of product Y,
(e) One unit of product X requires1½ times the raw materials required for product Y.
(f) Product X required double the time needed for production of one unit of Y and one unit of Z.
(g) Product Z requires ½ the time required for the production of one unit of product Y.
(h) Overheads are to be apportioned in the ratio of 6:1:1.
You are required to **CALCULATE** the total and per unit of cost of each of the products

Estimation of Selling Price Overhead Estimation – Quotation

Question 12 - Pyq

Stand Ltd is engaged in manufacture of leather items as per customers specifications.
Summary of their accounts for the last year shown in the following information:

Particulars	Amount (₹)
Opening stock of Raw Materials	50,000
Purchases of Raw Materials	12,60,000
Closing Stock of Raw Materials	75,000
Production OH	1,96,000
Administration OH	1,45,000
workers' Wages	7,00,000

In the current year, the Company has obtained a job from Ram. Estimates of Material and Labour Cost for this job are ₹ 5,500 and ₹ 4,000 respectively. The Company's costing system recognizes Production OH as a % of Direct labour and Administration OH as a % of Works Cost.
Calculate the Price that the Company should quote Ram, in order to earn a profit of 20% on Sales.

Estimation of New Selling Price

Question 13 - Pyq

The cost structure of an article the selling price of which is ₹ 45,000 is as follows:
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: **(a)** To **prepare** a statement of profit per article at present; and
(b) The **revised selling price** to produce the same percentage of profit to sales as before.

Estimation of Overhead as Percentage of Costs

Question 14 - Pyq

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 is available related to the ending 31st March, 2008:

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

You are required to **find out:**
(a) The percentage of factory overheads on direct labour.
(b) The percentage of office overheads on factory cost.

Income Statement – Wrong Estimation of Overhead based Selling Price

Question 15 - Rtp

Dayalan has a small furniture factory and specialises in the manufacture of tables of standard sizes of which he can make 15,000 a year. Last year, he made and sold 10,000 tables and his cost per table was ₹ 55, made up of **(a)** Materials ₹ 30, **(b)** Labour ₹ 10 and **(c)** OH (Fixed) recovered at 50% of Material Cost ₹ 15.
Prices are fixed by adding a standard margin of 10% to the total cost arrived at as above. For the current year, due to a fall in the cost of materials, total cost was determined at ₹ 40 per table as under – **(a)** Materials ₹ 20, **(b)** Labour ₹ 10 and **(c)** Overhead (Fixed) recovered at 50% of Material Cost ₹ 10.
Dayalan maintained his standard margin at 10% of his total cost of sales. Sales were at the same level as in the previous year. You are required to :
1. Determine Profit or Loss for the current year
2. Compute the price that should have been charged in the current year to yield the same profit as in previous year.
3. Compute the price that should have been charged in the current year to yield the same profit PERCENTAGE as in previous year.

Direct and Indirect Cost Apportionment for a Dealership Business

Question 16 - Pyq

XYZ Auto Ltd is in the business of selling cars. It also sells insurance and finance as part of its overall business strategy.

The following information is available for the Company:

Particulars	Physical Units	Sales Value
Sales of Cars	10,000 Cars	₹ 30,000 Lakhs
Sales of Insurance	6,000 Policies	₹ 1,500 Lakhs
Sales of Finance	8,000 Loans	₹ 19,200 Lakhs

The Revenue Earnings from each line of business before expenses are as follows:

Sale of Cars : 3% of Sales Value,
Sale of Insurance : 20% of Sales Value,
Sale of Finance : 2% of Sales Value.

The expenses of the Company are as follows:

Salesman Salaries	₹ 200 Lakhs
Rent	₹ 100 Lakhs
Electricity	₹ 100 Lakhs
Advertising	₹ 200 Lakhs
Documentation Cost per Insurance Policy	₹ 100
Documentation Cost for each Loan	₹ 200
Direct Sales Expenses per Car	₹ 5,000

Indirect Costs have to be allocated in the ratio of physical units sold. You are required to:

(1) Make a Cost Sheet for each product allocating the Direct and Indirect Costs, and also showing the product-wise profit and Total Profit.

(2) Calculate the percentage of profit to revenue earned from each line of business.

Basic Decision Making

Question 17 - Pyq

The following information is available to Z Ltd. for the financial year ending 31st March 2016:

Particulars	(₹)
Direct material	3,45,000
Direct wages	3,90,000
Production overheads (75% variable)	2,40,000
Administration overheads (75% fixed)	1,20,000
Selling and distribution overheads (50% fixed)	1,60,000
Sales – 10,000 units	15,50,000
Opening stock – Nil	
Closing stock – Finished goods – 5,000 units	
No WIP (Opening / closing)	

For the year 2016 - 17, it is estimated that:

1. Output will increase by one – third; sales quantity will increase by 50% by incurring additional advertisement expenses of ₹1,45,200. Assume that opening stock is First sold before using the current year's output.
2. Material prices will increase by 5%.
3. Wage rate will increase by 5% while overall direct labour efficiency will Decrease by 4%.
4. The variable overheads will be at the same unit rates as last year.
5. Fixed production overheads will increase by 25%.
6. Assume that production and sales units were achieved as per budget last year and will be achieved as per estimate this year also.
7. The company will revise its selling price in 2016-17 to ₹125 per unit. The same selling price will hold for the units sold from the opening stock also.

You are required to **prepare** a statement showing cost of sales and sales profit giving effect to the above for the financial year 2016-17.

Semi Variable Cost and Pricing Decision

Question 18 - Pyq

A manufacturing Company has an installed capacity of 1,20,000 units p.a.

The cost structure of the product is given below –

Material Costs	₹ 8 per unit
Labour (subject to a minimum of ₹ 56,000 per month)	₹ 8 per unit
Variable Overheads	₹ 3 per unit
Fixed Overheads	₹ 1,04,000 per annum

Semi-Variable Overheads ₹ 48,000 per annum at 60% capacity, which increase by ₹ 6,000 per annum for increase of every 10% of the capacity utilization or any part thereof, for the year as a whole.

The capacity utilization for the next year is estimated at 60% for two months, 75% for six months and 80% for the remaining part of the year. If the Company is planning to have a profit of 25% on the Selling Price, **calculate** the Selling Price per unit. Assume that there are no Opening and Closing Stocks.

Change in efficiency

Question 19 - Pyq

A Factory incurred the following expenditure during last year –

Particulars	₹	₹
Direct Material Consumed		12,00,000
Manufacturing Wages		7,00,000
Manufacturing Overhead:		
Fixed	3,60,000	
Variable	2,50,000	6,10,000
Total		**25,10,000**

In the next year, the 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 desires to earn a profit of 10% on Selling Price.

Ascertain the Cost of Production and Sales Value for the next year.

Concept of EMS & OMS

Question 20 - Rtp

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:

- Materials consumed ₹ 15,00,000
- Power consumed 13,000 Kwh @ ₹ 7 per Kwh
- Diesels consumed 1,000 litres @ ₹ 93 per litre
- Wages & salary paid – ₹ 64,00,000
- Gratuity & leave encashment paid – ₹ 44,20,000
- Hiring charges paid for HEMM- ₹ 13,00,000
- Hiring charges paid for cars used for official purpose – ₹ 80,000
- Reimbursement of diesel cost for the cars – ₹ 20,000
- The hiring of cars attracts GST under RCM @5% without credit.
- Maintenance cost paid for weighing bridge (used for weighing of final goods at the time of despatch) – ₹ 7,000
- AMC cost of CCTV installed at the 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.
- TA/ DA and hotel bill paid for sales manager- ₹ 16,000
- The company has 180 employees who work for 26 days in a month.

You are 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.

Valuation of closing stock

Question 21 - Mtp

The following information is available from SN Manufacturing Limited's books for the month of April 2023:

	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
Purchase 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)		₹ 6,920
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 paisa per unit.
- Assume that one production cycle is completed in one month.

You are required to:

(1)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 sales.)

(2)Calculate the selling price per unit if profit is charged at 20 percent on sales.

COST ACCOUNTING SYSTEM

Question 1 - Study Material

The following figures are extracted from the Trial Balance of Go-getter Co. on 30th September, 2020:

Particulars	Dr. (₹)	Cr. (₹)
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	
Materials 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 factory up-keeping expenses	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 Deptt.—Salaries and Expenses	18,000	
Office Salaries and Expenses	8,600	
Interest on Borrowed Funds	2,000	

Further details are as follows :

(i) Closing inventories

Finished goods : 1,15,000
Raw Materials : 1,80,000
Work – in – progress : 1,92,000

(ii) Outstanding Expenses on

Direct employee cost : 8,000
Indirect employee cost : 1,200
Interest on borrowed funds : 2,000

(iii) Depreciation to be provided on

Office Appliances 5%
Plant & Machinery 10%
Buildings 4%

(iv) 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 the factory, and one – third to office.
Depreciation of 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, 2020 along with supporting schedules of :

(i) Cost of Sales.
(ii) Selling & Distribution Expenses.
(iii) Administration Expenses.

Question 2 - Study Material

As on 31st March, 2008 the following balances existed in a firm's Cost Ledger:

Particulars	Dr. (₹)	Cr. (₹)
Stores Ledger Control A/c	3,01,435	
Work-in-Progress 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 the following items arose:

Particulars	Amount (₹)
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.

Solution 2:

Journal entries are as follows:

Particulars	Dr. (₹)	Cr. (₹)
1. Finished stock ledger Control A/c Dr. To Work-in-progress Control A/c	2,10,835	 2,10,835
2. Manufacturing Overhead Control A/c Dr. To Cost Ledger Control A/c	91,510	 91,510
3. Stores Ledger Control A/c Dr. To Cost Ledger Control A/c	1,23,000	 1,23,000
4. **(i)** Wage Control A/c Dr. To Cost Ledger Control A/c **(ii)** Work-in-progress Control A/c Dr. To Wage Control A/c **(iii)** Manufacturing Overhead Control A/c Dr. To Wage Control A/c	72,195 50,530 21,665	 72,195 50,530 21,665
5. Cost of Sales A/c Dr. To Finished Stock Ledger A/c	1,85,890	 1,85,890
6. Work-in-Progress Control A/c Dr. To Stores Ledger Control A/c	1,27,315	 1,27,315
7. Finished Stock Ledger Control A/c Dr. To Cost of Sales A/c	5,380	 5,380
8. Cost Ledger Control A/c Dr. To Stores Ledger Control A/c	2,900	 2,900
9. Work-in-Progress Control A/c Dr. To Manufacturing Overhead Control A/c	77,200	 77,200

COST LEDGER

Cost Ledger Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Stores Ledger Control A/c (return)	2,900	By Balance b/d	6,65,220

To Balance c/d	9,49,025	By Manufacturing Overhead Control A/c	91,510
		By Stores Ledger Control A/c	1,23,000
		By Wage Control A/c	72,195
	9,51,925		**9,51,925**

Stores Ledger Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	3,01,435	By Work-in-Progress Control A/c	1,27,315
To Cost Ledger Control A/c	1,23,000	By Cost Ledger Control A/c	2,900
		By Balance c/d	2,94,220
	4,24,435		**4,24,435**

Work-in-Progress Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	1,22,365	By Finished Stock Ledger Control A/c	2,10,835
To Wage Control A/c	50,530	By Balance c/d	1,66,575
To Stores Ledger Control A/c	1,27,315		
To Manufacturing Overhead Control A/c	77,200		
	3,77,410		**3,77,410**

Finished Stock Ledger Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	2,51,945	By Cost of Sales A/c	1,85,890
To Work-in-Progress Control A/c	2,10,835	By Balance c/d	2,82,270
To Cost of Sales A/c (return at cost)	5,380		
	4,68,160		**4,68,160**

Manufacturing Overhead Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Cost Ledger Control A/c	91,510	By Balance b/d	10,525
To Wage Control A/c	21,665	By Work-in-Progress Control A/c	77,200
		By Balance c/d (under recovered)	25,450
	1,13,175		**1,13,175**

Wage Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Cost Ledger Control A/c	72,195	By Work-in-Progress Control A/c	50,530
		By Manufacturing Overhead Control A/c	21,665
	72,195		**72,195**

Cost of Sales Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Finished Stock Ledger Control A/c	1,85,890	By Finished Stock Ledger Control A/c (Return)	5,380
		By Balance c/d	1,80,510
	1,85,890		**1,85,890**

Trial Balance

Particulars	Dr. (₹)	Cr. (₹)
Stores Ledger Control A/c	2,94,220	
Work-in-Progress Control A/c	1,66,575	
Finished Stock Ledger Control A/c	2,82,270	
Manufacturing Overhead Control A/c	25,450	
Cost of Sales A/c	1,80,510	
Cost Ledger Control A/c		9,49,025
	9,49,025	**9,49,025**

Question 3 - Study Material

JOURNALISE the following transactions assuming that cost and financial transactions are integrated:

Particulars	₹
Raw materials purchased	2,00,000
Direct materials issued to production	1,50,000
Wages paid (30% indirect)	1,20,000
Wages charged to production	84,000
Manufacturing expenses incurred	84,000
Manufacturing overhead charged to production	92,000
Selling and distribution costs	20,000
Finished products (at cost)	2,00,000
Sales	2,90,000
Closing stock	Nil
Receipts from debtors	69,000
Payments to creditors	1,10,000

Question 4 - Pyq

Pass Journal Entries under Non-Integrated System for the following transaction:

- Issue of Materials: Direct ₹ 5,50,000, Indirect ₹ 1,50,000.
- Materials worth ₹ 45,000 returned to Stores from the Production Floor.
- Gross Wages paid ₹ 48,000, Employer's Contribution to PF and ESI amounted to ₹ 2,000.
- The Wage Analysis sheet shows ₹ 20,000 towards Direct Labour, ₹ 12,000 towards Indirect Factory Labour, ₹ 10,000 towards Salaries to Office Staff and ₹ 8,000 for Salaries to Sales Staff.
- Production Overhead incurred ₹ 1,40,000, Absorbed ₹ 2,65,000.
- During physical verification of Stores, it was found that 100 units of Raw Materials returned to the Supplier had not been recorded. Its Purchase Invoice Price is ₹ 50 per unit, while the current Standard Cost is ₹ 48 per unit. [The Company policy is to write off/adjust the differences in Costing P & L A/c.]

Solution 4: **Journal Entries**

	Particulars	Dr.	Cr.
1	Work-in-Progress Control A/c Dr. Production OH Control A/c Dr. To Raw Materials Control A/c (Being Raw Materials issued for Direct and Indirect purposes.)	5,50,000 1,50,000	 7,00,000
2	Raw Materials Control A/c Dr. To Work-in-Progress Control A/c (Being Materials returned to Stores from the Production Floor.)	45,000	 45,000
3	Wages Control A/c Dr. To General Ledger Adjustment A/c	50,000	 50,000

	(Being Wages paid ₹ 48,000 + Employers' Contribution to PF and ESI ₹ 2,000 = Total Labour Cost ₹ 50,000)		
4	Work-in-Progress Control A/c Dr. Production OH Control A/c Dr. Administrative OH Control A/c Dr. Selling & Distribution OH Control A/c Dr. To Wages Control A/c (Being Wages analyzed as ₹ 20,000 towards Direct Labour, ₹ 12,000 towards Indirect Factory Labour, ₹ 10,000 towards Salaries to Office Staff and ₹ 8,000 for Salaries to Sales Staff.)	20,000 12,000 10,000 8,000	 50,000
5	Production OH Control A/c Dr. To General Ledger Adjustment A/c (Being Production OH incurred)	1,40,000	 1,40,000
6	Work-in-Progress Control A/c Dr. To Production OH Control A/c (Being Production OH absorbed)	2,65,000	 2,65,000
7	Costing P & L A/c Dr. To Production OH Control A/c (Being under absorption transferred to Costing P & L Account)	37,000	 37,000
8	General Ledger Adjustment A/c (₹ 50 × 100 units) Dr. To Ram Material Control A/c [at Standard Cost] (₹ 48 × 100 units) To Costing P & L A/c (Variance written off/written back) (Being Materials returned to Supplier, price difference adjusted in Costing P & L)	5,000	 4,800 200

Notes:

- It is assumed that sufficient stock of RM is available for issue.
- Difference in absorption is ignored. Alternatively, difference in absorption can be transferred to Costing P & L A/c, after preparing the POH Control A/c as indicated below.

Production Overheads Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Raw Material Control – Indirect Materials	1,50,000	By WIP Control – POH absorption	2,65,000
To Wages Control –Indirect wages	12,000	By Costing P & L A/c –transfer (Balancing Figure)	37,000
To General Ledger Adjustment – POH incurred	1,40,000		
	3,02,000		**3,02,000**

Non Integrated System – Various Ledger Accounts

Question 5 - Study Material

Acme Manufacturing Co. Ltd. opens the costing records, with the balances as on 1st July, 20X8 as follows:

	(₹)	(₹)
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 & Distribution Overhead Control A/c	6,250	
Cost Ledger Control A/c		3,13,150
	3,25,150	**3,25,150**

The following are the transactions for the quarter ended 30th September 2008:

Particulars	(₹)
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	14,43,000

Make up the various accounts as you envisage in the Cost Ledger and **PREPARE** a Trial Balance as at 30th September, 20X8.

Question 6 - Pyq

The following balances were extracted from a company's ledger as on 31st December, 1997:

Particulars	Amount (₹)	Amount (₹)
Raw materials control A/c	48,836	
Work-in-progress control A/c	14,745	
Finished stock control A/c	21,980	
Nominal ledger control A/c		85,561
	85,561	**85,561**

Further transactions took place during the following quarter as follows:

Particulars	Amount (₹)
Factory overhead – allocated to WIP	11,786
Goods finished – at cost	36,834
Raw materials purchased	22,422
Direct wages – allocated to WIP	18,370
Cost of goods sold	42,000
Raw materials – issued to production	17,000
Raw materials – credited by suppliers	1,000
Inventory audit – raw materials losses	1,300
WIP rejected (with no scrap value)	1,800
Customer's returns (at cost) of finished goods	3,000

Prepare all Ledger Accounts in Cost Leger.

Solution 6:

Raw Materials Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	48,836	By W.I.P. control A/c	17,000
To Nominal ledger control A/c	22,422	By Nominal ledger control A/c	1,000
		By Nominal ledger control A/c	1,300
		By Balance c/d	51,958
	71,258		**71,258**

Work-in-Progress Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	14,745	By Finishing stock control A/c	36,834
To Nominal ledger control A/c	11,786	By Nominal ledger control A/c	1,800

To Raw material control A/c	17,000	By Balance c/d	23,267
To Nominal ledger control A/c	18,370		
	61,901		**61,901**

Finished Stock Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	21,980	By Nominal ledger control A/c	42,000
To W.I.P. Control A/c	36,834	By Balance c/d	19,814
To Nominal ledger control A/c	3,000		
	61,814		**61,814**

Nominal Ledger Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Raw material control A/c	1,000	By Balance b/d	85,561
To Raw material control A/c	1,300	By Raw material control A/c	22,422
To Finished stock control A/c	42,000	By W.I.P. control A/c	11,786
To W.I.P. Control A/c	1,800	By W.I.P. control A/c	18,370
To Balance c/d	95,039	By Finishing stock control A/c	3,000
	1,41,139		**1,41,139**

Completion of Accounts – Incomplete Records

Question 7 - Pyq, Study Material

A fire destroyed some accounting records of Unfortunate Ltd. 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.

Incomplete Ledger Entries:

Raw-Materials Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To balance b/d	32,000		

Work-in-Progress Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To balance b/d	9,200	By Finished Goods Control A/c	1,51,000

Payables (Creditors) Account

Particulars	Amount (₹)	Particulars	Amount (₹)
		By Balance b/d	16,400
To Balance c/d	19,200		

Manufacturing Overheads Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Cost Ledger Control A/c (Amount Spent)	29,600		

Finished Goods Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To balance b/d	24,000		
		By balance c/d	30,000

Additional Information:

- The Cash book showed that ₹ 89,200 have been paid to Creditors for Raw Material.
- Ending inventory of Work-in-Progress included Material ₹ 5,000 on which 300 Direct Labour Hours have been booked against Wages and Overheads.
- The Job Card showed that workers have worked for 7,000 hours. The Wage Rate is ₹ 10 per Labour Hour.
- Overhead Recovery Rate was ₹ 4 per Direct Labour Hour.

You are required to **complete** the above accounts in the Cost Ledger of the Company.

Solution 7:

(Materials) Stores Ledger Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To balance b/d	32,000	By WIP Control A/c (RM issued to Production)	53,000
To Cost Ledger Control (RM Purchases)	92,000	Taken from WIP Control A/c	
Taken from Memorandum Creditors A/c		By balance c/d (balancing figure)	71,000
	1,24,000		**1,24,000**

Memorandum Creditors Account (to calculate Purchases)

Particulars	Amount (₹)	Particulars	Amount (₹)
To Cash/ Bank (amount paid to Creditors)	89,200	By balance b/d	16,400
		By Stores Ledger Control (RM Purchases) (Bal. Figure)	92,000
To balance c/d	19,200		
	1,08,400		**1,08,400**

Manufacturing OH Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Cost Ledger Control A/c (OH incurred)	29,600	By WIP Control A/c (OH absorbed) = 7,000 hours at ₹ 4 per hour	28,000
		By balance c/d (balancing figure)	1,600
	29,600		**29,600**

Work-in-Progress Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To balance b/d	9,200	By Finished Goods Control A/c (Production	1,51,000
To Stores Ledger Control (RM Issues) (b/f)	53,000	By balance c/d	9,200
To Wages Control A/c (7,000 hours at ₹ 10)	70,000		
To POH Control (Absorbed) (7,000 hours at ₹ 4)	28,000		
	1,60,200		**1,60,200**

Value of Closing WIP = Materials ₹ 5,000 + Labour 300 hours at ₹ 10 + OH 300 hours at ₹ 4 = ₹ 9,200.

Finished Goods Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To balance b/d	24,000	By Cost of Sales A/c (COGS Transfer)	1,45,000
To WIP Control A/c (FG Production)	1,51,000	By balance c/d	30,000
	1,75,000		**1,75,000**

Question 8 - Study Material

The following incomplete accounts are furnished to you for the month ended 31st October, 2008.

Stores Ledger Control Account

1.10.2008 To Balance ₹ 54,000

Work in Process Control Account

1.10.2008 To Balance ₹ 6,000

Finished Goods Control Account

1.10.2008 To Balance ₹ 75,000

Factory Overheads Control Account

Total debits for October, 2008 ₹ 45,000

Factory Overheads Applied Account

Cost of Goods Sold Account

Creditors for Purchases Account

1.10. 2008 By Balance ₹ 30,000

Additional information:

(i) The factory overheads are applied by using a budgeted rate based on direct labour hours. The budget for overheads for 2008 is ₹ 6,75,000 and the budget of direct labour hours is 4,50,000.

(ii) The balance in the account of creditors for purchases on 31.10.2008 is ₹ 15,000 and the payments made to creditors in October, 2008 amount to ₹ 1,05,000.

(iii) The finished goods inventory as on 31st October, 2008 is ₹ 66,000.

(iv) The cost of goods sold during the month was ₹ 1,95,000.

(v) On 31st October, 2008 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.

(vi) A total of 28,200 direct labour hours were worked in October, 2008. All factory workers earn the same rate.

(vii) All actual factory overheads incurred in October, 2008 have been posted.

You are required to **FIND**:

(a) Materials purchased during October, 2008.

(b) Cost of goods completed in October, 2008.

(c) Overheads applied to production in October, 2008.

(d) Balance of Work-in-process Control A/c on 31st October, 2008.

(e) Direct materials consumed during October, 2008.

(f) Balance of Stores Ledger Control Account on 31st October, 2008.

(g) Over absorbed or under absorbed overheads for October, 2008.

Question 9 - Pyq

You are given the following information of the Cost Department of a Manufacturing Company:

Particulars	Amount (₹)	Particulars	Amount (₹)
Stores:		**Work-in-Progress:**	
Opening Balance	12,60,000	**Opening Balance**	25,20,000
Purchases	67,20,000	**Direct Wages applied**	25,20,000
Transfer from Work-in-Progress	33,60,000	**Overhead applied**	90,08,000
Issue to Work-in-Progress	67,20,000	**Closing Balance**	15,20,000
Issue to Repairs and Maintenance	840,000		
Shortage found in stock taking	2,52,000		

Finished Products: Entire output is sold at a profit of 12% on actual cost from work-in-progress.

Other information: Wages incurred ₹ 29,40,000, Overhead Incurred ₹ 95,50,000.
Income from Investments – ₹ 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 –**

(a) Stores Control Account, **(b)** Work-in-Progress Control Account, **(c)** Costing P & L Account, **(d)** Profit & Loss Account, and **(e)** Reconciliation Statement.

Question 10 - Rtp

X Ltd. maintains a non-integrated accounting system for the purpose of management information. The following are the data related with year 2021 -22:

Particulars	Amount ('000)
Opening balances:	
- **Stores ledger control A/c**	48,000
- **Work-in-process control A/c**	12,000
- **Finished goods control A/c**	2,58,000
- **Building construction A/c**	6,000

- Cost ledger control A/c	3,24,000
During the year following transactions took place:	
Materials:	
- Purchased	24,000
- Issued to production	30,000
- Issued to general maintenance	3,600
- Issued to building construction	2,400
Wages:	
- Gross wages paid	90,000
- Indirect wages paid	24,000
- For building construction	6,000
Factory overheads:	
- Actual amount incurred (excluding items shown above)	96,000
- Absorbed in building construction	12,000
- Under-absorbed	4,800
Royalty paid	3,000
Selling distribution and administration overheads	15,000
Sales	2,70,000

At the end of the year, the stock of raw material and work-in-process was ₹ 3,30,00,000 and ₹ 15,00,000 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.

Integrated Accounting System

Question 11 - Pyq, Study Material

Dutta Enterprises operates an integral system of accounting. You are required to **PASS** the Journal Entries for the following transactions that took place for the year ended 30th June, 2008. (Narrations are not required.)

Particulars	₹
Raw materials purchased (50% on Credit)	6,00,000
Materials issued to production	4,00,000
Wages paid (50% Direct)	2,00,000
Wages charged to production	1,00,000
Factory overheads incurred	80,000
Factory overheads charged to production	1,00,000
Selling and distribution overheads incurred	40,000
Finished goods at cost	5,00,000
Sales (50% Credit)	7,50,000
Closing stock	Nil
Receipts from debtors	2,00,000
Payments to creditors	2,00,000

Question 12 - Pyq

Journalize the following transactions assuming the cost and financial accounts are **integrated:**

Particulars	Amount (₹)
Direct Materials issued to production	₹ 5,88,000
Allocation of Wages (Indirect)	₹ 7,50,000
Factory Overheads (Over absorbed)	₹ 2,25,000
Administrative Overheads (Under absorbed)	₹ 1,55,000
Deficiency found in stock of Raw material (Normal)	₹ 2,00,000

Question 13 - Rtp

From the following information write up Control Accounts and **prepare** a Trial Balance:

Opening Balances

Share Capital	5,00,000	**Sundry Creditors**	3,00,000	**Bank**	50,000
Reserves	3,00,000	**Sundry Debtors**	3,00,000	**Cash**	50,000
Plant and Machinery	5,00,000	**Stock**	2,00,000		

Transactions during the year were as follows:

Purchases of Stores	12,00,000	**Manufacturing OH charged to production**	3,75,000
Stores issued to Production	12,00,000	**Selling and Distribution Expenses**	2,00,000
Stores in Hand	1,00,000	**Finished Stock Production at Cost**	20,00,000
Wage (Direct) incurred	7,00,000	**Sales**	30,00,000
Direct Wages charged to production	6,50,000	**Inventory Adjustment**	1,00,000
Manufacturing OH incurred	4,00,000	**Payment to Creditors**	10,00,000
		Received from Debtors	20,00,000

Cost and Financial Records are integrated and books are kept accordingly.

Solution 13:

Stores Ledger Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To balance b/d	2,00,000	By WIP Control – issued to production	12,00,000
To Cash/ Bank / Creditors (RM Purchases)	12,00,000	By Inventory Adjustment A/c	1,00,000
		By balance c/d (balancing figure)	1,00,000
	14,00,000		**14,00,000**

Wages Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Cash / Bank	7,00,000	By WIP Control – Direct Wages	6,50,000
		By POH Control – Indirect Wages (balancing figure)	50,000
	7,00,000		**7,00,000**

POH Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Cash/Bank/ – POH paid	4,00,000	By WIP Control – POH absorbed	3,75,000
To Wages Control (Indirect Wages transfer)	50,000	By balance c/d (balancing figure)	75,000
	4,50,000		**4,50,000**

WIP Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Stores Ledger Control – RM Consumed	12,00,000	By Finished Goods Control – Production transfer	20,00,000
To Wages Control – Direct Wages	6,50,000	By balance c/d (balancing figure)	2,25,000
To POH Control – POH absorbed	3,75,000		
	22,25,000		**22,25,000**

Finished Goods Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To WIP Control – Production transfer	20,00,000	By Cost of Sales A/c – COGS transfer	20,00,000
	20,00,000		**20,00,000**

SOH Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Cash/ Bank / – SOH paid	2,00,000	By Cost of Sales A/c – SOH absorbed	2,00,000
	2,00,000		**2,00,000**

Cost of Sales Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Finished Goods Control A/c	20,00,000	By P & L A/c – COS transfer	22,00,000
To SOH Control A/c	2,00,000		
	22,00,000		**22,00,000**

Sales Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To P & L A/c – Sales transfer	30,00,000	By Debtors A/c – Sales made	30,00,000
	30,00,000		**30,00,000**

Inventory Adjustment Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Stores Ledger Control A/c	1,00,000	By P & L A/c – transfer	1,00,000
	1,00,000		**1,00,000**

Profit and Loss Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Cost of Sales	22,00,000	By Sales	30,00,000
To Normal Profit c/d (bal. figure)	8,00,000		
Total	**30,00,000**	Total	**30,00,000**
To Inventory Adjustment written off	1,00,000	By Normal Profit b/d	8,00,000
To Net Profit for the year c/d (balancing figure)	7,00,000		
	8,00,000		**8,00,000**

Sundry Debtors Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To balance b/d	3,00,000	By Cash/Bank (Received from Debtors)	20,00,000
To Sales A/c	30,00,000	By balance c/d (balancing figure)	13,00,000
	33,00,000		**33,00,000**

Sundry Creditors Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Bank (Payments)	10,00,000	By balance b/d	3,00,000
To balance c/d (balancing figure)	5,00,000	By Stores Ledger Control A/c	12,00,000
	15,00,000		**15,00,000**

Share Capital Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To balance c/d (balancing figure)	5,00,000	By balance b/d	5,00,000
	5,00,000		**5,00,000**

Reserves Account

Particulars	Amount (₹)	Particulars	Amount (₹)

To balance c/d (balancing figure)	3,00,000	By balance b/d	3,00,000
	3,00,000		**3,00,000**

Plant and Machinery Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To balance b/d	5,00,000	By balance c/d (balancing figure)	5,00,000
	5,00,000		**5,00,000**

Cash and Bank Account

Particulars		Amount (₹)	Particulars	Amount (₹)
To balance b/d	Cash	50,000	By Sundry Creditors	10,00,000
	Bank	50,000	By Wages Control A/c	7,00,000
To Sundry Debtors		20,00,000	By POH Control A/c	4,00,000
To balance c/d (Bank Overdraft)		2,00,000	By SOH Control A/c	2,00,000
		23,00,000		**23,00,000**

Trial Balance at the end of the period

Particulars	Dr. (₹)	Cr. (₹)
Stores Ledger Control A/c	1,00,000	
Work in Progress Control A/c	2,25,000	
Production OH Control A/c	75,000	
Bank Overdraft A/c		2,00,000
Debtors A/c	13,00,000	
Creditors A/c		5,00,000
Plant and Machinery A/c	5,00,000	
Share Capital A/c		5,00,000
Reserves A/c		3,00,000
Profit and Loss A/c		7,00,000
Total	**22,00,000**	**22,00,000**

Question 14 - Study Material

Bangalore Petrochemicals Co. keeps books on integrated accounting systems.
The following balances appear in the books as on 1st January, 2005:

Particulars	Dr. (₹)	Cr. (₹)
Stores control A/c	18,000	
Work-in-Progress A/c	17,000	
Finished goods 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
Depreciation provision A/c		5,000
Profit and loss A/c		32,000
	1,25,000	**1,25,000**

Transactions for the year ended 31st Dec., 2005 were as given below:

Particulars	Amount (₹)	Amount (₹)
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 of machinery		1,300
Prepaid rent (included in factory overheads)		300

Prepare accounts in the integrated ledger.

Solution 14:

Stores Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	18,000	By Work-in-Progress A/c	1,10,000
To Creditors A/c	1,00,000	By Production Overheads	2,000
		By Balance c/d	6,000
	1,18,000		**1,18,000**

Wages Control Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Bank A/c	92,000	By Work-in-Progress A/c	87,000
		By Production overheads A/c	5,000
	92,000		**92,000**

Work-in-Progress Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	17,000	By Finished goods A/c	2,15,000
To Stores control A/c	1,10,000	By Balance c/d	47,000
To Wages control A/c	87,000		
To Production overheads A/c	48,000		
	2,62,000		**2,62,000**

Production Overhead Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Wages Control A/c	5,000	By Work-in-Progress A/c	48,000
To Stores Control A/c	2,000	By Prepaid Rent A/c	300
To Bank A/c	40,000		
To Depreciation Provision	1,300		
	48,300		48,300

Finished Goods Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	13,000	By Cost of Sales A/c	2,20,000
To Work-in-Progress	2,15,000	By Balance c/d	20,000
To Administration Overhead	12,000		
	2,40,000		**2,40,000**

Administration Overheads Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Bank A/c	12,000	By Finished Goods A/c	12,000

	12,000		**12,000**

Cost of Sales Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Finished Goods A/c	2,20,000	By Sales A/c	2,34,000
To Selling and Distribution Overheads A/c	14,000		
	2,34,000		**2,34,000**

Selling and Distribution Overheads Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Bank A/c	14,000	By Cost of Sales A/c	14,000
	14,000		**14,000**

Sales Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Cost of Sales	2,34,000	By Debtors A/c (Cr. Sales)	3,00,000
To P & L A/c (Profit)	66,000		
	3,00,000		**3,00,000**

Prepaid Rent Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Production Overheads	300	By Balance c/d	300
	300		**300**

Depreciation Provision Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance c/d	6,300	By Balance b/d	5,000
		By Production Overhead A/c	1,300
	6,300		**6,300**

Profit and Loss Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance c/d	98,000	By Sales A/c	66,000
		By Profit b/d (last year)	32,000
	98,000		**98,000**

Debtors Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	12,000	By Bank A/c	2,90,000
To Sales	3,00,000	By Balance c/d	22,000
	3,12,000		**3,12,000**

Creditors Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Bank	1,01,000	By Balance b/d	8,000
To Balance c/d	7,000	By Stores Control A/c	1,00,000
	1,08,000		**1,08,000**

Bank Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	10,000	By Creditors	1,01,000

To Debtors	2,90,000	By Wages Control A/c	92,000
		By Production Overhead A/c	40,000
		By Administration Overhead A/c	12,000
		By Selling & Distribution Overhead A/c	14,000
		By Balance c/d	41,000
	3,00,000		**3,00,000**

Fixed Assets Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	55,000	By Balance c/d	55,000
	55,000		**55,000**

Share Capital Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance c/d	80,000	By Balance b/d	80,000
	80,000		**80,000**

Trial Balance As on 31st December, 2005

Particulars	Dr. (₹)	Cr. (₹)
Stores Control A/c	6,000	
Work-in-Progress A/c	47,000	
Finished Goods A/c	20,000	
Bank A/c	41000	
Creditors A/c		7,000
Fixed Assets A/c	55,000	
Debtors A/c	22,000	
Share Capital A/c		80,000
Depreciation Provision A/c		6,300
Profit and Loss A/c		98,000
Prepaid Rent A/c	300	
Total	**1,91,300**	**1,91,300**

Journal Entries

Question 15 - Rtp

Journalize the following transactions in the books of a Company maintaining **Integrated Accounts** –

Credit Purchases	₹ 12,00,000
Production Wages paid	₹ 7,00,000
Stocks issued to Production Orders	₹ 8,00,000
Works OH charged to production	₹ 4,50,000
FG transferred from Production Orders	₹ 18,00,000
AOH charged to Production	₹ 1,50,000
Works OH outstanding	₹ 1,20,000
Works Expenses Paid	₹ 4,60,000

Solution 15:

Journal Entries under Integrated System of Accounting

	Particulars	Dr. (₹)	Cr. (₹)
1.	Stores Ledger Control A/c Dr. To Sundry Creditors A/c (Being goods purchased on credit)	12,00,000	12,00,000
2.	Wages Control A/c Dr. To Cash / Bank A/c (Being Production Wages paid)	7,00,000	7,00,000
3.	Work-in-Progress Control A/c Dr. To Wages Control A/c (Being Production Wages transferred to WIP Control A/c)	7,00,000	7,00,000
4.	Work-in-Progress Control A/c Dr.	8,00,000	

	To Stores Ledger Control A/c (Being Stores issued against Production Orders)		8,00,000
5.	Work-in-Progress Control A/c Dr. To Production Overheads Control A/c (Being Production OH allocated to production/ jobs)	4,50,000	4,50,000
6.	Finished Goods Control A/c Dr. To Work-in-Progress Control A/c (Being goods finished during the year transferred)	18,00,000	18,00,000
7.	Finished Goods Control A/c Dr. To Administration Overhead Control A/c (Being Administration Expenses charged to production)	1,50,000	1,50,000
8.	Production OH Control A/c Dr. To Works Expenses Payable A/c (Being Works Expenses incurred during the period but still unpaid)	1,20,000	1,20,000
9.	Production OH Control A/c Dr. To Cash/ Bank A/c (Being Works Expenses paid during the period)	4,60,000	4,60,000

Question 16 - Pyq

Journalize the following transactions assuming cost and financial accounts are integrated:

Particulars	₹
Material issued:	
Direct	3,25,000
Indirect	1,15,000
Allocation of wages (25% indirect)	6,50,000
Under / Over absorbed overheads	
Factory (over)	2,50,000
Administration (under)	1,75,000
Payment to sundry creditors	1,50,000
Collection from sundry debtors	2,00,000

Discrepancies between Book Stock and Physical Stock

Question 17 - Pyq

After the annual stock taking you come to know of some significant discrepancies between book stock and physical stock. You gather the following information:

Item	Stock Card (Units)	Stores Ledger (Units)	Physical Check (Units)	Cost/Unit (₹)
A	600	600	560	60
B	380	380	385	40
C	750	780	720	10

(a) What action should be taken to record the information shown above?

(b) Suggest reasons for the shortage and discrepancies disclosed above and recommend a possible course of action by management to prevent future losses.

Solution 17:

(a) For recording the information shown in the problem under consideration, the following action may be taken:

1. Check the stock card and store ledger. The correct physical quantity should be recorded.

2. Investigate reasons for stock losses or surpluses.

3. After ascertaining the reasons for stock losses the following treatment may be followed:

- Debit Factory Overhead A/c
  Credit Stores Ledger Control A/c
- (If the shortage is considered as normal loss)
  Debit Costing P & L A/c
- Credit Stores Ledger Control A/c
  (If the shortage is considered as abnormal)
- Debit Work-in-Progress A/c

Credit Stores Ledger Control A/c
(If the shortage is due to non-recording or short recording, etc.)

4. Rectification entry May be passed for clerical errors.

5. After ascertaining the reason for stock surpluses on appropriate action may be taken as follows:

- Debit Stores Ledger A/c
  Credit Factory Overhead A/c
  (If the Excess of stock is due to normal causes)
- Debit Stores Ledger Control A/c
  Credit Costing P & L A/c
  (If the excess at stock is due to abnormal causes)
- Debit Stores Ledger Control A/c
  Credit Work-in-Progress A/c
  (If the excess of stock is due to wrong recording, etc.)

6. In the given example the losses are with reference to items A (₹ 60 × 40 units = ₹ 2,400) and C (₹ 10 × 60 = ₹ 600). As the reasons for these losses are not given, they May be debited to P & L A/c and Stores Ledger Control A/c be credited accordingly.

7. The gains are in respect of stock item B (₹ 40 × 5 = ₹ 200). For treating gain of ₹ 200, Stores Ledger Control A/c be debited and Costing P & L A/c be credited.

(b) Reasons for the shortage and discrepancies:

(i) Wastage of material due to spoilage, evaporation etc. which May be normal or abnormal.
(ii) Components issued for production without entry on stock cards and/or store ledger.
(iii) Stores staff wrongly reading figures on the requisitions.
(iv) Theft of stock from stores.
(v) Clerical errors in store ledger.

Recommended Course of action to prevent future losses

(i) Entry in the stores should be restricted to authorized persons only.
(ii) All issues of stock should be against proper stock requisition slips.
(iii) Stores should follow a system of internal checks for all items of stock.
(iv) Proper accounting is done for all stock movements.
(v) Recording of entries in stores ledger and stock card should be made carefully.
(vi) Stock items which come first in the stores should be issued first to avoid losses due to deterioration or obsolescence.

Reconciliation

Reconciliation A/c

Question 1 - Pyq

X Ltd. follows a 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.

Question 2 - Pyq

R Ltd. shows 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)	Over 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 the recovery of administration overheads in cost accounts	3,600

Required**: Prepare** a reconciliation statement showing the profit as per the financial records.

Question 3 - Pyq

From the following figures **prepare** a reconciliation statement:

Particulars	Amount (₹)
Net Loss as per costing records	1,72,400
Works overhead under recovered in costing	3,120
Administrative overhead recovered in excess	1,700
Depreciation charged in financial records	11,200
Depreciation recovered in costing	12,500
Interest received not included in costing	8,000
Obsolescence charged (loss) in financial records	5,700
Income-tax provided in financial books	40,300
Bank Interest credited in financial books	750
Stores adjustment (credit) in financial books	475
Value of opening stock in: Cost accounts	52,600
Financial accounts	54,000
Value of closing stock in: Cost accounts	52,000
Financial accounts	49,600
Interest charged in cost accounts but not in financial accounts	6,000
Preliminary expenses written off in financial accounts	800
Provision for doubtful debts in financial accounts	150

Memorandum Reconciliation Account

Question 4 - Pyq

A manufacturing Company has disclosed a Net Loss of ₹2,13,000 as per their Cost Accounting Records for the year ended 31st March. 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 (In ₹)

Particulars	Amount (₹)
Factory Overheads under absorbed	5,000
Administration Overheads over absorbed	3,000
Depreciation charged in Financial Accounts	70,000
Depreciation Charged in Cost Accounts	80,000
Interest on Investment not included in Cost Accounts	20,000
Income Tax provided in Financial Accounts	65,000
Transfer Fees (Credit in Financial Accounts)	2,000
Preliminary Expenses written off	3,000
Over-valuation of Closing stock of Finished Goods in Cost Accounts	7,000

Required:

(a) Explain this in Reconciliation Statement

(b) Draw Memorandum Reconciliation Account

Question 5 - Study Material

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, 2004. 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:

Particulars	Amount (₹)
Factory overheads under-recovered	6,000
Administration overheads over-recovered	4000
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)	2000
Stores adjustment (credit in financial books)	2000

Prepare a Memorandum reconciliation account.

Reconciling with cost & financial records

Question 6 - Study Material

The following figures are available from the financial records of ABC Manufacturing Co. Ltd. for the year ended 31-3-2006.

Particulars		Amount (₹)
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-Progress:		
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% 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.

Question 7 - Study Material, Pyq

The following figures have been extracted from the Financial Accounts of a Manufacturing Firm for the first year of its operation:

Particulars	Amount (₹)
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-Progress	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.

Question 8 - Pyq

Given below is the **Trading and Profit and Loss Account** of a Company for the year ended 31st March, 2016:

Particulars	Amount (₹)	Particulars	Amount (₹)
To Materials	26,80,000	By Sales (50,000 units)	62,00,000
To Wages	17,80,000	By Closing Stock (2,000 units)	1,50,000
To Factory expenses	9,50,000	By Dividend Received	20,000
To Administration expenses	4,80,200		
To Selling expenses	2,50,000		
To Preliminary expenses written off	50,000		
Net profit	1,79,800		
	63,70,000		**63,70,000**

In the Cost Accounts:

(i) Factory expenses have been allocated to production at 20% of Prime Cost.

(ii) Administrative expenses absorbed at 10% of factory cost.

(iii) Selling expenses charged at ₹10 per unit sold.

Prepare the Costing Profit and Loss Account of the company and reconcile the same with the profit disclosed by the Financial Accounts

Question 9 - Rtp

The financial books of a company reveal the following data for the financial year ending on 31st March, 2022:

Particulars	(₹)
Opening Stock:	
Finished goods 875 units	1,48,750
Work-in-process	64,000
01.04.2021 to 31.3.2022	
Raw materials consumed	15,60,000
Direct Labour	9,00,000
Factory overheads	6,00,000
Goodwill written off	2,00,000
Administration overheads	5,90,000
Dividend paid	1,70,000
Bad Debts	24,000

Selling and Distribution Overheads	1,22,000
Interest received	90,000
Rent received	36,000
Sales 14,500 units	41,60,000
Closing Stock:	
Finished goods 375 units	82,500
Work-in-process	77,334

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 ₹8 per unit sold.
- Opening Stock of finished goods is valued at ₹208 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, 2022 showing-

(a) The profit as per financial records

(b) The profit as per costing records.

(2) PRESENT a statement reconciling the profit as per costing records with the profit as per Financial Records.

Question 10 - Pyq

ABC Ltd. has furnished the following information from the financial books for the year ended 31st March, 2007:

Profit and Loss Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Opening Stock (500 units at ₹140 each)	70,000	**By Sales (10,250 units)**	28,70,000
		By Closing Stock (250 units at ₹200 each)	50,000
To Material Consumed	10,40,000		
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 Overheads (production related)	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 (production related) 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:**

(i) A statement showing profit as per Cost accounts for the year ended 31st March, 2007; and

(ii) A statement showing the reconciliation of profit as disclosed in Cost accounts with the profit shown in financial accounts.

Performa Costing P/L A/c – WIP and Finished Goods Valuation

Question 11 - Pyq

The following is the **Trading and profit & Loss Accounts** of Omega Limited.

Particulars	Amount (₹)	Particulars		Amount (₹)
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 Overheads (production related)	3,10,375	**Materials**	**55,250**	
To Selling and Distribution Overheads	3,68,875	**Wages**	**26,000**	
To Preliminary Expenses written off	22,750	**Overheads**	**16,250**	97,500

To Goodwill written off	45,500	**By Dividends received**	3,90,000
To Fines	3,250	**By Interest on bank deposits**	65,000
To Interest on mortgage	13,000		
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:

- Production Overheads have been charged to Work-in-Progress at 20% on Prime Cost.
- Administration Overheads (production related) have been recovered at ₹9.75 per Finished Unit.
- Selling & Distribution Overheads have been recovered at ₹13 per unit sold.
- The Under or Over-absorption of Overheads has not been transferred to Costing P & L A/c.

Required:
(i) Prepare a Performa Costing Profit & Loss Account, indicating Net Profit.
(ii) Prepare Control Accounts for Production Overheads, Administration Overheads and Selling & Distribution Overheads.
(iii) Prepare a statement reconciling the profit disclosed by cost records with that shown in Financial Accounts.

Reverse Working – Reconciliation – Non Integrated Accounts Ledger Preparation

Question 12 -

ABC Pvt. Ltd. has furnished its profit and Loss account for the year ended 31st March, 2009 and also given a statement showing reconciliation between the profit as per financial records and cost records.
The profit and Loss account is given below:

Profit and Loss Account for the year ended 31st March, 2009

Particulars	Amount (₹)	Particulars	Amount (₹)
To Opening Stock:		**By Sales**	17,80,000
Raw Materials	95,500	**By Closing Stock:**	
W.I.P	45,000	**Raw Materials**	99,000
Finished goods	78,000	**W.I.P**	58,000
To Purchases	6,42,000	**Finished goods**	80,000
To Direct wages	2,22,000	**By Dividend received on Shares**	1,65,000
To Factory overheads	2,45,000		
To Administrative expenses	1,98,500		
To Selling expenses	3,42,000		
To Goodwill written off	80,000		
To Interest on loans	50,000		
To Legal charges	42,000		
To Net profit	1,42,000		
	21,82,000		**21,82,000**

Reconciliation Statement as at 31st March, 2009 is given below:

Particulars	Amount (₹)	Amount (₹)
Profits as per financial records		1,42,000
Add:		
Raw Material – Closing stock	1,500	
W.I.P. – Opening Stock	2,000	
Finished goods – Operating Stock	3,000	
Finished goods – Closing Stock	1,000	
Goodwill written off	80,000	
Interest on loans	50,000	
Legal charges	42,000	1,79,500
		3,21,500
Less:		
Raw Material – Opening Stock	2,500	
W.I.P. – Closing Stock	3,500	

Dividend received on shares	1,65,000	1,71,000
Profits as per cost records		**1,50,500**

You are required to **draw** up the following accounts in the cost ledger of ABC Pvt. Ltd.:

(i) Material control Account
(ii) W.I.P. Control Account
(iii) Finished goods control Account

Unit, Job & Batch Costing

Unit Costing

Question 1 - Study Material

The following data relate to the manufacture of a standard product during the 4 week ended 28th February 2009:

Raw Materials Consumed	₹ 4,00,000
Direct Wages	₹ 2,40,000
Machine Hours Worked	3,200 hours
Machine Hour Rate	₹ 40
Office Overheads	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 2009.

Job Cost – Revision of Cost and Selling Price

Question 2 - Rtp

SM Motors Ltd. is a manufacturer of auto components.

Following are the details of expenses for the year 2019-20:

Particulars	Amount (₹)
Opening Stock of Material	15,00,000
Closing Stock of Material	20,00,000
Purchase of Material	1,80,50,000
Direct Labour	90,50,000
Factory Overhead	30,80,000
Administrative Overhead	20,50,400

During the FY 2020-21, the company has received an order from a car manufacturer where it estimates that the cost of material and labour will be ₹ 80,00,000 and ₹ 40,50,000 respectively.

The company charges factory overhead as a percentage of direct labour and administrative overheads 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 ₹ 4,50,000.

You are required to:

(i) CALCULATE the overhead recovery rates based on actual costs for 2019-20.

(ii) PREPARE a Job cost sheet for the order received and the price to be quoted if the desired profit is 25% on sales.

Question 3 - Study Material

A shop floor supervisor of a small factory presented the following cost for job No.303, to determine the selling price.

Particulars	Per unit (₹)
Materials	: 70
Direct wage 18 hours @ ₹2.50 (Department X: 8 hours; Department Y : 6 hours; Department Z : 4 hours)	: 45
Chargeable expenses	: 5
	: 120
Add: 33-1/3% for expenses cost	: 40
	: **160**

Analysis of Profit and Loss Account (for the year 2005)

Particulars	Amount (₹)	Particulars	Amount (₹)
Materials used	150,000	Sales less returns	2,50,000
Direct wages:			
Dept. X 10,000			
Dept. Y 12,000			
Dept. Z 8,000	30,000		
Special stores items	4,000		
Overheads:			
Dept. X 5,000			

Dept. Y 9,000 Dept. Z 2,000		16,000		
Works cost		200,000		
Gross profit c/d		**50,000**		
		2,50,000		2,50,000
Selling expenses		20,000	Gross profit b/d	50,000
Net profit		**30,000**		
		50,000		**50,000**

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 2005 actual figures as basis.

Add 20% to the total cost to determine selling price.

Simultaneous Equation – Estimation of Overhead and Profit of each Job

Question 4 - Study Material, Pyq

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.

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

Particulars	Job 101 (₹)	Job 102 (₹)
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%

Required:

(i) Computation of percentage recovery rates of factory overheads and administrative overheads.

(ii) Calculation of the amount of factory overheads, administrative overheads and profit for each of the two jobs.

(iii) Using the above recovery rates **fix** the selling price of job 103. The additional data being:

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

Selling Price of New Order

Question 5 - Pyq

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

Particulars	Job 1102	Job 1108
Selling price	₹ 1,07,325	₹ 1,57,920
Profits 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 overhead 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.

Estimation of Job Cost

Question 6 - Rtp

From the records of a manufacturing Company, the following budgeted details are available.

Particulars				₹
Direct Materials				1,99,000
Direct Wages	Machine Shop	12,000 hou₹	63,000	
	Assembly Shop	10,000 hou₹	48,000	1,11,000

Works Overheads	Machine Shop	12,000 hou₹	88,200	
	Assembly Shop	10,000 hou₹	51,800	1,40,000
Administrative Overheads				90,000
Selling Overheads				81,000
Distribution Overheads				62,100

The Company follows the Absorption Costing method.
You are required to **prepare –**

- Schedule of OH Rates from the data available stating the basis of OH Recovery Rates used under the given circumstances.
- A cost estimate for the following job based on the overhead rates so computed.

(a) Direct Materials : 25 kg at ₹ 16.80 per kg, and 15 kg at ₹ 20.00 per kg
(b) Direct Labour : Machine Shop 30 hours, Assembly Shop 42 hours

Question 7 - Rtp

KJ Motors Ltd. is a manufacturer of auto components.
Following are the details of expenses for the year 2020-21:

	Particulars	(₹)
(i)	**Opening Stock of Material**	15,00,000
(ii)	**Closing Stock of Material**	20,00,000
(iii)	**Purchase of Material**	1,80,50,000
(iv)	**Direct Labour**	90,50,000
(v)	**Factory Overhead**	30,80,000
(vi)	**Administrative Overhead**	20,50,400

During the FY 2021-22, the company has received an order from a car manufacturer where it estimates that the cost of material and labour will be ₹ 80,00,000 and ₹ 40,50,000 respectively. The company charges factory overhead as a percentage of direct labour and administrative overheads 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 ₹ 9,50,000.
You are required to:
(i) CALCULATE the overhead recovery rates based on actual costs for 2020-21.
(ii) PREPARE a Job cost sheet for the order received and the price to be quoted if the desired profit is 25% on sales.

Valuation of Closing WIP based on Absorption Rate

Question 8 -

A firm uses job costing and recovers overheads on direct labour.

Three jobs were worked on during a period the details of which are as follows:

Particulars	Job 1 (₹)	Job 2 (₹)	Job 3 (₹)
Opening work-in-progress	8,500	0	46,000
Material in period	17,150	29,025	0
Labour for period	12,500	23,000	4,500

The overheads for the period were exactly as budgeted ₹ 1,40,000 Jobs 1 and 2 are the only incomplete jobs.
You are required to **compute** the value of closing work-in-progress.

Batch Costing

Question 9 - Study Material

Arnav Confectioners (AC) owns a bakery which is used to make bakery items like pastries, cakes and muffins. AC used 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.

Question 10 -

A company manufactures widgets to order and has the following budgeted overheads for the year, based on normal activity levels.

Department	Budgeted overheads (₹)	Budgeted Activity (Total Labour Hours)
Welding	6,000	1,500 labour hours
Assembly	10,000	1,000 labour hours

Selling and administrative overheads are 20% of factory cost. An order for 250 widgets type X 128, made as Batch 5997, incurred the following costs.

Materials : ₹ 12,000
Labour : 100 hours
welding shop at ₹ : 10 hour
200 hours assembly shop at ₹ 8 hour
₹ 500 was paid for the hire of special X-ray equipment for testing the welds.
Calculate the cost per unit for Batch 5997.

EBQ and Related Computation

Question 11 - Pyq

TSK Limited manufactures a variety of products. The annual demand for one of its products 'X' is estimated as 1,35,000 units. Product 'X' is to be manufactured in batches. Set up cost of each batch is ₹3,375 and inventory holding cost is ₹5 per unit. It is expected that demand of product 'X' would be uniform throughout the year
(a) Calculate the Economic Batch Quantity (EBQ) for Product 'X'.
(b) Assuming that the company has a policy of manufacturing 7,500 units of Product 'X' per batch, **calculate** the additional cost incurred as compared to the cost incurred as per Economic Batch Quantity (EBQ) as computed in (i) above.

Question 12 - Study Material

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%.
(i) FIND the most economic production run.
(ii) CALCULATE the extra cost that company incur due to processing 18,000 columns in a batch.

Question 13 - Study Material

Update Ltd has to supply 2,40,000 units of a component "Tazzo" annually for its valued customer Prince. The Company has been producing 20,000 units per month by having 12 runs per annum. Its new Finance Manager Ram says that the production should be brought down to 5,000 units per batch and 48 batches should be run per annum.
You are required to **advise** the Company on the following issues given that the Set up Cost per batch is ₹ 75 per batch and Carrying Cost per unit is ₹ 1 per annum.
(1) What is the Economic Batch Size?
(2) Should the Company continue producing 20,000 units per batch or should it adopt Ram's suggestion?
(3) For least cost, **how** many batches should be run in a year?
(4) What will be the total associated cost, i.e. Set-Up Costs and Carrying Costs per annum, if EBQ is adopted?

Different Batch Sizes – Cost Per unit Computation

Question 14 - Pyq

Component Z is made entirely in cost centre 100. Material Cost is 6 paise per component. The Component takes 10 minutes to produce. The Machine Operator is paid 72 paise per hour and the Machine Hour Rate is ₹ 1.50. The setting up of the machine to produce the Component P takes 2 hours 20 minutes.
On the basis of this information, **prepare** a Cost-Sheet showing the production and setting up both total and per component, assuming that a batch of:
(a) 10 components, **(b)** 100 components, & **(c)** 1,000 components are produced.

Question 15 - Pyq

A Ltd. is a pharmaceutical company which produces vaccines for diseases like Monkey Pox, Covid-19 and Chickenpox. A distributor had given an order for 1,600 Monkey Pox Vaccines. The company can produce 80 vaccines at a time.

To process a batch of 80 Monkey Pox vaccines, the following costs would be incurred:

Direct Materials	4,250
Direct wages	500
Lab set-up cost	1,400

The Production Overheads are absorbed at a rate of 20% of direct wages and 20% of total production cost is charged in each batch for Selling, distribution and administration Overheads. The company is willing to earn a profit of 25% on sales value.
You are required to **determine:**
(I) Total Sales value for 1,600 Monkey Pox Vaccines
(II) Selling price per unit of the Vaccine.

Batch Cost Sheet – Cost and Profit Per Batch

Question 16 - Pyq, Study Material

Aries Ltd. undertakes to supply 1,000 units of a component per month for the months of January, February and March. Every month a batch order is opened against which materials and labour cost are booked actually. Overheads are levied on the basis of labour hours. The selling price is contracted at ₹ 15 per unit.
From the following data, **present** the cost and profit per unit of each batch order and the overall position of the order for 3,000 units. Ignore set-up costs.

Months	Batch Output	Material Cost (₹)	Labour Cost (₹)
January	1,250	6,250	5,000
February	1,500	9,000	6,000
March	1,000	5,000	4,000

Labour is paid at the rate of ₹ 4 per hour. The other details are:

Months	Overhead (₹)	Total Labour Hours
January	12,000	4,000
February	9,000	4,500
March	15,000	5,000

Question 17 - Study Material

Atharva Pharmacare Limited produces 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

Week number	Units manufactured	Direct material (₹)	Direct wages (₹)	Factory overheads (₹)
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

Department Wise Overhead Estimation – Total Cost Estimation

Question 18 - Rtp

XYZ Ltd manufactures mechanical fittings which pass through three departments – Foundry, Machine Shop and Assembling. The details of Wages and Production OH for the three Departments are as under –

Particulars	Foundry	Machine Shop	Assembling	Total
Direct Wages	₹ 10,000	₹ 50,000	₹ 10,000	₹ 70,000
Production Overhead	₹ 5,000	₹ 90,000	₹ 10,000	₹ 1,05,000

The Factory Cost for manufacturing "K" fitting was estimated as under –

Particulars	Per unit (₹)
Materials	16
Labour: Foundry ₹ 2, Machine Shop ₹ 4, Assembling ₹ 2	8
Works Overheads at 150% of Direct Wages (₹ 70,000 ÷ ₹ 1,05,000 = 150%)	12
Factory Cost	**36**

Identify and correct the conceptual error in the calculation of Factory Cost as shown above.

Process Costing & Operation Costing

Process Accounts

Question 1 - Study Material

A product passes through three processes A, B and C. The normal loss of each process is as follows:
Process A : 3%, **Process B** : 5% and **Process C** : 8%.
Loss of Process A was sold at 25 paise per unit, that of B at 50 paise per unit and that of C at ₹ 1.00 per unit.
10,000 units were introduced to Process A at Re. 1.00 per unit.
The other expenses were as follows:

	A (₹.)	B (₹.)	C (₹.)
Materials	1,000	1,500	500
Labour	5,000	8,000	6,500
Direct Expenses	1,050	1,188	2,009
Actual Output (in units)	9,500	9,100	8,100

Prepare the Process Accounts, assuming that there were no opening or closing stocks.

Question 2 - Study Material, Pyq

RST Limited processes Product Z through two distinct processes I and II.
On completion, it is transferred to Finished Stock.
From the following information for the year, **prepare** Process I, Process II and Finished Stock A/c.

Particulars	Process I	Process II
Raw Materials used	7,500 units	-
Raw Materials Cost per unit	60	-
Transfer to next Process/Finished Stock	7,050 units	6,525 units
Normal Loss (on Inputs)	5%	10%
Direct Wages	₹ 1,35,750	₹ 1,29,250
Direct Expenses	60% of Direct Wages	65% of Direct Wages
Manufacturing Overheads	20% of Direct Wages	15% of Direct Wages
Realisable Value of Scrap per unit	₹ 12.50	₹ 37.50

6,000 units of Finished Goods were sold at a profit of 15% on Cost.
Assume that there was no Opening or Closing Stock of WIP.

Normal Loss A/c, Abnormal Loss A/c and Abnormal Gain A/c

Question 3 - Pyq, Rtp (Similar)

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 Process II is transferred to finished stock.
The following data related to December:

Particulars	Process I	Process II
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

Prepare –
(a) Process I and Process II A/c, and **(b)** Abnormal Loss/Gain Account as the case May be, for each process.

Question 4 - Pyq

PQR Ltd. processes a range of products including a toy 'Alpha', which passes through three processes before completion and transfer to the finished goods warehouse.
The information relating to the month of October 2019 are as follows:

Particulars	Process-I	Process-II	Process-III	Total
Raw materials (2,000 units)	₹ 12,000	-	-	₹ 12,000
Direct raw material added in process	₹ 17,000	₹ 19,000	₹ 11,000	₹ 47,000
Direct wages	₹ 8,000	₹ 12,000	₹ 24,000	₹ 44,000
Direct expenses	₹ 2,400	₹ 1,860	₹ 2,680	₹ 6,940

Production overhead	-	-	-	₹ 33,000
Outputs (Units)	1,840	1,740	1,580	
Normal loss in process of input (%)	10	5	10	
Scrap value per unit	₹ 2	₹ 5	₹ 10	

The production overhead is absorbed as a percentage of direct wages.
There was no opening and closing stock. **Prepare** the following accounts:
(i) Process-I **(ii)** Process-II **(iii)** Process-III **(iv)** Abnormal Loss **(v)** Abnormal Gain

Question 5 - Pyq

A chemical compound manufactured through two processes namely Process X and Process Y. Process Y is dependent on the output generated by Process X and the semi-finished chemical compound received from Process X shall be mixed up with further materials in Process Y.
The details of costs and other particulars for each process are given as follows:

Particulars	Process X	Process Y
Direct Material	1,000 kgs @ ₹50 per kg	700 kgs @ ₹90 per kg
Direct Labour	₹35,000	₹25,000
Process Plant time	200 hrs @ ₹60/hr	120 hrs @ ₹80/hr
Expected output	75% of input	80% of input
Actual output kgs	700	1150
Realizable value of Normal Loss	₹8 per kg	₹5 per kg

Notes:
(i) The Departmental overhead for the period was ₹30,000 and is absorbed in each process on direct labour cost.
(ii) Process plant time represents the attributable plant run time with respect to each process and is a part of direct process cost.
(iii) Assume no finished stock and work in progress either at the beginning and end of the period.
Prepare Process X Account, Process Y Account, Normal Loss Account and Abnormal Gain Account.

Process A/c with Process Stock A/c

Question 6 - Pyq

The product manufactured by Alkali Ltd passes through three processes I, II and III.
The following costs have been incurred for the month of April:

Details	Process I	Process II	Process III
Material Consumed	₹ 40,000	₹ 15,000	₹ 10,000
Direct Wages	₹ 45,000	₹ 20,000	₹ 20,000
Direct Expenses	₹ 41,000	₹ 4,500	₹ 5,010
Total	**₹ 1,26,000**	**₹ 39,500**	**₹ 35,010**
Output (units)	3,900	3,850	3,200
Finished Process Stock (units)			
(1) 1st April	600	550	800
(2) 30th April	500	800	Nil
Stock Valuation on 1st April (per unit)	₹ 49	₹ 62	₹ 74
Percentage of Wastage	2%	5%	10%
Net Realisable Value of wastage per unit	₹ 27	₹32.50	₹42.00

4,000 units of Raw Materials were introduced in Process I at a cost of ₹ 80,000. Stocks are valued and transferred to subsequent processes at Weighted Average Cost. The percentage of wastage is computed on the number of units entering the process concerned.
Prepare:
(a) Process Accounts and Process Stock Accounts
(b) Normal Wastage Account
(c) Abnormal Wastage/Effective Gain Account.

Computation of Selling Price

Question 7 - Pyq

A product passes through two processes. The output of Process I becomes the input for Process II and the output of Process II is transferred to the Warehouse. The quantity of Raw Materials introduced into Process I is 20,000 kg at ₹ 10 per kg.

The cost and output data for the month under review are as below:

Particulars	Process I	Process II
Direct Materials	₹ 60,000	₹ 40,000
Direct Labour	₹ 40,000	₹ 30,000
Production Overheads	₹ 39,000	₹ 40,250
Normal Loss	8%	5%
Output	18,000 kg	17,400 kg
Loss realisation per unit	₹ 2.00	₹ 3.00

The Company's policy is to fix the Selling Price of the end product in such a way as to yield a profit of 20% on Selling Price. You are required to –

(1) Prepare the Process Accounts.

(2) Determine the Selling Price per unit of the end product.

Process Account is not responsibility centre

Question 8 - Pyq

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: Process **P** : 9,200 units and Process **Q** : - 6,400 units.

3/4th of the output of Process P was passed on to 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:**

(i) Process P Account

(ii) Process Q Account

(iii) Abnormal Loss and Abnormal Gain Account

(iv) Costing Profit & Loss Account.

Question 9 - Pyq, Mtp

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 31st March, 2014 are as follows:

Particulars	Process A	Process B
40,000 units introduced at a cost of	₹ 3,60,000	-
Materials consumed	₹ 2,42,000	₹ 2,25,000
Direct wages	₹ 2,58,000	₹ 1,90,000
Manufacturing exp.	₹ 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:

(a) 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.

(b) Indirect expenses for the year were ₹ 4,48,080.

(c) It is assumed that Process-A and Process-B are not responsibility centres.

(i) Prepare Process-A and Process-B Account.

(ii) Prepare a Profit & Loss Account showing the net profit I net loss for the year.

Process Account is responsibility centre

Question 10 - Pyq

A product passes through three processes A, B and C.

The details of expenses incurred on the three processes during the year were as under:

Process	A (₹)	B (₹)	C (₹)
Units issued/introduced @ 100 per unit	10,000		
Sundry Materials	10,000	15,000	5,000
Labour	30,000	80,000	65,000
Direct Expenses	6,000	18,150	27,200
Selling price per unit of output	120	165	250

Management expenses during the year were ₹ 80,000 and selling expenses were ₹ 50,000. These are not allocable to the processes.

Actual output of the three processes was: **A:** 9,300 units; **B:** 5,400 units; **C:** 2,100 units.

Two-thirds of the output of Process A and one-half of the output of Process B was passed on to the next process and the balance was sold. The entire output of Process C was sold.

The normal loss of the three processes, calculated on the input of every process, was:

Process A : 5%, **Process B** : 15% and **Process C** : 20%.

The loss of Process A was sold at ₹ 2 per unit, that of B at ₹ 5 per unit and of Process C at ₹ 10 per unit.

Prepare the three Process Accounts and the Statement of Profit.

Inter Process Transfer and Profit Mark up on Opening Stock- Stock Valuation at Prime Cost

Question 11 - Pyq

A Product passes through three Processes 'X', 'Y', 'Z'. The output of Process 'X' and 'Y' is transferred to the next Process at Cost plus 20% each on Transfer Price and the output of Process Z is transferred to Finished Stock at a profit of 25% on Transfer Price.

The following information is available in respect of the year ending 31st March:

Particulars	Process X (₹)	Process Y (₹)	Process Z (₹)	Finished Stock (₹)
Opening Stock	15,000	27,000	40,000	45,000
Material Stock	80,000	65,000	50,000	-
Wages	1,25,000	1,08,000	92,000	-
Manufacturing Overheads	96,000	72,000	66,500	-
Closing Stock	20,000	32,000	39,000	50,000
Inter-Process Profit included in Opening Stock	Nil	4,000	10,000	20,000

Stock in Process is valued at Prime Cost. Finished Stock is valued at the price at which it is received from Process 'Z'. Sales of the Finished Stock during the period was ₹ 14,00,000. You are required to:

(a) Prepare Process Accounts and Finished Stock Account showing profit element at each stage.

(b) Show the Profit and Loss Account.

(c) Show the relevant items in the Balance Sheet.

Question 12 - Study Material, Pyq

Pharma Limited produces product 'Glucodin' which passes through two processes before it is completed and transferred to Finished Stock. The following data relates to March :

Particulars	Process – I (₹)	Process – II (₹)	Finished Stock (₹)
Opening Stock	1,50,000	1,80,000	4,50,000
Direct Materials	3,00,000	3,15,000	-
Direct Wages	2,24,000	2,25,000	-
Factory Overheads	2,10,000	90,000	-
Closing Stock	74,000	90,000	2,25,000
Inter Process Profit included in Opening Stock	Nil	30,000	1,65,000

Output of Process I is transferred to Process II at 25% Profit on the transferred price, whereas output of Process II is Finished Stock at 20% on Transfer Price. **Stock-in-Process are valued at Prime Cost**.

Finished Stock is valued at the price at which it is received from Process II.

Sales for the month is ₹ 28,00,000.

You are required to **prepare** Process-I Account, Process-II Account, and Finished Stock Account, showing the profit element at each stage.

FIFO – first Process

Question 13 - Rtp, Pyq

The following data are available in respect of a manufacturing concern for a particular period:

- **Opening Stock of Work-in-Progress** : **800 units at a Total Cost of ₹ 4,000.**
  Degree of Completion:
- **Materials** : 100%
- **Labour** : 60%
- **Overheads** : 60%
- **Input of Materials** : **9,200 units at a Total Cost of ₹ 36,800**
- **Direct Wages incurred** : **₹ 16,740**
- **Production Overheads** : **₹ 8,370**
- **Units scrapped** : **1,200 units**
  Degree of Completion:
  Materials : 100%
  Labour : 80%
  Overheads : 80%
- **Closing Work-in-Progress: 900 units.**
  Degree of Completion:
  Materials : 100%
  Labour : 70%
  Overheads : 70%
- **7,900 units were completed and transferred to the next process.**
- **Normal Loss is 8% of the Total Input (Opening Stock plus units put in)**
- **Scrap Value is ₹ 4 per unit.**

You are required to:
(1) Prepare a Statement of Equivalent Production showing the Cost per Equivalent Unit for each element.
(2) Compute the cost of units transferred to the next process, Abnormal Loss and Closing Work in Progress using the FIFO method.
(3) Prepare a Process Account.

Question 14 - Study Material

An English willow company who manufactures cricket bats buys wood as its direct material. The Forming department processes the cricket bats and the cricket bats are then transferred to the Finishing department where stickers are applied.
The Forming department began manufacturing 10,000 initial bats during the month of December for the first time and their cost is as follows:
Direct material : ₹ 33,000
conversion costs : ₹ 17,000
Total : **₹ 50,000**
A total of 8,000 cricket bats were completed and transferred to the Finishing department, the rest 2,000 were still in the Forming process at the end of the month. All of the forming departments direct material were placed, but, on average, only 25% of the conversion costs was applied to the ending work in progress inventory.
CALCULATE:
(i) Equivalent units of production for each cost.
(ii) The conversion cost per Equivalent units.
(iii) Cost of closing work in process (WIP) and finished products.

Question 15 - Pyq

Following information is available regarding Process A for the month of October.
Production Records:
(a) Opening Work-in-Progress : 40,000 units
(Materials 100% complete, and 25% complete for Labour and Overhead)
(b) Units introduced : 1,80,000 units
(c) Units completed : 1,50,000 units
(d) Units in Process on 31st October : 70,000 units
(Materials 100% complete, 50% complete for Labour and Overhead) :

Cost Records:
Opening Work-in-Progress:
Materials : ₹ 1,00,000
Labour : ₹ 25,000
Overheads : ₹ 45,000
Cost incurred during the month:
Materials : ₹ 6,60,000
Labour : ₹ 5,55,000
Overheads : ₹ 9,25,000
Assume that FIFO Method is used for WIP Inventory Valuation. You are required to **prepare:**
(i) Statement of Equivalent Production
(ii) Statement showing Cost for each element
(iii) Statement of Apportionment of Cost
(iv) Process 'A' Account.

FIFO – Subsequent Process

Question 16 - Pyq

From the following information for the month of October 2003, **prepare** Process III Cost Accounts.

Opening WIP in Process III	1,800 units at ₹ 27,000
Transfer from Process II	47,700 units at ₹ 5,36,625
Transferred to Warehouse	43,200 units
Closing WIP of Process III	4,500 units
Units scrapped	1,800 units
Direct Material added in Process III	₹ 1,77,840
Direct Wages	₹ 87,840
Production Overheads	₹ 43,920

Degree of completion:

Particulars	Opening Stock	Closing Stock	Scrap
Material	80%	70%	100%
Labour	60%	50%	70%
Overheads	60%	50%	70%

The normal loss in the process was 5% of the production and scrap was sold at ₹ 6.75 per unit.

Weighted Average Cost Method (WAC) – First Process

Question 17 - Study Material(similar), Pyq

ABC Ltd. manufactures a Product 'ZX' by using the process namely RT.
For the month of May, 2007, the following data is available:

Particulars	Process RT
Material introduced (units)	16,000
Transfer to next process (units)	14,400
Work in Process:	
At the beginning of the month (units) (4/5 completed)	4,000
At the end of the month (units) (2/3 completed)	3,000
Cost Records:	
Work-in-Process at the beginning of the month	
Materials	₹ 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 goods finished output transferred to the 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 & other Indirect Cost flow evenly over the year. It has no realizable value for spoiled units. You are **required to prepare:**
(a) Statement of Equivalent Production (Average Cost Method);
(b) Statement of Cost & Distribution of Cost;
(c) Process Accounts.

Question 18 - Study Material, Pyq

Following details are related to the work done in Process 'A' of XYZ Company during the month of March, 2007:

Particulars	Process A
Opening Work-in-Progress : (2,000 units)	
Materials	₹ 80,000
Labour	₹ 15,000
Overheads	₹45,000
Materials introduced in Process 'A': (38,000 units)	₹ 14,80,000
Direct Labour	₹ 3,59,000
Overheads	₹ 10,77,000
Units scrapped: 3,000 units	
Degree of completion:	
Materials	100%
Labour and Overheads	80%
Closing Work-in-Progress: 2,000 units	
Degree of completion:	
Materials	100%
Labour and Overheads	80%

Units finished and transferred to Process 'B': 35,000
Normal Loss: 5% of total input including Opening Work-in-Progress
Scrapped units fetch ₹ 20 per piece. You are required to **prepare:**
(a) Statement of Equivalent Production ;
(b) Statement of Cost;
(c) Statement of Distribution of Cost; and
(d) Process 'A' Account, Normal and Abnormal Loss Accounts.

Question 19 - Study Material

'Healthy Sweets' is engaged in the manufacturing of jaggery. Its process involves sugarcane crushing for juice extraction, then filtration and boiling of juice along with some chemicals and then letting it cool to cut solidified jaggery blocks.
The main process of juice extraction (Process – I) is done in a conventional crusher, which is then filtered and boiled (Process – II) in iron pots. The solidified jaggery blocks are then cut, packed and dispatched.
For manufacturing 10 kg of jaggery, 100 kg of sugarcane is required, which extracts only 45 litre of juice.
Following information regarding Process – I has been obtained from the manufacturing department of Healthy Sweets for the month of January, 2020:

Particulars	Process - I
Opening work-in process (4,500 litre)	
Sugarcane	: ₹ 50,000
Labour	: ₹ 15,000
Overheads	: ₹ 45,000
Sugarcane introduced for juice extraction (1,00,000 kg)	: ₹ 5,00,000
Direct Labour	: ₹ 2,00,000
Overheads	: ₹ 6,00,000
Abnormal Loss: 1,000 kg	
Degree of completion:	
Sugarcane	: 100%
Labour and overheads	: 80%
Closing work-in process: 9,000 litre	
Degree of completion:	
Sugarcane	: 100%
Labour and overheads	: 80%

Extracted juice transferred for filtering and boiling: 39,500 litres
You are required to **PREPARE** using average method:**(Consider mass of 1 litre of juice equivalent to 1 kg)**
(i) Statement of equivalent production,
(ii) Statement of cost,
(iii) Statement of distribution cost, and
(iv) Process-I Account.

WAC – Subsequent Process

Question 20 - Pyq

The following details are available of Process X for August 2011:

(1) Opening work-in-progress 8,000 units

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) Overheads 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 the 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:

(i) Equivalent production, and

(ii) Cost per unit

Equivalent Production – 2 Processes

Question 21 - Pyq

A Company manufactures a product which involves two consecutive processes viz. Pressing & Polishing.

For the month of October, the following information is available:

Particulars	Pressing	Polishing
Opening Stock	-	-
Input of units in process	1,200	1,000
Units completed	1,000	500
Units under process at the end of October	200	500
Materials Cost	₹ 96,000	₹ 8,000
Conversion Cost	₹ 3,36,000	₹ 54,000

For incomplete units in process, charge Materials Cost at 100% and conversion Cost 60% in Pressing Process and 50% in Polishing Process.

Prepare a statement and calculate the Selling Price per unit which will result in 25% Profit on Sales.

Process Costing and Further Processing Decision

Question 22 - Pyq

A Chemical Company carries on production operations in two processes. The material first passes through Process I, where Product A is produced.

The following data are given for the month just ended:

Quantity Particulars	Cost Particulars
Material Input Quantity 2,00,000 kgs	Material Input Costs : ₹ 75,000
Opening WIP Quantity 40,000 kgs	Processing Costs : ₹ 1,02,000
(Materials 100% and conversion 50% complete)	Opening WIP Costs : ₹ 32,000
Work Completed Quantity 1,60,000 kgs	(Materials ₹ 20,000 + Processing Costs ₹ 12,000)
Closing WIP Quantity 30,000 kgs	
(Materials 100% and conversion 2/3rd complete)	

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 at ₹ 1.60 per kg. Alternatively, it can be transferred to Process II for further processing and then sold as "Product AX" for ₹ 2.00 per kg. Further materials are added in Process II, which yield two kgs of "Product AX" for every kg of Product A of Process I.

Of the 1,60,000 kgs per month of work completed in Process I, 40,000 kgs are sold as Product A and the balance 1,20,000 kgs are passed through Process II for sale as "Product AX". Process II has facilities to handle upto 1,60,000 kgs of Product A per month, if required.

The monthly costs incurred in Process II (other than the cost of Product A) are :

Cost Element	For 1,20,000 kgs of Product A (₹)	For 1,60,00 kgs of Product A (₹)
Materials	1,32,000	1,76,000
Processing Costs	1,20,000	1,40,000

Required:

(1) Determine using the Weighted Average Cost Method, the cost per kg of Product A in Process I and the value of both completed work and Closing WIP for the month just ended.

(2) Is it worthwhile processing 1,20,000 kgs of Product A further?

(3) Calculate the minimum acceptable Selling Price per kg if a potential buyer could be found for the additional output of "Product AX" that could be produced with the remaining Product A Quantity.

Question 23 - Pyq

A Tooth Powder Manufacturer produces bulk quantities of Tooth powder from two Raw Materials A and B. Material A is introduced into Process I from which the output goes to Process II where Material B is introduced. During March, the Company purchased 80,000 kg of Material A which was introduced into Process I.

Production details of Process I & Costs are:

Material A purchased	80,000 kg at ₹ 6 per kg
Processing Cost (excluding Labour)	63 hours at ₹ 30 per hour
Labour Cost	₹ 80 per hour
Standard Yield	90 percent of Input
General Overhead recovered at	125 percentage of Labour Cost
Waste from this process sold at	₹ 1.50 per kg

Actual Output from this process was 70,000 kg, which was transferred to Process II.

The Company used in Process II, 70,000 kg of output of Process I together with 30,000 kg of Material B purchased.

The production details of Process II and Costs are:

Material B purchased	30,000 kg at 2 per kg
Processing Cost (excluding Labour)	45 hours at ₹ 20 per hour
Labour Cost	₹ 40 per hour
Standard Yield	95 percent of Input
General Overhead recovered at	50 percentage of Labour Cost
Waste from this process sold at	₹ 1.00 per kg

Actual Output of Process II was 96,000 kg which was transferred to Finished Stock.

There was an inquiry for a quantity of 1,700 kg of specially prepared waste material from Process I.

This material would have to be specially processed and packed incurring the following cost :

Processing : 0.90 per kg, **Packaging** : 0.40 per kg.

This specially prepared waste incurs no process loss and could be entirely sold at 3.20 per kg.

You are required to:

(1) Record the information in the Process Cost Accounts, before the inquiry was received and show the Overall Profit or Loss transferred to the Profit and Loss Account from the Abnormal Gains or Losses in processing.

(2) Advise the Management on whether or not they should produce 1,700 kg of specially processed waste material from Process I, and the effect on the overall results of the Company.

Joint Products & By Products

Methods of Joint Cost Apportionment

Question 1 - Study Material

Naresh Manufacturing Company produces the following products using 5,000 tons of Coal at a cost of ₹ 15 per ton, into a common process: Coke – 3,500 Tons, Tar – 1,200 Tons, Sulphate of Ammonia – 52 Tons, Benzol – 48 Tons.

200 Tons of the material is lost in the process as waste and air evaporation. Labour and Overheads for the process are ₹ 15,000 and ₹ 6,000 respectively.

Apportion Joint Costs using physical units method among the products.

Question 2 - Pyq

Ganesh & Co. processes a Raw Material in its Department I 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 I 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 II at a cost of ₹ 1,80,000 and ₹ 150,000 respectively.

X was further processed in Department III 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 :

Particulars	Product A	Product B	Product 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 a split-off stage, the Selling Prices of A, B and X would have been ₹ 50, ₹ 40 and ₹ 10 per kg respectively. Required:

(i) Prepare a statement showing the apportionment of joint costs to A, B and X.

(ii) Prepare a statement showing the cost per kg of each product indicating joint cost, further processing cost and total cost separately.

(iii) Prepare a statement showing the product-wise and total profit for the period.

(iv) State with supporting calculations as to whether any or all the products should be further processed or not.

Question 3 - Pyq

T Limited produces three joint products X, Y and Z. The products are processed further. Pre-separation costs are apportioned on the basis of weight of output of each joint product.

The following data are provided for the month of April, 2022.

Cost incurred up to separation point : ₹10,000

	Product X	Product Y	Product Z
Output (in Litre)	100	70	80
	₹.	₹.	₹.
Cost incurred after separation point	2,000	1,200	800
Selling Price per Litre:			
After further processing	50	80	60
At pre-separation point (estimated)	25	70	45

You are required to:

(i) Prepare a statement showing profit or loss made by each product after further processing using the presently adopted method of apportionment of pre-separation cost.

(ii) Advise the management whether, on purely financial consideration, the three products are to be processed further or not.

Marginal Contribution Method

Question 4 - Study Material

Apportion the Joint Cost on suitable basis and obtain Profit/Loss for each of the Joint Products, from the following data –

Sales: Product A – 100 kg at ₹ 60 per kg, and Product B – 120 kg at ₹ 30 per kg.

Total Costs: Marginal Costs ₹ 4,400 and Fixed Cost ₹ 3,900.

Question 5 - Pyq

A Factory produces two products, 'A' and 'B' from a single process.
The joint processing costs during a particular month are :

Direct Material	: ₹ 30,000
Direct Labour	: ₹ 9,600
Variable Overheads	: ₹ 12,000
Fixed Overheads	: ₹ 32,000

Sales: A- 100 units@ ₹ 600 per unit; B – 120 units @ ₹ 200 per unit.
(I) Apportion joints costs on the basis of:
(i) Physical Quantity of each product.
(ii) Contribution Margin method, and
(II) Determine Profit or Loss under both the methods.

Physical Unit Method, Sales at Split off Point method, and Net Realisable Value Method

Question 6 - Rtp

A Pharmaceutical Company purchases a Raw Material, which is then processed to yield three chemicals: Anarol, Estyl and Betryl. In October the Company purchased 10,000 gallons of the Raw Material at a cost of ₹ 12,50,000 and incurred additional Joint conversion costs of ₹ 7,50,000.
The sales and production information for the month are as follows :

Product	Gallons Produced	Price at split off (Per Gallon)	Further Processing Cost	Eventual Sales Price
Anarol	2,000	₹ 350	-	-
Estyl	3,000	₹ 240	-	-
Betryl	5,000	₹ 200	₹ 30	₹ 360

Anarol and Estyl are sold to other pharmaceutical companies at the split off point. Betryl can be sold at the split-off point or processed further and packaged for sale as an asthma medication.
You are required to:
(1) Allocate the Joint Cost to the three Products using – **(a)** Physical Units Method, **(b)** Sales-Value at Split-Off Method, and **(c)** Net Realizable Value Method.
(2) Suppose that half of October production of Estyl could be purified and mixed with all of the Anarol to produce a Veterinary Grade Anaesthetic. All further processing costs amount to ₹ 2,25,000. The Selling Price of the Veterinary Grade Anarol is ₹ 650 per gallon. **Should** the pharmaceutical Company further process the Anarol into Anaesthetic? Assume that the resultant quantity of Veterinary Grade Anarol produced is 2,000 gallons only.

Question 7 - Pyq, Study Material

Inorganic Chemicals purchases salt and processes it into more refined products such as Caustic Soda, Chlorine and PVC (Polyvinyl Chloride). In the month of April, Inorganic Chemicals purchased Salt for ₹ 40,000. Conversion cost of ₹ 60,000 were incurred upto the split off point, at which time two saleable products were produced. Chlorine can be further processed into PVC.
The April Production and Sales information is as follows:

Particulars	Production (Tonnes)	Sales Quantity (Tonnes)	Sales Price (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 were no beginning or ending inventories of Caustic Soda, Chlorine or PVC in April, 2000.
There is an active market for Chlorine. Inorganic Chemicals could have sold all its April production of Chlorine at ₹ 75 per tonne. You are required to:
(i) To **calculat**e how the 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 Realizable Value.

(ii) Lifetime Swimming Pool Products offers to purchase 800 tonnes of Chlorine in May, 2000 at ₹ 75 per tonne. This sale of Chloride would mean that no PVC would be produced in May, 2000. **How** the acceptance of this offer for the month of May would affect Operating Income?

Question 8 - Pyq

XYZ Limited manufactures three joint products A, B and C from a joint process. Product B is sold at a 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:

Particulars	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.

You are required to:

(i) Prepare a statement showing apportionment of joint cost to the products using **Net realizable value method.**

(ii) 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?

Question 9 -Pyq

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.

Product X and Y are ready for sale immediately upon split-off 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 the year, the Selling Prices of the items and the total quantities sold were :

X : 186 tons sold at ₹ 1,500 per ton, **Y :** 527 tons sold for ₹ 1,125 per ton, **Z** : 736 tons sold for ₹ 750 per ton.

The Total Joint Manufacturing Costs for the year were ₹ 6,25,000. An additional ₹ 3,10,000 was spent to finish Product Z.

There were no opening inventories of X, Y and Z.

At the end of the year, the following inventories of complete units were on hand:

X : 180 tons, **Y** : 60 tons, **Z** : 25 tons. There was no opening or Closing Work-in-Progress.

(1) Compute the cost of inventories of X, Y and Z for Balance Sheet purposes, and Cost of Goods Sold for Income Statement purposes, using –

(a) Net Realizable Value (NRV) Method of Joint Cost Allocation.

(b) Constant Gross Margin Percentage NRV Method of Joint Cost Allocation.

(2) Compare the Gross Margin Percentages for X, Y and Z, using the two methods given above.

Question 10 - Pyq

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-off stage or can be processed further at Department B and sold as Product AR. The input-output ratio of Department B is 100 : 90. Department B is created to process Product P only and to make it Product AR.

- Selling Prices per kg. are – Product P ₹ 85, Product Q ₹ 290 and Product AR ₹ 115.
- Production will be taken up in the next month.
- Raw Materials 8,00,000 kgs, Purchase Price ₹ 80 per kg.
- Monthly Expenses of the Department are given below :

Particulars	Department A (₹ In Lakhs)	Department B (₹ In Lakhs)
Direct Material	35	5
Direct Labour	30	9
Variable Overheads	45	18
Fixed Overheads	40	32
Total	**150**	**64**

- Selling Expenses for Product P ₹ 24.60 Lakhs, Product Q ₹ 21.60 Lakhs and Product AR ₹ 16.80 Lakhs.

You are required:

(1) Prepare a statement showing the apportionment of Joint Costs.

(2) State whether it is advisable to produce Product AR or not.

Question 11 - Pyq

The Sunshine Oil Company purchases crude vegetable oil. It does refining of the same. The refining process results in four products produced at the split off point – M, N, O and P.
Product O is fully processed at the split off point. Products M, N and P can be individually further refined into 'Super M', 'Super N' and 'Super P'.

In the most recent month (October, 1999), the output at the split off point was:

Product M	3,00,000 gallons
Product N	1,00,000 gallons
Product O	50,000 gallons
Product P	50,000 gallons

The Joint Cost of purchasing the crude vegetable oil and processing it was ₹ 40,00,000.
Sunshine had no beginning or ending inventories. Sales of Product O in October were ₹ 20,00,000. Total output of Products M, N and P was further refined and then sold.

Data relating to October, 1999 are as follows:

Products	Further Processing Costs to make Super Products	Sales
'Super M'	₹ 80,00,000	₹ 1,20,00,000
'Super N'	₹ 32,00,000	₹ 40,00,000
'Super P'	₹ 36,00,000	₹ 48,00,000

Sunshine had the option of selling Products M, N and P at the split off point.

This alternative would have yielded the following sales for the October, 1999 production:

Product M	₹ 20,00,000
Product N	₹ 12,00,000
Product P	₹ 28,00,000

You are required to answer:
(1) How the Joint Cost of ₹ 40,00,000 would be allocated between each product under each of the following methods –
(a) Sales value at split off;
(b) Physical output (gallons) and
(c) Estimated Net Realizable Value.
(2) Could Sunshine have increased its October, 1999 operating profits by making different decisions about the further refining of Product M, N or P? **Show** the effect of the change you recommend on operating profits.

Question 12 - Study Material

Sun-moon Ltd. produces and sells the following products:

Products	Units	Selling price at split off point (₹)	Selling price after further processing (₹)
A	2,00,000	17	25
B	30,000	13	17
C	25,000	8	12
D	20,000	10	-
E	75,000	14	20

Raw material costs ₹35,90,000 and other manufacturing expenses cost ₹ 5,47,000 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 ₹12,50,000; ₹1,50,000; ₹ 50,000 and ₹ 1,50,000 respectively.
Fixed costs are ₹ 4,73,000.
You are required to **PREPARE** the following in respect of the coming year:
(a) Statement showing income forecast of the company assuming that none of its products are to be further processed.
(b) Statement showing income forecast of the company assuming that products A, B, C and E are to be processed further. **Can you** suggest any other production plan whereby the company can maximize its profits? If yes, then submit a statement showing income forecasts arising out of adoption of that plan.

Question 13 - Rtp

A company produces two joint products A and B from the same basic materials.
The processing is completed in three departments.

Materials are mixed in **Department I.** At the end of this process, A and B get separated.
After separation, A is completed in Department II and B in Department III.
During a period, 4,00,000 kg of raw material was processed in Department I at a total cost of ₹ 17,50,000, and the resultant 50% becomes A and 40% becomes B and 10% normally lost in processing.
In **Department II**, 1/5th of the quantity received from Department I is lost in processing. A is further processed in Department II at a cost of ₹ 2,60,000.
In **Department III**, further new material is added to the material received from Department I and weight mixture is doubled, there is no quantity loss in the department III. Further processing cost (with material cost) in Department III is ₹ 3,00,000.
The details of sales during the said period are:

Particulars	Product A	Product B
Quantity sold (kg)	1,50,000	3,00,000
Sales price per kg (₹)	10	4

There were no opening stocks. If these products were sold at split-off-point, the selling price of A and B would be ₹ 8 and ₹ 4 per kg respectively.
You are required to:
(i) PREPARE a statement showing the apportionment of joint cost to A and B in proportion of sales value at split off point.
(ii) PREPARE a statement showing the cost per kg of each product indicating joint cost, processing cost and total cost separately.
(iii) PREPARE a statement showing the product wise profit for the year.
(iv) On the basis of profits before and after further processing of product A and B, give your **COMMENT** that products should be further processed or not.

ByProduct

Question 14 -

A Company has Joint cost of ₹1, 00,000 and it produces two main products A and B and one BY- Product C as 1000kg, 2000kg and 500kg respectively.

- The Sale prices are ₹ 200, ₹ 500 and ₹ 5/kg respectively.
- In addition to this product C also has a packing cost of ₹ 1/kg.
- Use a physical output method to **distribute** Joint cost.

Question 15 - Pyq

The yield of a certain Process is 80% towards Main-Product, 15% towards and 5% towards Normal Loss. The material put in process (5,000 units) cost ₹ 23.75 per unit and all other Overhead Charges are ₹ 14,250. Of the Overheads, Power Cost accounted for 33.33%. It is ascertained that power Cost is chargeable in the ratio 10:9 between Main and By- Product.
Prepare a statement showing the cost of the By – Product.

Question 16 - Study Material

NN Manufacturing company uses a joint production process that produces three products at the split off point.
Joint production costs during September were ₹ 8,40,000.
Product information for September was as follows:

Particulars	Product A	Product B	Product C
Units produced	1,500	3,000	4,500
Units sold	2,000	6,000	7,500
Sales prices:			
At the split-off	₹ 100		
After further processing	₹ 150	₹ 175	₹ 50
Costs to process after split-off	₹ 1,50,000	₹ 1,50,000	1,50,000

Assume that product C is treated as a by-product and the company accounts for the by-product at net realizable value as a reduction of joint cost.
Assume also that Product B&C must be processed further before they can be sold.
FIND OUT the total cost of Product A in September if joint cost allocation is based on net realizable values?

Question 17 - Pyq

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:

Particulars	Joint Expenses (₹)	Separate Expenses (₹)	
		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 of 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 :

(i) Joint cost allocable to Cromex.

(ii) Product wise and overall profitability of the factory for April 2019.

Selling distribution hidden expense

Question 18 - Pyq

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
Total : ₹ 10,000

Subsequent cost in ₹ are given below:

Particulars	A	B
Material	3,000	1,500
Labour	1,400	1,000
Overheads	600	500
Total	**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.

Question 19 - Rtp

XY Ltd. manufactures Product A which yields two By-Products B and C.

The actual joint expenses of manufacture for a period were ₹ 8,000.

It was estimated that the profit on each product as a percentage of sales would be 30%, 25% and 15% respectively.

Subsequent expenses were as follows:

Particulars	A (₹)	B (₹)	C (₹)
Materials	100	75	25
Direct Wages	200	125	50
Overheads	150	125	75
Total	450	325	150
Sales	6,000	4,000	2,500

Prepare a statement showing the apportionment of the joint expenses of manufacture over the different products. Also presume that selling expenses are apportioned over the products as a percentage to sales.

Service Costing

Question 1 - Rtp
How are cost units determined in the rendering of service?

Answer 1:
For computing the operating cost, it is necessary to decide first, about the unit for which the cost is to be computed, this may often require the study of some technical and operating data, for finding out the factors which have a bearing on cost.
The cost units actually used in the following service undertakings are as below:

Service industry	Unit of cost (examples)
Transport Services	Passenger- km., (In public transportation) Quintal- km., or Ton- km. (In goods carriage)
Electricity Supply service	Kilowatt- hour (kWh)
Supply service	Cubic metre, per kg., per litre.
Hospital	Patient per day, room per day or per bed, per operation etc.
Canteen	Per item, per meal etc.
Cinema	Per ticket.
Hotels	Guest Days or Room Days
Bank or Financial Institutions	Per transaction, per services (e.g. per letter of credit, per application, per project etc.)
Educational Institutes	Per course, per student, per batch, per lecture etc.
IT & ITES	Cost per project, per module etc.
Insurance	Per policy, Per claim, Per TPA etc.

Computation of Passenger – Km

Question 2 - Pyq
Calculate total Passenger Kilometres from the following information:
Number of buses : 6
Number of days operating in a month : 25
Trips made by each bus per day : 8
Distance covered : 20 kilometres (one side)
Capacity of bus : 40 passengers, normally 80% of capacity utilization.

Commercial Tonne Km and Freightage

Question 3 - Pyq, Study Material
A Lorry starts with a load of 20 tonnes of goods from Station A. It unloads 8 tonnes at Station B and rest of goods at station C. It reaches back directly to Station A after getting reloaded with 16 tonnes of goods at Station C. The distance between A to B, B to C and then from C to A are 80 kms, 120 kms and 160 kms respectively. **Compute** 'Absolute Tonne-Kms' and 'Commercial Tonne-Kms'.

Question 4 -
A Transport Undertaking maintains a fleet of Lorries for carrying goods from Kolkata to Haldia, 100 kms off. Each Lorry which operates for 25 days on an average in a month, starts every day from Kolkata with a load of 4 tonnes and returns with a load of 2 tonnes.
(1) Calculate the Commercial Tonne-Kms, and the Cost per Commercial Tonne-Km, when the total monthly charges for a Lorry are ₹90,000.
(2) What Rate per Tonne should the undertaking charge if it plans to earn a Gross Profit of 20% on the Freightage?

Fare Computation for Passenger Transport Services

Question 5 - Pyq
A Transport Company has been given a 40 kilometer 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% 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 a year are given below:

Garage Rent	₹4,000 per month
Annual repairs and Maintenance	₹22,500 each bus
Salaries of 5 Drivers	₹3,000 each per month
Wages of 5 Conductors	₹1,200 per each month
Manager's Salary	₹7,500 per month
Road Tax, Permit Fee, etc.	₹5,000 for a quarter
Office Expenses	₹2,000 per month
Cost of Diesel per litre	₹33
Kilometres run per litre for each bus	6 kilometres
Annual Depreciation	15% of cost
Annual Insurance	3% of cost

Calculate the Bus Fare to be charged from each passenger per kilometer, if the Company wants to earn a profit of 33.33% on Takings (Total Receipts from passengers).

Question 6 - Pyq

XYZ Transport is running a bus between town A and town B which are 25 kms apart. The bus will make 4 round trips every day carrying on an average 30 passengers on each trip. The bus costs the company a sum of ₹5,00,000. It has been insured at 2% per annum and the annual tax will amount to ₹2,000 and garage rent is ₹500 per month. Annual repairs will be ₹8,000 and the bus is likely to last for 5 years. The driver's salary will be ₹15,000 per month and the conductor's salary will be ₹12,000 per month in addition to 10% of the takings as commission (to be shared by the driver and conductor equally). Cost of stationery will be ₹800 per month. Manager-cum-accountant's salary is ₹35,000 per month. Petrol and Oil will be ₹1,000 per 100 km. Assuming 15% profit on takings. Depreciation will be charged at the straight line method.
You are required to **calculate** the bus fare to be charged per passenger kilometer. The bus will run on an average 25 days in a month.

Question 7 - Study Material

ABC Transport Company has given a route 40 kilometers long to run the bus.
(a) The bus costs the company a sum of ₹20,00,000
(b) It has been insured at 3% p.a. and
(c) The annual tax will amount to ₹20,000
(d) Garage rent is ₹20,000 per month.
(e) Annual repairs will be ₹2,04,000
(f) The bus is likely to last for 5 years
(g) The driver's salary will be ₹30,000 per month and the conductor's salary will be ₹25,000 per month in addition to 10% of takings as commission [To be shared by the driver and conductor equally].
(h) Cost of stationery will be ₹1,000 per month.
(i) Manager-cum-accountant's salary is ₹17,000 per month.
(j) Petrol and oil will be ₹500 per 100 kilometers.
(k) The bus will make 3 up and down trips carrying on an average 40 passengers on each trip.
(l) The bus will run on an average 25 days in a month.
Assuming 15% profit on takings, **CALCULATE** the bus fare to be charged from each passenger.

Question 8 - Rtp, Pyq

Rounders Co. has obtained a licence to ply a mini-bus between stations A and B covering a distance of 25 km. The mini-bus will make 8 round trips a day for 25 days in a month. It has a seating capacity of 30 passengers and on an average 60% occupancy is expected throughout. The purchase price of the bus is ₹6,00,000. It has a life of 10 years with a salvage value of ₹10,000 at the end of its useful life.
The details of the operating expenses are as under:

Insurance	₹12,000 per annum	**Driver's Salary**	₹3,000 per month
Garage Rent	₹2,000 per quarter	**Conductor's Salary**	₹2,000 per month
Road Tax	₹3,000 per annum	**Tyres and Tubes**	₹3,000 per quarter
repairs	₹4,000 per quarter	**Diesel**	₹12 per litre
Administration	₹1,000 per month	**Oil and Sundries**	₹20 per 100 km run

The mini-bus consumes a litre of diesel for every 4 km of run. Passenger Tax is 20% on total takings.
The Company requires a profit of 20% on total takings. You are required to **prepare** an Annual Cost Sheet showing the Cost per passenger km and the one-way fare per passenger from Station A to B.

Question 9 - Pyq

Mr. X owns a bus which runs according to the following schedule –

Route	Distance one-way	No. of days run each month	Seating Occupancy
Delhi to Chandigarh and back, the same day	250 kms	8	90%
Delhi to Agra and back, the same day	210 kms	10	85%
Delhi to Jaipur and back, the same day	270 kms	6	100%

OTHER DETAILS:

Cost of the Bus	₹12,00,000	**Diesel Consumption – 4 kms. per litre at**	₹56 per Litre.
Salary of the Driver	₹24,000 p.m.	**Lubricant Oil (other than Diesel and Oil)**	₹10 per 100 kms.
Salary of the Conductor	₹21,000 p.m.	**Permit Fee**	₹315 p.m.
Salary of the part-time Accountant	₹5,000 p.m.	**Repairs and Maintenance**	₹1,000 p.m.
Insurance of the Bus	₹4,800 p.a.	**Depreciation of the Bus**	@ 20% p.a.
Road Tax	₹15,915 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:
(1) Delhi to Chandigarh, **(2)** Delhi to Agra, and **(3)** Delhi to Jaipur.

Cost Recovery from Students – Differential collection of Tickets Fares

Question 10 - Pyq

EPS is a Public School having 25 buses each plying in different directions for the transport of its school students. In view of the large 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 workload of the students has been so arranged that in the morning, the first trip picks up senior students and the second trip an hour later picks up 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 16 km. The school works 24 days in a month and remains closed for vacation in May and June.
The bus fee, however, is payable by the students for all the 12 months in a year.
The details of expenses for the year are as under :

Driver's Salary payable for all the 12 months	₹5,000 per month per Driver
Cleaner's Salary payable for all the 12 months (One Cleaner employed for every 5 buses)	₹3,000 per month per Cleaner
Licence Fees, Taxes, etc.	₹2,300 per bus per annum
Insurance Premium	₹15,600 per bus per annum
repairs and Maintenance	₹16,400 per bus per annum
Purchase Price of the Bus	₹16,50,000 each
Life of the Bus	16 years
Scrap Value	₹1,50,000
Diesel Cost	₹18.50 per litre

Each bus gives an average of 10 km per litre of diesel. The seating capacity of each bus is 60 students.
The seating capacity is fully occupied during the whole year.
The school follows differential bus fees based on distance travelled as under:

Students picked up and dropped within the range of Distance from the School	Bus Fee	Percentage of Students availing this facility
4 Km	25% of full	15%
8 Km	50% of full	30%
16 Km	Full	55%

Ignore interest. Since the bus fees has to be based on Average Cost, you are required to:
(1) **Prepare** a statement showing the expenses of operating a single bus and the fleet of 25 buses for a year.
(2) **Work out** Average Cost per student per month in respect of –
- **(a)** Students coming from a distance of upto 4 km from the school;
- **(b)** Students coming from a distance of upto 8 km from the school; and
- **(c)** Students coming from a distance of upto 16 km from the school.

Decision Making on Mode of Transport

Question 11 - Study Material, Pyq

A Company is considering three alternative proposals for conveyance facilities for its sales personnel who have to do considerable travelling, approximately 20,000 kilometers every year.

The proposals are as follows:

(i) Purchase and maintain its own fleet of cars. The average cost of a car is ₹6,00,000.

(ii) Allow the Executive to use his own car and reimburse expenses at the rate of ₹10 per kilometer and also bear insurance costs.

(iii) Hire cars from an agency at ₹1,80,000 per year per car. The company will have to bear costs of petrol taxes and tyres.

The following further details are available:

Petrol	₹6 per km.
repairs and Maintenance	₹0.20 per km.
Tyre	Re. 0.12 per km.
Insurance	Re. 1,200 per car per annum
Taxes	₹800 per car per annum.
Life of the car	5 years with annual mileage of 20,000 km.
Resale value	₹80,000 at the end of the fifth year

Work out the relative costs of three proposals and rank them.

Truck Question

Question 12 - Rtp

Which One Co. presently brings coal to its factory from a nearby yard and the rate paid for transportation of coal from the yard located 6 km away to the factory is ₹50 per tonne.

The total Coal to be handled in a month is 24,000 Tonnes. The company is considering a proposal to buy its own truck and has the option of buying either a 10 Tonne capacity or a 8 Tonne capacity truck.

The following information is available:

Particulars	10 tonne capacity Truck	8 Tonne capacity Truck
Purchase Price	₹10,00,000	₹8,50,000
Life (years)	5	5
Scrap Value at the end of 5 year	Nil	Nil
Km. per litre of Diesel & Oil	3	4
repairs & Maintenance p.a. per truck	₹60,000	₹48,000
Other Fixed Expenses p.a.	₹60,000	₹36,000

- Each truck will daily make 5 trips (to and fro) on an average for 24 days in a month.
- Cost of Diesel & Oils is ₹45 per litre.
- Salary of Drivers will be ₹6,000 per month – Two Drivers will be required for a Truck.
- Other Staff Expenses ₹1,08,000 p.a.

Prepare a comparative Cost Sheet on the basis of above data showing transport cost per tonne of operating 10 tonne and 8 tonne Truck at full capacity utilization. Also give your conclusions.

Fare to be Charged – Cost per Tonne – km

Question 13 - Pyq

X Ltd. distributes its goods to a regional dealer using a single lorry. The dealer premises are 40 kms away by road. The capacity of the lorry is 10 tonnes. The lorry makes the journey twice a day fully loaded on the outward journey and empty on the return journey.

The following information is available:

Diesel Consumption	: 8 km per litre
Diesel Cost	: ₹ 60 per litre
Engine Oil	: ₹ 200 per week
Driver's Wages (fixed)	: ₹ 2,500 per week
Repairs	: ₹ 600 per week
Garage Rent	: ₹ 800 per week
Cost of Lorry (excluding cost of tyres)	: ₹ 9,50,000
Life of Lorry	: 1,60,000 kms
Insurance	: ₹ 18,200 per annum
Cost of Tyres	: ₹ 52,500
Life of Tyres	: 25,000 kms

Estimated sale value of the lorry at end of its life is ₹ 1,50,000
Vehicle License Cost : ₹ 7,800 per annum
Other Overhead Cost : ₹ 41,600 per annum
The lorry operates on a 5 day week. You are required:
(i) **A statement** to show the total cost of operating the vehicle for the four week period analysed into Running cost and Fixed cost
(ii) Calculate the vehicle operating cost per km and per tonne km. (Assume 52 weeks in a year).

Question 14 - Rtp

A transport company has a fleet of four trucks of 10 tonne 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	48	4	6
2	120	1	9
3	90	2	8
4	60	4	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	1,38,150
2	1,56,700	1,35,525

The following are the details of expenses for the year under review:

Diesel	₹ 60 per litre. Each litre gives 4 km per litre of diesel on an average
Driver's salary	₹22,000 per truck per month
Licence and taxes	₹ 15,000 per annum per truck
Insurance	₹ 80,000 per annum for all the four trucks
Purchase Price per truck	₹ 30,00,000, Life 10 years. Scrap value at the end of life is ₹ 1,00,000.
Oil and sundries	₹ 525 per 100 km run.
General Overhead	₹1,10,840 per annum

The trucks operate 24 days per month on average.
(i) Prepare an Annual Cost Statement covering the fleet of four trucks.
(ii) Calculate the cost per km. run.
(iii) Determine the freight rate per tonne km. to yield a profit of 30% on freight.

Question 15 - Mtp

Harry Transport Service is a Delhi based national goods transport service provider, owning five trucks for this purpose. The cost of running and maintaining these trucks are as follows:

Particulars	Amount
Diesel cost	₹ 15 per km.
Engine oil	₹ 4,200 for every 14,000 km.
Repair and maintenance	₹ 12,000 for every 10,000 km.
Driver's salary	₹ 20,000 per truck per month
Cleaner's salary	₹ 7,000 per truck per month
Supervision and other general expenses	₹ 15,000 per month
Cost of loading of goods	₹ 200 per Metric Ton (MT)

Each truck was purchased for ₹ 20 lakhs with an estimated life of 7,20,000 km.
During the next month, it is expecting 6 bookings, the details of which are as follows :

Sl. No.	Journey	Distance (in km)	Weight - Up (in MT)	Weight - Down (in MT)
1.	Delhi to Kochi	2,700	15	7
2.	Delhi to Guwahati	1,890	13	0
3.	Delhi to Vijayawada	1,840	16	0
4.	Delhi to Varanasi	815	11	0
5.	Delhi to Asansol	1,280	13	5
6.	Delhi to Chennai	2,185	11	9
	Total	**10,710**	**79**	**21**

You are required to:
(i) CALCULATE the total absolute Ton-km for the next month.
(ii) CALCULATE the cost per ton-km

Speed , Distance & Time (Cost Per Ton – Mile)

Question 16 - Pyq

A chemical factory runs its boiler on furnace oil obtained from Indian Oil and Bharat Petroleum, whose depots are situated at a distance of 12 and 8 miles from the factory site.
Transportation of furnace oil is made by the Company's own tanker lorries of 5 Tons capacity each Onward trips are made only on full load and the lorries return empty.
The filling-in-time takes an average 40 minutes for Indian Oil and 30 minutes for Bharat Petroleum. But the emptying time in the factory is only 40 minutes for all.
From the records available, it is seen that the average speed of the company's lorries works out to 24 miles per hour. The varying operating charges average 60 paise per mile covered and fixed charges given an incidence of ₹7.50 per hour of operation.
Calculate the cost per ton-mile for each source.

Hospital Costing – Revenue Statement, BEP

Question 17 - Pyq

Divine Public Health Hospital runs only an Intensive Care Unit (ICU).
For this purpose, it has hired a building at a rent of ₹10,000 per month.
The ICU has undertaken to bear the cost of repairs and Maintenance Charges.
The ICU consists of 50 beds and 5 more beds can be safely accommodated, when the situation demands, at a charge of ₹5 per bed per day.
During a financial year, it was ascertained that only for 120 days in the year, the ICU had full capacity of 50 patients per day and for another 80 days, it had on an average 40 beds only occupied per day.
The total hire charges for the extra beds incurred for the whole year amount to ₹4000.
Expert Doctors from various places and outstations were engaged and the fees were paid on the basis of the number of patients attended and the time spent by them and on an average, it worked out to ₹20,000 per month during that financial year.
The other expenses for the year were as under:

Particulars	₹
4 Supervisors, each at a Salary of	₹500 per month
8 Nurses, each at a Salary of	₹300 per month
4 Ward Boys each at a Salary of	₹150 per month
repairs & Maintenance	₹7200
Cost of Food supplied to patients	₹88,000
Laundry Charges	₹56,000
Medicines Supplied	₹70,000
Cost of Oxygen, X-Ray, etc. other than directly borne for treatment of Patients	₹1,08,000
Janitor & Other Services from them	₹25,000
Administration Charges allocated to the ICU	₹99,100

The ICU has recovered an overall amount of ₹100 per day on an average from each patient.
The cost of Janitor and Other services is variable as it is related to the number of patient-days.
Prepare a Revenue statement for the above financial year and indicate the profit per patient day made by the ICU. Also work out the number of patient days required by the unit to break-even.

Service Costing and Decision Making - Airlines

Question 18 - Rtp

Always Best-Carriers (ABC) Airways owns a single jet aircraft and operates between Bangalore and New Delhi. Flights leave Bangalore on Mondays and Thursdays and depart from New Delhi on Wednesdays and Saturdays. ABC cannot afford any more flights between Bangalore and New Delhi.
An analyst has collected the following information:

Seating Capacity per Plane	360
Average passengers per flight	100
Flights per week	4
Flights per year	208

Average one-way fare	₹10,000
Variable Fuel Costs	₹1,40,000 per flight
Food Service to passengers (not charged to passengers)	₹400 per passenger
Commission paid by ABC to Travel Agents – All booking through agents only	8% of fare
Fixed Expenses to each flight:	
Annual Lease Costs	₹5,30,000 per flight
Ground Services, i.e. Maintenance, Check-in, Baggage Handling, etc.	₹70,000 per flight
Salaries of Flight Crew	₹40,000 per flight

For the sake of simplicity, assume that fuel costs are unaffected by the actual number of passengers on a flight.

(1) What is the Operating Income that ABC makes on each one-way flight between Bangalore and New Delhi?

(2) ABC's Market Research Department indicates that lowering the average one-way fare to ₹9,600 will increase the average number of passengers per flight to 106. **Should** ABC lower its fare?

(3) Travel India, a Tour Operator, approaches ABC to charter its jet aircraft twice each month, first to take Travel India International tourists from Bangalore to New Delhi and then bring them back from New Delhi to Bangalore. If ABC accepts the offer, it can only 184 (208 minus 24) of its own flights each year.

The terms of the charter are :

(a) For each one-way flight Travel India will Pay ABC ₹7,50,000 to charter the plane and to use its flight crew and ground service staff. **(b)** Travel India will pay for fuel costs. **(c)** Travel India will pay all food costs.

On purely financial considerations, **should** ABC accept the offer from Travel India?

Toll Road

Question 19 - Study Material, Rtp

SLS Infrastructure built and operates 110 k.m. highway on the basis of Build-Operate-Transfer (BOT) for a period of 25 years.

A traffic assessment carried out to estimate the traffic flow per day shows the following figures:

S.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:

S.No.	Activities	Amount (₹ 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, underpass, 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	**1,14,495.25**

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:

S.No.	Type of vehicle	
1.	**Two wheelers**	5%
2.	**Car and SUVs**	20%
3.	**Bus and LCV**	30%
4.	**Heavy commercial vehicles**	45%

Required:

(i) CALCULATE the total project cost per day of concession period.

(ii) COMPUTE toll fee to be charged 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]

Insurance Services

Question 20 - Study Material

Sanziet Lifecare Ltd. operates in the life insurance business. Last year it 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:

Particulars	₹
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 servicing 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	16,20,000

Number of policy sold : 528

Total insured value of policies : ₹ 1,320 crore

(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 and (d) Support functions.

(ii) CALCULATE cost per policy.

(iii) CALCULATE cost per rupee of insured value.

IT Project

Question 21 - Study Material

Following are the data pertaining to Infotech Pvt. Ltd, for the year 2008-09

Particulars	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 the Project Manager spent 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.

Thermal Power Plant

Question 22 - Study Material

From the following data pertaining to the year 1997-98, **prepare** a cost sheet showing the cost of electricity generated per k.w.h. by Chambal Thermal Power Station.

Total units generated	10,00,000 k.w.h
	₹
Operating labour	50,000
Repairs & maintenance	50,000
Lubricants, spares and stores	40,000
Plant supervision	30,000
Administration overheads	20,000

Coal consumed per kwh for the year is 2.5 k.g. @ ₹0.02 per kg.

Depreciation charges @ 5% on capital cost of ₹2,00,000.

Loan application

Question 23 - Study Material

The loan department of a bank performs several functions in addition to home loan application processing tasks. It is estimated that 25% of the overhead costs of the loan department are applicable to the processing of home-loan applications.

The following information is given concerning the processing of a loan application:

Particulars	(₹)
Loan processor monthly salary: (4 employees @ ₹60,000 each)	2,40,000
Loan department overhead costs (monthly)	
Chief loan officer's salary	75,000
Telephone expenses	7,500
Depreciation Building	28,000
Legal advice	24,000
Advertising	40,000
Miscellaneous	6,500
Total overhead costs	**1,81,000**

You are required to **COMPUTE** the cost of processing home loan applications on the assumption that five hundred home loan applications are processed each month.

Hotel Service – Various Types of Rooms – Rent to be collected

Question 24 - Pyq, Study Material

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.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 are as follows:

Staff Salaries	₹14,25,000	**Repairs and Renovation**	₹1,23,500
Room Attendants' Wages	₹4,50,000	**Laundry Charges**	₹80,500
Lighting, Heating and Power	₹2,15,000	**Interior Decoration**	₹74,000
		Sundries	₹1,53,000

Provide Profit at 20% on total taking and assume 360 days in a year. **Find** room rent for each type of room.

Question 25 - Study Material

A lodging home is being run in a small hill station with 100 single rooms. The home offers concessional rates during six off- season 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. [Assume a month to be of 30 days].

The following are the cost estimates and other details for the year ending on 31st March 2007.

(i) Occupancy during the season is 80% while in the off- season it is 40% only.

(ii) Total investment in the home is ₹200 lakhs of which 80% relate to buildings and balance for furniture and equipment.

(iii) Expenses:

- Staff salary [Excluding room attendants] : ₹5,50,000
- repairs to building : ₹2,61,000
- Laundry charges : ₹80, 000
- Interior : ₹1,75,000
- Miscellaneous expenses : ₹1,90,800

(iv) Annual depreciation is to be provided for buildings @ 5% and for furniture and equipment @ 15% on a straight-line basis.

(v) Room attendants are paid ₹10 per room day on the basis of occupancy of the rooms in a month.

(vi) Monthly lighting charges are ₹120 per room, except in four months in winter when it is ₹30 per room.

You are required to **WORK OUT** the room rent chargeable per day both during the season and the off-season months on the basis of the foregoing information.

Ascertainment of Cost Per Student – Service Costing

Question 26 - Rtp

A Professional Institute has organized a correspondence course for the benefit of its students who have to undergo two levels of education – Inter and Final, the latter being open only to those who pass the former. The number of students involved per annum is 12,500 and 5,000 for Inter and Final Levels respectively.

The Fixed Expenses for two courses taken together are:

Salaries		**Rent, Lighting etc.**	₹2,45,000
– Academic	₹13,44,000	**Postage, Telephone, etc.**	₹1,75,000
– General	₹3,15,000	**Stationery**	₹1,96,000

The following further details are available:

Particulars	Inter	Final
Number of Study papers	100	125
Number of pages per Study Paper	50	60
Cost per Page (paise)	8	10
Packing and Forwarding per set	₹125	₹200
Number of annual papers to be submitted	8	10
Cost of correcting and forwarding one answer paper	₹50	₹50

Ascertain the cost of imparting tuition per student for the two courses.

[Note: Apportion all Fixed Costs on the basis of number of students].

Library Services – Cost and Revenue Analysis

Question 27 - Pyq

A Club runs a library for its members. As part of club policy, an annual subsidy of upto ₹5 per member including cost of books May be given from the general funds of the club.

The management of the club has provided the following figures for its library department:

Number of Old Books	50,000
Number of Library members	1,000
Library fee per member per month	₹100
Fine for late return of books day	Re. 1 per book
Average No. of books returned late per month	500
Average No. of days each book is returned late	5 days
Cost of new books	₹ 300 per book
Number of books purchased per year	1200 books
Cost of maintenance per old book per year	₹10

Staff details	No.	Per Employee Salary per month (₹)
Librarian	1	10,000
Assistant Librarian	3	7,000
Clerk	1	4,000

You are required to **calculate:**

(i) The cost of maintaining the library per year excluding the cost of new books;

(ii) The cost incurred per member per month on the library excluding cost of new books; and

(iii) The net income from the library per year.

(iv) If the club follows a policy that all new books must be purchased out of library revenue :

(a) What is the maximum number of books that can be purchased per year and

(b) How many excess books are being purchased by the library per year?

Also, **comment** on the subsidy policy of the club.

Standard Costing

Direct Material Variances

Question 1 - Rtp, Study Material

A manufacturing concern which has adopted Standard Costing furnishes the following information:

Standard Quantity of Materials for 70 kg of Finished Products : 100 kg.
Standard Price of Materials : ₹1 per kg.
Actual Output : 2,10,000 kg.
Materials used : 2,80,000 kg.
Actual Cost of Materials : ₹2,52,000

Calculate – **(a)** Materials Usage Variance, **(b)** Material Price Variance and **(c)** Material Cost Variance.

Question 2 - Pyq

UV Ltd. presents the following information for November, 2008:

Budgeted Production of Product P : 200 units.
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.

Question 3 - Pyq

Following are the details of the product Phomex for the month of April 2013:

Standard quantity of material required per unit : 5kg
Actual output : 1,000 units
Actual cost of materials used : ₹7,14,000
Material price variance : ₹51,000 (Fav)

Actual price per kg of material is found to be less than the 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

Question 4 - Study Material

J.K. Ltd. manufactures NXE by mixing three raw materials. For every batch of 100 kgs. of NXE, 125 kgs. of raw materials are used. In April 2008, 60 batches were prepared to produce an output of 5,600 kgs. of NXE.
The standard and actual Particulars for April, 2008 are as follows:

Raw Materials	Standard		Actual		Quantity of Raw Materials Purchased
	Mix	Price per kg.	Mix	Price per kg.	
	%	₹	%	₹	Kg.
A	50	20	60	21	5,000
B	30	10	20	8	2,000
C	20	5	20	6	1,200

Calculate all variances.

Question 5 - Study Material, Pyq

Gemini Chemical Industries provide the following information from their records:
For making 10 kgs. of GEMCO, the standard material requirements is:

Material	Quantity (Kgs.)	Rate per kg. (₹)
A	8	6.00
B	4	4.00

During April 1988, 1,000 kg of GEMCO were produced. The actual consumption of materials is as under:

Material	Quantity	Rate per kg. (₹)
A	750	7.00
B	500	5.00

Calculate: (a) Material Cost Variance **(b)** Material Price Variance **(c)** Material Usage Variance **(d)** Material Mix Variance **(e)** Material Yield Variance.

Question 6 - Pyq

Eskay Ltd. produces an article by blending two basic raw materials.

The following standards have been set up for raw materials:

Material	Standard Mix	Standard Price per kg.
A	40%	₹4.00
B	60%	₹3.00

The standard loss in processing is 15%. During September 1990, the company produced 1,700 kg. of finished output.

The position of stock and purchases for the month of September, 1990 is as under:

Material	Stock on 1.9.90	Stock on 30.9.90	Purchased during September, 90	
	Kg.	Kg.	Kg.	Cost (₹)
A	35	5	800	3,400
B	40	50	1,200	3,000

Calculate the following variances:

(a) Material price variance **(b)** Material usage variance **(c)** Material yield variance

(d) Material mix variance **(e)** Total material cost variance.

Assume first in first out method for the issue of material. The opening stock is to be valued at standard price.

Computation of Missing Data – Reverse Working

Question 7 - Pyq

Compute the missing data indicated by the Question Marks from the following:

Particulars	A	B
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.

Question 8 -

One Kilogram of Product 'K' requires two chemicals A and B.

The following were the details of Product 'K' for the month of June 2007:

(a) Standard Mix Chemical 'A' 50% and chemical 'B' 50%.

(b) Standard Price per kilogram of Chemical 'A' ₹12 and Chemical 'B' ₹15.

(c) Actual Quantity of Chemical 'B' 70 kilograms.

(d) Actual Price per kilogram of Chemical 'A' ₹15.

(e) Standard Normal Loss 10% of Total Input.

(f) Materials Cost Variance total ₹650 Adverse.

(g) Materials Yield Variance total ₹135 Adverse.

(h) Actual Output is 90 kg.

You are required to **calculate**:

(1) Material Mix Variance **(2)** Material Usage Variance **(3)** Material Price Variance

(4) Actual Loss of Actual Input **(5)** Actual Input of Chemical 'A' **(6)** Actual Price per kilogram of Chemical 'B'.

Question 9 - Study Material

Following data is extracted from the books of XYZ Ltd. for the month of January, 2020:

(i) Estimation-

Particulars	Quantity (kg.)	Price (₹)	Amount (₹)
Material- A	800	?	--
Material-B	600	30.00	18,000

Normal loss was expected to be 10% of total input materials.

(ii) Actuals- 1480 kg of output produced.

Particulars	Quantity (kg.)	Price (₹)	Amount (₹)
Material- A	900	?	--
Material-B	?	32.50	--

	59,825

(iii) Other Information:
Material Cost Variance : ₹3,625 (F)
Material Price Variance : ₹175 (F)
You are required to **CALCULATE**:
(i) Standard Price of Material-A; **(ii)** Actual Quantity of Material-B; **(iii)** Actual Price of Material-A; **(iv)** Revised standard quantity of Material-A and Material-B; and **(v)** Material Mix Variance.

Question 10 - Pyq
Following details relating to product X during the month of April, 2009 are available:
Standard cost per unit of X:
Materials : 50 kg @ ₹40/kg
Actual production : 100 units
Actual material cost : ₹42/kg
Material price variance : ₹9,800 (Adverse)
Material usage variance : ₹4,000 (Favourable)
Calculate the actual quantity of material used during the month April, 2009.

Direct Labour Variances

Question 11.
A gang of workers usually consists of 10 men, 5 women and 5 boys in a factory. They are paid at standard hourly rates of ₹1.25, Re. 0.80 and Re. 0.70 respectively. In a normal working week of 40 hours the gang is expected to produce 1,000 units of output.
In a certain week, the gang consisted of 13 men, 4 women and 3 boys. Actual wages were paid at the rates of ₹1.20, Re. 0.85 and Re. 0.65 respectively. Two hours were lost due to abnormal idle time and 960 units of output were produced.
Calculate various Labour Variances.

Question 12 - Pyq
The standard labour employment and the actual labour engaged in a 40 hours week for a job are as under:

Category of Worker	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:
(i) Labour Cost Variance **(ii)** Labour Efficiency Variance **(iii)** Labour Idle Time Variance.

Question 13 - Pyq
The standard output of Product 'EXE' is 25 units per hour in the manufacturing department of a company employing 100 workers. The standard wage rate per labour hour is ₹6.
In a 42 hour week, the department produced 1,040 units of 'EXE' despite 5% of the time paid was lost due to an abnormal reason.
The hourly wage rate actually paid was ₹6.20, ₹6 and ₹5.70 respectively to 10, 30 and 60 of the workers.
Compute labour cost, rate, efficiency & idle time variances.

Question 14 - Pyq
Following information relates to labour of KAY PEE Ltd.:

Particulars	Skilled	Semi-skilled	Unskilled	Total
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 the 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

III. Variable Overhead Variances

Question 15 - Pyq

The following data is given:

	Budget	Actual
Production (in units)	400	360
Man hours to produce above	8,000	7,000
Variable overheads (in ₹)	10,000	9,150

The standard time to produce one unit of the product is 20 hours.
Calculate variable overhead variances.

Question 16 - Study Material

From the following information of G Ltd., **CALCULATE (i)** Variable Overhead Cost Variance; **(ii)** Variable Overhead Expenditure Variance and **(iii)** Variable Overhead Efficiency Variance:

Budgeted production : 6,000 units
Budgeted variable overhead : ₹1,20,000
Standard time for one unit of output : 2 hours
Actual production : 5,900 units
Actual overhead incurred : ₹1,22,000
Actual hours worked : 11,600 hours

Question 17 - Study Material

Paras Synthetics uses Standard costing system in manufacturing of its product 'Star 95 Mask'.
The details are as follows:

- **Direct Material 0.50 Meter @ ₹60 per meter** : ₹30
- **Direct Labour 1 hour @ ₹20 per hour** : ₹20
- **Variable overhead 1 hour @ ₹10 per hour** : ₹10

Total : ₹60

During the month of August, 2020 10,000 units of 'Star 95 Mask' were manufactured.
Details are as follows:

- **Direct material consumed** : 5700 mete₹@ ₹58 per meter
- **Direct labour hours ? @ ?** : ₹2,24,400
- **Variable overhead incurred** : ₹1,12,200

Variable overhead efficiency variance is ₹2,000 A. Variable overheads are based on Direct Labour hours.
You are required to **calculate** the missing data and all the relevant Variances.

IV. Fixed Overhead Variances

Question 18 - Pyq, Study Material

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, 1998, 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:
(i) Cost Variance **(ii)** Efficiency Variance **(iii)** Capacity Variance **(iv)** Calendar Variance
(v) Expense Variance **(vi)** Volume Variance **(vii)** Total fixed overheads Variance.

Question 19 - Pyq, Study Material

S. LTD. has furnished you the following data:

Particulars	Budget	Actual
Number of working days	25	27
Production in units	20,000	22,000
Fixed overheads	₹30,000	₹31,000

Budgeted fixed overhead rate is ₹1 per hour. During the year, the actual hours worked were 31,500.

Calculate the following variances:
(1) Fixed Overhead Cost Variance **(2)** Fixed Overhead Expenditure Variance **(3)** Fixed Overhead Volume Variance **(4)** Fixed Overhead Efficiency Variance **(5)** Fixed Overhead Capacity Variance
(6) Fixed Overhead Calendar Variance **(7)** Fixed Overhead Revised Capacity Variance.

Question 20 - Study Material

The cost detail of J&G Ltd. for the month of September, 2020 is as follows:

Particulars	Budgeted	Actual
Fixed overhead	₹15,00,000	₹15,60,000
Units of Production	7,500	7,800
Standard time for one unit	2 hours	-
Actual hours worked	-	16,000 hours

CALCULATE (i) Fixed Overhead Cost Variance **(ii)** Fixed Overhead Expenditure Variance **(iii)** Fixed Overhead Volume Variance **(iv)** Fixed Overhead Efficiency Variance and **(v)** Fixed Overhead Capacity Variance.

Variable and Fixed Overhead Variances Mixed Questions

Question 21 - Pyq

XYZ Co. Ltd. provides the following information:

Particulars	Standard	Actual
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 variances:
(a) Variable Overhead Variance
(b) Fixed Overhead Variance
  (i) Expenditure variance
  (ii) Volume variance

Question 22 - Study Material

The overhead expense budget for a factory producing to a capacity of 200 units per month is as follows:

Description of overhead	Fixed cost per unit in ₹	Variable cost per unit in ₹	Total cost per unit in ₹
Power and fuel	1,000	500	1,500
Repair and maintenance	500	250	750
Printing and stationery	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 stationery	1,75,000
Other overheads	3,75,000

You are required to **CALCULATE** the Overhead volume variance and the overhead expense variances.

Question 23 - Pyq

In a manufacturing company the standard units of production for the year were fixed at 1,20,000 units and overhead expenditures were estimated to be as follows:

Particulars	Amount (₹)
Fixed	12,00,000
Semi-variable (60% expenses are of fixed nature and 40% are of variable nature)	1,80,000
Variable	6,00,000

Actual production during the month of April, 2021 was 8,000 units. Each month has 20 working days. During the month there was one public holiday.

The actual overheads were as follows:

Particulars	Amount (₹)
Fixed	1,10,000
Semi-variable (60% expenses are of fixed nature and 40% are of variable nature)	19,200
Variable	48,000

You are required to **calculate** the following variances for the month of April 2021:

(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

Question 24 - Pyq

In a Factory, the standard units of production for the year was fixed at 1,20,000 units.
Actual Production during April was 8,000 units. Each month has 20 working days.
During the month of April, there was one statutory holiday.
The estimated and actual Overheads were as follows:

Overheads	Estimated	Actual
Fixed	12,000	1,190
Variable	6,000	480
Semi Variable	1,800	192

Semi-Variable Charges include 60% expenses of fixed nature and 40% of variable nature.
Calculate the Expenditure, Volume and Calendar variances.

Question 25 - Pyq

SJ Ltd. has furnished the following information:
Standard overhead absorption rate per unit : 20
Standard rate per hour : 4
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:
(i) Variable overhead efficiency and expenditure variance
(ii) Fixed overhead efficiency and capacity variance.

All Variances

Question 26 -

Sun Ltd turns out only one article, the prime cost standards for which have been established as follows:

Particulars	Per Completed Piece
Material 5 lbs. @ ₹4.20	₹21
Labour 3 Hour @ ₹3.00	₹9

The Production schedule for the month of July 1998 required completion of 5,000 pieces. However, 5,120 pieces were actually completed.
Purchases for the month of July 1998 amount to 30,000 lbs. of material at the total invoice price of ₹1,35,000.
Production records for the month of July, 1998 showed the following actual results:

Material requisitioned and used	25,700 lbs
Direct labour 3 hours 15,150 hours	₹48,480

Calculate appropriate Material and Labour Variances.

Question 27 - Study Material, Pyq

The following standards have been set to manufacture a product:

Particulars	Amount (₹)
Direct Materials:	
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 hours @ ₹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 C at ₹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 the standard rate.
Calculate Materials Cost, Price and Usage Variances and Labour Cost, Rate and Efficiency Variances.

Question 28 - Rtp
LM Limited produces a product 'SX4' which is sold in 10 Kg. packet.
The standard cost card per packet of 'SX4' is as follows:

Particulars	₹
Direct materials 10 kg @ ₹90 per kg	900
Direct labour 8 hours @ ₹80 per hour	640
Variable Overhead 8 hours @ ₹20 per hour	160
Fixed Overhead	250
	1,950

Budgeted output for a quarter of a year was 10,000 Kg. Actual output is 9,000 Kg.
Actual costs for this quarter are as follows:

Particulars	₹
Direct Materials 8,900 Kg @ ₹92 per Kg.	8,18,800
Direct Labour 7,000 hours @ ₹84 per hour	5,88,000
Variable Overhead incurred	1,40,000
Fixed Overhead incurred	2,60,000

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

Standard Cost Card
Question 29 - Pyq
The following information is available from the cost records of a Company for February, 1993:
Materials purchased: 20,000 pieces : ₹88,000
Materials consumed: 19,000 pieces
Actual wages paid for 4,950 hours : ₹24,750
Factory Overheads Incurred : ₹44,000
Factory Overheads Budgeted : ₹40,000
Units produced : 1,800
Standard Rates and prices are:
Direct Material Rates : ₹4 per piece.
Standard Input : 10 pieces per unit.
Direct Labour Rate : ₹4 per hour.
Standard requirement : 2.5 hours per unit.
Overhead : ₹8 per labour hour.
Required:
(a) Show the Standard Cost Card. **(b) Compute** all material, labour and overhead variances for February, 1993.

Margin of safety topics
Question 30 - Pyq
TQM Ltd. has furnished the following information for the month ending 30th June, 2007:

Particulars	Master Budget	Actual	Variance

Units Produced and sold	80,000	72,000	
Sales (₹)	3,20,000	2,80,000	40,000 (A)
Direct Material (₹)	80,000	73,600	6,400 (F)
Direct Wages (₹)	1,20,000	1,04,800	15,200 (F)
Variable Overheads (₹)	40,000	37,600	2,400 (F)
Fixed Overhead (₹)	40,000	39,200	800 (F)
Total Cost	**2,80,000**	**2,55,200**	

The Standard costs of the products are as follows:

Particulars	Per unit (In ₹)
Direct Materials (1 kg. at the rate of Re. 1 per kg.)	1.00
Direct Wages (1 hour at the rate of ₹1.50)	1.50
Variable Overheads (1 hour at the rate of Re. 0.50)	0.50

Actual results for the month showed that 78,400 kg. of material were used and 70,400 labour hours were recorded.

Required:

(i) Prepare Flexible Budget for the month and compare it with actual results.

(ii) Calculate Material, Labour, Sales Price, Variable Overhead and Fixed Overhead Expenditure Variances.

MARGINAL COSTING

Question 1 - Pyq

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.

Question 2 - Study Material

(a) 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.
(b) X Ltd. has earned a contribution of ₹2,00,000 and net profit of ₹1,50,000 on sales of ₹ 8,00,000. What is its margin of safety?

Question 3 - Pyq

Following details are related to M/s XYZ Limited:

Total Cost	: ₹ 56,78,000
Margin of Safety	: ₹ 48,18,450
Margin of safety (in units)	: 6,500 units
Break even sales	: 3,500 units

You are required to **calculate**:
(i) Profit **(ii)** Profit Volume Ratio **(iii)** Break even sales (in ₹) **(iv)** Fixed costs

Question 4 - Pyq

The following information pertains to ZB Limited for the year:

Profit volume ratio	30%
Margin of Safety (as % of total sales)	25%
Fixed Cost	₹12,60,000

You are required to **calculate**:
(a) Break even sales value (₹),
(b) Total sales value (₹) at present,
(c) Proposed sales value (₹) if company wants to earn the present profit after reduction of 10% in fixed cost,
(d) Sales in value (₹) to be made to earn a profit of 20% on sales assuming fixed cost remains unchanged,
(e) New Margin of Safety if the sales value at present as computed in (b) decreased by 12.5%.

Question 5 - Study Material

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 amounting to ₹ 35,00,000 (including depreciation of ₹ 15,00,000). There are no beginning or ending inventories. **COMPUTE** break even sales level quantity and **cash break even sales** level quantity.

Question 6 - Pyq

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 Costs ₹ 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 are no beginning or ending inventories.
Required:
(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 to achieve an **After-Tax Income (PAT)** of ₹ 2,50,000. Assume 40% Corporate Income Tax Rate.

Question 7 - Pyq

G Ltd produces a product, which has a Variable Cost of Materials – ₹ 40, Labour – ₹ 10 and Overheads of ₹ 4. The Selling Price is ₹ 90 per unit. Sales for the current year is expected to be 15,000 units and Fixed Overheads are ₹ 1,40,000.

Under a wage agreement, an increase of 10% is payable to all direct workers from the beginning of the forthcoming year, while Material Cost is expected to increase by 7.5%, Variable Overhead by 5% and Fixed Overhead by 3%.
From the above, you are required to **calculate** the following –
(1) Present PV Ratio, Break-Even Point, Margin of Safety and Profits.
(2) Sales required to earn a Profit of ₹ 7,50,000, if the current cost and price structure continues.
(3) Revised PV Ratio and profits of forthcoming year if the current sales quantity and price were maintained.
(4) New Selling Price if the Current PV Ratio is to be maintained in the forthcoming year.
(5) Sales Quantity in the forthcoming year, to yield the same as present profits, if the Sale Price remains ₹ 90.

Question 8 - Study Material
PQR Ltd. has furnished the following data for the two years:

Particulars	2003	2004
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 20X4 due to the restructuring process.
The company could maintain its sales quantity level of 20X3 in 20X4 by reducing selling price.
You are required to **CALCULATE** the following:
(i) Sales for 2004 in Value, **(ii)** Fixed cost for 2004, **(iii)** Break-even sales for 2004 in Value.

Question 9 - Rtp
A Ltd. manufactures and sells its product R-9. The following figures have been collected from cost records of last year for the product R-9:

Elements of Cost	Variable Cost portion	Fixed Cost
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
Administration Overhead	2% of Cost of Goods Sold	₹ 71,000
Selling & Distribution Overhead	4% of Cost of Sales	₹ 68,000

Last Year 5,000 units were sold at ₹ 185 per unit. From the given **DETERMINE** the followings:
(i) Break-even Sales (in rupees) **(ii)** Profit earned during last year **(iii)** Margin of safety (in %)
(iv) Profit if the sales were 10% less than the actual sales.
(Assume that Administration Overhead is related with production activity)

Question 10 - Study Material
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 F 1 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 indifference 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 buildup as whatever is produced is sold
Required **FIND OUT** the values F1 and F2 and units contributions of X and Y.

Question 11 - Pyq
During a particular period ABC Ltd has furnished the following data:
Sales ₹ 10,00,000, Contribution to sales ratio 37% and 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**:
(i) Revised Fixed Cost. **(ii)** Revised Sales and **(iii)** New Break-Even Point.

Question 12 - Study Material
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:
(i) An increase in the physical sales volume;
(ii) An increase in the fixed cost;
(iii) A decrease in the variable cost per unit;
(iv) A decrease in the contribution margin;

(v) An increase in selling price per unit;
(vi) A decrease in the fixed cost;
(vii) A 10% increase in both selling price and variable cost per unit;
(viii) A 10% increase in the selling price per unit and 10% decrease in the physical sales volume;
(ix) A 50% increase in the variable cost per unit and 50% decrease in the fixed cost.
(x) An increase in the angle of incidence.

Question 13 - Study Material

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)

	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 costs. **(ii)** break-even sales.

Shut Down Point

Question 14 - Pyq

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 the 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.
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:
(i) Whether the Noida plant, be shut down? **(ii)** Find the shut-down point in units.

Question 15 - Study Material

Mr. X has ₹ 2,00,000 investments in his business firm. He wants a 15 percent return on his money. From an analysis of recent cost figures, he finds that his variable cost of operating is 60 percent of sales, his fixed costs are ₹ 80,000 per year. Show **COMPUTATIONS** to answer the following questions:
(i) What sales volume must be obtained to break even?
(ii) What sales volume must be obtained to get 15 percent return on investment?
(iii) 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?

Two level activity

Question 16 - Study Material

You are given the following data:

	Sales	Profits
Year 20X8	₹ 1,20,000	8,000
Year 20X9	₹ 1,40,000	13,000

FIND OUT –
(i) P/V ratio, **(ii)** B.E. Point, **(iii)** Profit when sales are ₹1,80,000, **(iv)** Sales required earn a profit of ₹12,000, **(v)** Margin of safety in year 20X9.

Question 17 - Pyq

SHA Limited provides the following trading results:

Year	Sale (₹)	Profit
2012 – 13	25,00,000	10% of sale
2013 – 14	20,00,000	8% of sale

You are required to **calculate**:
(i) Fixed Cost **(ii)** Break Even Point **(iii)** Amount of profit, if sale is ₹ 30,00,000
(iv) Sale, when desired profit is ₹ 4,75,000 **(v)** Margin of safety at a profit of ₹2,70,000

Semi Variable Cost

Question 18 - Pyq

PQ Ltd. reports the following cost structure at two capacity levels:

Particulars	2,000 Units (100% capacity)	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?

BEP Multi Product (Quantity ratio)

Question 19 - Pyq

A Company sells two Products, J and K. The Sales Mix is 4 units of J and 3 units of K. The Contribution Margin per unit is ₹ 40 for J and ₹ 20 for K. Fixed Costs are ₹ 6,16,000 per month. **Compute** the Break-Even Point.

Question 20 - Study Material

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.

(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. **DETERMINE** 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.

Question 21 - Pyq

Raj Ltd. manufactures three Products X, Y and Z. The unit Selling Prices of these Products are ₹ 100, ₹ 160 and ₹ 75 respectively. The corresponding unit variable costs are ₹ 50, ₹ 80 and ₹ 30. The proportions (quantity wise) in which these products are manufactured and sold are 20%, 30% and 50% respectively. The total fixed costs are ₹ 14,80,000.

Calculate Overall Break-Even Quantity and the product wise break up of such quantity.

BEP Multi Product (Value ratio)

Question 22 - Study Material

Prisha Limited manufactures three different products and the following information has been collected from the books of accounts:

	Products		
	A	B	C
Sales Mix	40%	35%	25%
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 C and replace it with Product E, when the following results are anticipated:

	Products		
	A	B	E
Sales Mix	45%	30%	25%
Selling Price	₹ 300	₹ 400	₹ 300
Variable Cost	₹ 150	₹ 200	₹ 150
Total Fixed Costs			**₹ 18,00,000**
Total Sales			**₹ 64,00,000**

Required:

(i) CALCULATE the total contribution to sales ratio and present break-even sales at existing sales mix.

(ii) CALCULATE the total contribution to sales ratio and present break-even sales at proposed sales mix.

(iii) STATE whether the proposed sales mix is accepted or not?

Merging Plant

Question 23 - Pyq

Two manufacturing companies A and B are planning to merge. The details are as follows:

Particulars	A	B
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**:

(i) Break-Even sales of the merged plant and the capacity utilization at that stage.

(ii) Profitability of the merged plant at 80% capacity utilization.

(iii) Sales Turnover of the merged plant to earn a profit of ₹ 60,00,000.

(iv) 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.

Indifference point

Question 24 - Pyq

Top-tech, a manufacturing company, is presently evaluating two possible machines for the manufacture of superior Pen-drives.

The following information is available:

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:

(i) Recommend which machine should be chosen?

(ii) 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?

Question 25 - Pyq

XYZ Company has an option to buy any one of the two machines N or M to manufacture its unique industrial component P. Each of the machines have the capacity to produce the same quality of component P and are almost identical except for the fact that they are being manufactured by different manufacturers. The specifications for each Machine are:

Machine M: It has the capacity to produce 50,000 components of P per annum, the fixed costs being ₹1,50,000 and could generate a profit of ₹2,25,000 on the sale of all the components produced.

Machine N: It is also having the equal capacity to produce the same number of components as that of Machine M per annum and all the components thus produced could be sold in the open market without any difficulty. Fixed cost of Machine N is ₹60,000 less than that of Machine M and yields a profit of ₹1,60,000 by selling all the components that are produced.

The selling price of each component of P is ₹100.

Required:

(i) Calculate break even sales in value for each machine.

(ii) Calculate sales levels in units where both the machines are equally profitable.

Key Factor / Limiting Factor

Question 26 - Pyq

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
Direct Materials ₹ (per unit)	160	120	80
Variable Overheads ₹ (per unit)	8	20	12

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:
(i) Identify the best possible product mix of Moon Ltd.
(ii) Calculate the total contribution from the best possible product mix.

Question 27 - Study Material

X Ltd. supplies spare parts to an aircraft 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:

Particulars	Part A	Part B
Per unit	1.6 kgs	1.6 kgs
Alloy usage	0.6 hrs	0.25 hrs
Machine Time: Machine A	0.5 hrs	0.55 hrs
Machine Time: Machine B	145	115
Target Price (₹)	Machine A 4,000 hrs	
Total Hours available	Machine B 4,500 hrs	

Alloy available is 13,000 kgs. @ ₹ 12.50 per kg.
Variable overheads per machine Hours - Machine A: ₹ 80; Machine B: ₹ 100
Required:
(i) IDENTIFY the spare part which will optimize contribution at the offered price.
(ii) If Y Ltd. reduces target price by 10% and offers ₹ 60 per hour of unutilized machine hour, **CALCULATE** the total contribution from the spare part identified above?

Make or Buy

Question 28 - Mtp

A company manufactures four products.
The annual demand for products, selling prices and variable production costs are as follows:

Product	P	Q	R	S
Demand (Units)	1,20,000	1,86,000	1,71,000	99,000
	₹	₹	₹	₹
Selling price/unit	23.88	28.68	55.08	47.88
Direct Material/Unit	10.08	13.20	30.48	24.96
Direct Labour/unit	4.08	4.08	6.72	6.36
Variable overheads/unit	1.44	1.44	2.40	2.16

Other data:
(i) The variable overheads are absorbed on a machine hour basis at a rate of ₹ 1.20 per machine hour.
(ii) Fixed overheads total ₹ 46,84,000 per annum.
(iii) Production capacity available 8,15,000 machine hours per annum.
(iv) Products P, Q and R can be bought-in at ₹ 21.36 per unit, ₹ 24 per unit and ₹ 48 per unit respectively.
You are required to **calculate** the Best product mix and Profitability statement for the year.

Marginal vs Absorption

Question 29 - Pyq

Mega Company has just completed its first year of operations.

The unit costs on a normal costing basis are as under:

Direct Material 4 kg at ₹ 4	: ₹ 16.00
Direct Labour 3 Hours at ₹ 18	: ₹ 54.00
Variable Overhead 3 Hours at ₹ 4	: ₹ 12.00
Fixed Overhead 3 Hours at ₹ 6	: ₹ 18.00
Total	**₹ 100.00**

Selling and administrative Costs:

Variable	: ₹ 20 per unit
Fixed	: ₹ 7,60,000

During the year, the Company has the following activity:

Units Produced	: 24,000
Units Sold	: 21,500
Units Selling Price	: ₹ 168
Direct Labour Hours worked	: 72,000

Actual Fixed Overhead was ₹ 48,000 less than the Budgeted Fixed Overhead. Budgeted Variable Overhead was ₹ 20,000 less than the Actual Variable Overhead. The Company used an expected actual activity level of 72,000 Direct Labour Hours to compute the predetermined overhead rates.

(i) Compute the Unit Cost and Total Income under – (a) Absorption Costing and (b) Marginal Costing and also compute the Under or Over Absorption of Overhead.

(ii) Reconcile the difference between the Total Income under Absorption and Marginal Costing.

Question 30 - Pyq

ABC Ltd. can produce 4,00,000 units of a product per annum at 100% capacity.

The Variable Production Costs are ₹ 40 per unit and the Variable Selling Expenses are ₹ 12 per sold unit.

The budgeted Fixed Production Expenses were ₹ 24,00,000 per annum and the Fixed Selling Expenses were ₹ 16,00,000.

During the year ended 31st March, 2008, the Company worked at 80% of its capacity.

The operating data for the year are as follows:

Production	: 3,20,000 units
Sales at ₹ 80 per unit	: 3,10,000 units
Opening Stock of Finished Goods	: 40,000 units

Fixed Production Expenses are absorbed on the basis of capacity and Fixed Selling Expenses are recovered on the basis of period.

You are required to **prepare** Statements of Cost and Profit for the year ending 31st March, 2008:

(i) On the basis of Marginal Costing **(ii)** On the basis of Absorption Costing.

Decision Making

Question 31 - Pyq

The following data relate to a manufacturing Company:

1. Plant Capacity: 4,00,000 units per annum. Present Utilization: 40%

2. Actuals for the year were as under –

(a) Selling Price	: ₹ 50 per unit
(b) Materials Cost	: ₹ 20 per unit
(c) Variable Manufacturing Costs	: ₹ 15 per unit
(d) Fixed Costs	: ₹ 27 Lakhs

In order to improve capacity utilization, the following proposals are considered :

Reduce Selling Price by 10% and spend additionally ₹ 3Lakhs on Sales Promotion.

Required: How many units should be made in order to earn a Profit of ₹ 5 Lakhs?

Question 32 - Pyq

Lee Shoe Company sells 5 different styles of Chappals with identical purchase cost and selling prices.

The Company is trying to find out the profitability of opening another store, which will have the following expenses and revenues:

(Information per pair)

Selling Price	₹ 30.00
Variable Production Cost	₹ 19.50
Salesman's Commission	₹ 1.50
Total Variable Cost	₹ 21.00

Annual Fixed Expenses are ₹ 3,60,000, made up as Rent ₹ 60,000 Salaries ₹ 2,00,000, Advertising ₹ 80,000 and Other Fixed Costs ₹ 20,000.
Required:
(1) Calculate the annual BEP in units & in value. Compute profit or loss if 35,000 pairs of Chappals are sold.
(2) Sales Commission is proposed to be discontinued, but instead a fixed amount of ₹ 90,000 is to be incurred in Fixed Salaries. A reduction in Selling Price of 5% is also proposed. **What** will be the BEP in units?
(3) It is proposed to pay the Store Manager ₹ 0.50 per pair as further commission. The selling Price is also proposed to increase by 5%. **What** would be the BEP in units?
(4) Refer to the original data. If the Store Manager were to be paid ₹ 0.30 commission on each pair of chappals sold in excess of the BEP, **what** would be the Store's Net Profit if 50,000 pairs were sold?

One time offer

Question 33 - Study Material

An Indian soft drink company is planning to establish a subsidiary company in Bhutan 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 Bhutanese subsidiary:

	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 Bhutanese production will be sold by manufacturer's representatives who will receive a commission of 8% of the sale price.
No portion of the Indian office expenses is to be allocated to the Bhutanese subsidiary.
You are required to:
(i) COMPUTE the sale price per bottle to enable the management to realize an estimated 10% profit on sale proceeds in Bhutan.
(ii) CALCULATE the break-even point in rupees sales as also in number of bottles for the Bhutanese subsidiary on the assumption that the sale price is ₹ 14 per bottle.

Question 34 - Pyq

A Company currently operating at 80% capacity has the following Particulars:

Particulars	Amount (₹)
Sales	32,00,000
Direct Materials	10,00,000
Direct Labour	4,00,000
Variable Overheads	2,00,000
Fixed Overheads	13,00,000

An Export Order has been received that would utilize half the capacity of the Factory.
The order cannot be split, i.e. it has either to be taken in full, executed at 10% below the normal domestic prices, or rejected totally.

The alternatives available to the Management are:
(1) Reject the order and continue with the domestic sales only, (as at present), or
(2) Accept the order, spilt capacity between overseas and domestic sales and turn away excess domestic demand, or
(3) Increase capacity so as to accept the export order and maintain the present domestic sale by –
(a) Buying equipment that will increase capacity by 10%. This will result in an increase of ₹ 1,00,000 in Fixed Costs, and
(b) Work Overtime to meet the balance of required capacity. In that case, Labour will be paid at one and a half times the normal wage rate.
Prepare a Comparative Statement of Profitability and suggest the best alternative.

Question 35 - Rtp

RPP Manufacturers is approached by an international customer for a one-time special order similar to one offered to its domestic customers.

Per unit data for sales to regular customers is provided below:

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 have 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 one- time-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?

Budget and Budgetary Control

Production related budget

Question 1 - Pyq

X Ltd produces and markets three products – Chairs , Table and Benches. The Company is interested in presenting its budget for the next quarter ending 31st March. It expects to sell 4,200 chairs , 800 tables and 500 benches during the said period at the Selling Price of ₹ 50, ₹ 85 and ₹ 158 per unit respectively.
The following information is made available for this purpose:

(a) Material and Labour Requirements:

Particulars	Rate	Chairs	Tables	Benches
Timber per unit (in cu. ft)	₹ 50 per cu. ft	0.5	1.2	2.5
Upholstery per unit (in sq. yds)	₹ 20 per sq. yd	0.25	-	-
Carpenter's time (in minutes per unit)	₹ 6 per hour	45	60	75
Fixer and Finisher's time (in minutes per unit)	₹ 4.80 per hour	15	15	30

Fixing and finishing Materials costs 5% of the cost of timber and upholstery.

(b) Inventory Levels planned:

Particulars	Timber (cu. ft)	Upholstery (sq yds)	Chairs (nos.)	Tables (nos.)	Benches (nos.)
Opening	600	400	400	100	50
Closing	650	260	200	300	50

(c) Fixed Overheads would be ₹ 8,000 per month.

Required:
(1) Prepare a Production Budget showing quantities to be manufactured.
(2) Prepare a Raw Materials Consumption Budget in quantities as well as in rupees.
(3) Draw a Direct Wage Cost Budget.
(4) Present a statement showing Variable Cost of manufacture per unit of all three products.
(5) Find out the Budgeted Net Income for the quarter.

Question 2 - Pyq

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.
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:

Particulars	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 the same as above.
Required:
(i) 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.
(ii) Prepare the following budgets on a monthly basis for July, August and September 2022:
(a) Sales budget showing sales units and sales revenue for each product.
(b) Production budget (in units) for each product.

Question 3 - Study Material, Pyq

P Ltd. manufactures two products using one type of material and one grade of labour.

Shown below an extract from the company's working papers for the next period's budget:

Particulars	Product A	Product B
Budgeted Sales	3,600 units	4,800 units
Budgeted Material Consumption per product (Standard Cost = ₹ 12 per kg)	5 kg.	3 kg.
Standard hours allowed per product (Standard rate = ₹ 5 per hour)	5 hours	4 hours

1. Overtime Premium is 50% and is payable, if a worker works for more than 40 hours a week. There are 90 direct workers

2. Target Productivity Ratio (or Efficiency Ratio) for the productive hours worked by the Direct Workers in actually manufacturing the products are 80%. In addition, non-productive downtime is budgeted at 20% of the productive hours worked.

3. There are twelve 5 day weeks in the budget period and it is anticipated that sales and production will occur evenly throughout the whole period.

4. It is anticipated that stock at the beginning of the period will be:

Product A = 1,020 units; Product B = 2,400 units; Raw Material = 4,300 kgs.

The Target Closing Stock, expressed in terms of anticipated activity during the budget period is:

Product A – 15 days Sales, Product B – 20 days Sales, Raw Material – 10 days consumption.

Prepare the Material Purchase Budget and the Wages Budget for the Direct Workers , for the Budget Period, showing the quantities and values.

Question 4 - Pyq

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 a closing stock of finished goods at 25% of the anticipated volume of sales of the succeeding month.

The following are the estimated data for the two products:

Particulars	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:

Particulars	April	May	June	July
Xml	8,000	10,000	12,000	16,000
Yml	6,000	8,000	9,000	14,000

Prepare:

(i) Production Budget (month wise)

(ii) Production Cost Budget (for the first quarter of the year)

Question 5 - Rtp

A Vehicle manufacturer has prepared sales budget for the next few months, and the following draft figures are available:

Month	No. of vehicles
October	40,000
November	35,000
December	45,000
January	60,000
February	65,000

To manufacture a vehicle a standard cost of ₹ 11,42,800 is incurred and sold through dealers at a uniform selling price of ₹ 17,14,200 to customers.

Dealers are paid 15% 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. 48,000 units of Part-X are in stock as on 1st October.

There are 9,500 nos. of completed vehicles 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 -

(i) PREPARE Production budget (in nos.) for the month of October, November, December and January.

(ii) PREPARE a Purchase budget for Part-X (in units) for the months of October, November and December.
(iii) CALCULATE the budgeted gross profit for the quarter October to December.

Question 6 - Pyq

A single product Company estimated its sales (in units) for the next year quarter-wise as under:

Quarter 1	30,000 units
Quarter 2	37,500 units
Quarter 3	41,250 units
Quarter 4	45,000 units

The Opening Stock of Finished Goods is 10,000 units and the Company expects 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 Materials % 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.
Required: **Present** the following for the next year, quarter-wise:
(1) Production Budget in units.
(2) Raw Material Consumption Budget in Quantity.
(3) Raw Material Purchase Budget in Quantity and Value.
(4) Priced Stores Ledger Card of the Raw Material using First in First Out method.

Question 7 - Pyq

PQR Limited manufactures three products – 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.
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:

Particulars	Product X	Product Y	Product Z
Direct Materials Cost (per unit)	₹ 20	₹ 20	₹ 20
Direct Wages Cost (per unit)	₹ 16	₹ 24	₹ 16

Raw materials used for manufacturing all the three products are 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 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 sales 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 the same for the next year and there is no opening and closing stock.
Selling Price per unit of each product will remain unchanged in the next year.
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.

Question 8 - Pyq

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:

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 prepared by the Divisional Managers :

Product	East Division	West Division
X	+ 10%	+5%
Y	+20%	+10%

With the help of an intensive advertisement campaign, following additional sales (over and above the 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** a Sales Budget for 2015-16 after incorporating above estimates and also show the Budgeted Sales and Actual Sales of 2014-15.

Question 9 - Study Material

K Ltd. produces and markets a very popular product called 'X'.
The company is interested in presenting its budget for the second quarter of 2020.
The following information are made available for this purpose:
(i) It expects to sell 1,50,000 bags of 'X' during the second quarter of 2020 at the selling price of ₹ 1,200 per bag.
(ii) Each bag of 'X' requires 2.5 mtr. of raw – material 'Y' and 7.5 mtr. of raw – material 'Z'.
(iii) Stock levels are planned as follows:

Particulars	Beginning of Quarter	End of Quarter
Finished Bags of 'X' (Nos.)	45,000	33,000
Raw – Material 'Y' (mtr.)	96,000	78,000
Raw – Material 'Z' (mtr.)	1,71,000	1,41,000
Empty Bag (Nos.)	1,11,000	84,000

(iv) 'Y' cost ₹ 160 per mtr., 'Z' costs ₹ 30 per mtr. and 'Empty Bag' costs ₹ 110 each.
(v) It requires 9 minutes of direct labour to produce and fill one bag of 'X'. Labour cost is ₹ 70 per hour.
(vi) Variable manufacturing costs are ₹ 60 per bag. Fixed manufacturing costs ₹ 40,00,000 per quarter.
(vii) Variable selling and administrative expenses are 5% of sales and fixed administration and selling expenses are ₹ 3,75,000 per quarter.
(i) PREPARE a production budget for the said quarter in quantity.
(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'.

Question 10 - Study Material

The accountant of manufacturing company provides you the following details for year 2009:

Particulars	(₹)	Particulars	(₹)
Direct materials	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:

Particulars	A	B
Output (units)	2,00,000	1,00,000
Selling price per unit	₹ 2.00	₹ 3.50
Direct materials per unit	₹ 0.50	₹ 0.75
Direct wages per unit	₹ 0.25	₹ 0.50

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 2010, 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:

Particulars	Product C
Output (units)	2,00,000
Selling price per unit	₹ 1.75
Direct materials per unit	₹ 0.40
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 2010 .
Comment on the comparative results.

Functional budget with wastage

Question 11 - Pyq

AB manufacturing Company manufactures two products A and B.
Both Products use a common Raw Material "C".
The Raw Material "C" is purchased at the rate of ₹ 45 per kg. from the Market.
The Company has made estimates for the year ended 31st March ,2018 (the budget period) as under:

Particulars	Products	
	A	B
Sales in Units	36,000	16,700
Finished Goods Stock Increase by year-end (in Units)	860	400
Post-production Rejection Rate (%)	3	5
Material "C" per completed Unit, net of wastage	4 kg	5 kg
Material "C" wastage in %	5	4

Additional information available is as under:
• Usage of Raw Material "C" is expected to be at a constant rate over the period.
• Annual cost of holding one unit of Raw Material "C" in Stock is 9% of the Material Cost.
• The cost of placing an order is ₹ 250 per order.
You are required to:
(i) Prepare Functional Budgets for the year ended 31st March, 2018 under the following categories:
(A) Production Budget for Products A and B in Units.
(B) Purchase Budget for Raw Material "C" in kg and value.
(ii) Calculate the Economic Order Quantity (EOQ) in kg for Raw Material "C"

Flexible Budget

Question 12 -

A newly established manufacturing company has an installed capacity to produce 1,00,000 units of a consumer product annually.
However its practical capacity is only 90%. The actual capacity utilization May be substantially lower, as the firm is new to the market and demand is uncertain.
The following budget has been prepared for 90% capacity utilization:

Particulars	Cost per unit (₹)
Direct Materials	12
Direct Labour	8
Direct Expenses	5
Production Overheads	(40% variable) 10
Administrative Overheads	(100% fixed) 5
Selling and Distribution	(50% variable) 6

You are required to **prepare** budgets at 60%, 70% and 80% levels of capacity utilization giving clearly the unit variable cost, the unit fixed cost and the total costs under various heads at all the above levels.

Question 13 - Study Material

During the FY 2019-20, P Limited has produced 60,000 units operating at 50% capacity level.

The cost structure at the 50% level of activity is as under:

Particulars	(₹)
Direct Material	300 per unit
Direct Wages	100 per unit
Variable Overheads	100 per unit
Direct Expenses	60 per unit
Factory Expenses (25% fixed)	80 per unit
Selling and Distribution Exp. (80% variable)	40 per unit
Office and Administrative Exp. (100% fixed)	20 per unit

The company anticipates that in FY 2020-21, the variable costs will go up by 20% and fixed costs will go up by 15%. The selling price per unit will increase by 10% to ₹ 880

Required:

(i) CALCULATE the budgeted profit/ loss for the FY 2019-20.

(ii) PREPARE an Expense budget on marginal cost basis for the FY 2020-21 for the company at 50% and 60% level of activity and FIND OUT the profits at respective levels.

Question 14 - Pyq, Study Material

Goodluck 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 next year.

The cost details (amount in ₹) are as follows :

Particulars	55%	65%	75%
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
Total Costs	**24,40,000**	**28,00,000**	**31,60,000**

Profit is estimated at 20% on Sales.

The following increases in costs are expected during the year:

Direct Materials : 8%,

Direct Labour : 5%,

Variable Factory OH : 5%,

Variable Selling OH : 8%,

Fixed Factory OH: 10%, Fixed Selling OH : 15%, Administrative OH : 10%.

Prepare a Flexible Budget for the next year at 85% level of capacity. Also ascertain the profit and contribution.

Question 15 - Study Material

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:

Particulars	₹
Administration costs:	
Office salaries	90,000
General expenses	2 percent of sales
Depreciation	7,500
Rates and taxes	8,750
Selling costs:	
Salaries	8 per cent of sales
Travelling expenses	2 per cent of sales
Sales office expenses	1 per cent of sales
General expenses	1 per cent of sales
Distribution costs:	
Wages	15,000
Rent	1 per cent of sales
Other expenses	4 per cent of sales

Draw up flexible administration, selling and distribution costs budget, operating at 90 per cent, 100 percent and 110 percent of normal capacity.

Question 16 - Pyq

The Cost Sheet of a Company based on a budgeted volume of Sales of 3,00,000 units per quarter is as under:

Particulars	₹ per unit
Direct Material	5.00
Direct Labour	2.00
Factory Overheads (50% Fixed)	6.00
Selling and Administration Overheads (1/3rd Variable)	3.00
Selling Price	18.00

When the budget was discussed, it was felt that the Company would be able to achieve only a volume of 2,50,000 units of production and sales per quarter.

The Company therefore decided that an aggressive sales promotion campaign should be launched to achieve the following improved operations:

Proposal I: Sell 4,00,000 units per quarter

- Spending ₹ 2,00,000 on special advertising.
- The factory fixed costs will increase by ₹ 4,00,000 per quarter.

Proposal II: Sell 5,00,000 units per quarter subject to the following conditions :

- An overall price reduction of ₹ 2 per unit is allowed on all sales.
- Variable Selling and Administration Costs will increase by 5%.
- Direct Material Costs will be reduced by 1% due to Purchase price discounts.
- The fixed factory Costs will increase by ₹ 2,00,000 more.

You are required to **prepare** a flexible Budget at 2,50,000, 4,00,000 and 5,00,000 units of output per quarter and calculate the Profit at each of the above levels of output.

Flexible budget with Semi variable cost

Question 17 - Pyq

You are given the following data of a manufacturing concern:

Particulars	(₹)
Variable expenses (at 50% capacity)	
Materials	48,00,000
Labour	51,20,000
Others	7,60,000
Semi-variable expenses (at 50% capacity)	
Maintenance and repairs	5,00,000
Indirect labour	19,80,000
Sales dept. salaries	5,80,000
Sundry administrative expenses	5,20,000
Fixed expenses:	
Wages & salaries	16,80,000
Rent, rates and taxes	11,20,000
Depreciation	14,00,000
Sundry administrative exp.	17,80,000

The fixed expenses remain constant for all levels of production. Semi-variable expenses remain constant between 45% and 65% of capacity whereas it increases by 10% between 65% and 80% capacity and by 20% between 80% and 100% capacity.

Sales at various levels are as under:

Capacity	Sales (₹)
75%	2,40,00,000
100%	3,20,00,000

Prepare a flexible budget at 75% and 100% capacity.

Question 18 - Study Material

A factory which expects to operate 7,000 hours , i.e., at 70% level of activity, furnishes details of expenses as under:

Variable expenses : ₹ 1,260
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.
PREPARE a flexible budget for 80, 90 and 100 percent activities.

Flexible Independent / Dependent Products

Question 19 - Pyq

TK Ltd. has estimated the following figures for its two products "X" and "Y" for the coming year:

Particulars	Product X (₹)	Product Y (₹)
Sales Units	2,000	2,500
Raw material cost per unit	30	40
Direct Labour Cost per unit	20	14
Variable overhead per unit	15	10
Fixed overhead	50,000	60,000
Selling price per unit	140	200

Company has received a proposal that if an additional fixed expenditure of ₹ 16,000 on Product X and ₹ 17,000 on Product Y is incurred, the sales for both the products can be increased by 10% but for this purpose, variable overheads shall also be increased by 20% for Product X and 10% for Product Y.

(i) You are required to **prepare** 'flexible budget' for both the products :
- **(a)** Before new proposal and
- **(b)** After new proposal

(ii) Advise the company whether the proposal should accept or not :
- **(a)** If both the products are independent and
- **(b)** If both the products are not independent .

Budget Ratios

Question 20 - Pyq

Following data is available for ABC Ltd.:

Standard working hours : 8 hours per day of 5 days per week
Maximum Capacity : 60 employees
Actual working : 50 employees
Actual hours expected to be worked per four week : 8,000 hours
Standard hours expected to be earned per four week : 9,600 hours
Actual hours worked in the four week period : 7,500 hours
Standard hours earned in the four week period : 8,800 hours

The related period is four weeks.
CALCULATE the following Ratios :
(i) Efficiency Ratio **(ii)** Activity Ratio **(iii)** Standard Capacity Usage Ratio **(iv)** Actual Capacity Usage Ratio
(v) Actual Usage of Budgeted Capacity Ratio

Question 21 - Study Material

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 working : 40 employees
Actual hours expected to be worked per four week : 6,400 hours
Std. hours expected to be earned per four weeks : 8,000 hours
Actual hours worked in the four- week period : 6,000 hours
Standard hours earned in the four- week period : 7,000 hours.

The related period is 4 weeks. In this period there was a one special day holiday due to national events.
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.

Question 22 - Pyq

Calculate efficiency and activity ratio from the following data:

Capacity ratio : 75%
Budgeted output : 6,000 units
Actual output : 5,000 units
Standard Time per unit : 4 hours

Master Budget

Question 23 - Study Material

Float glass Manufacturing Company requires you to **PREPARE** the Master budget for the next year from the following information:

Sales:

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

Sales budget

Question 24 -

Prepare a Sales Overhead Budget for the month of January, February and March from the estimates given below:

Advertisement	₹ 2,500
Salaries of the Sales Department	₹ 5,000
Expenses of the Sales Department	₹ 1,500
Counter Salesmen's Salaries and Dearness Allowance	₹ 6,000

Counter salesmen's commission is 1% on their sales.
Travelling salesman's commission at 10% on their sales and expenses at 5% on their sales.
The sales during the period were estimated as follows:

Month	Counter Sales	Travelling Salesmen's Sales
January	₹ 80,000	₹ 10,000
February	₹ 1,20,000	₹ 15,000
March	₹ 1,40,000	₹ 20,000

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