

PAPER – 4: COST AND MANAGEMENT ACCOUNTING

PART - I

Case Scenario I

Sagar Limited, an oil refinery uses Process Costing for determining the cost of each process. Management of Sagar Limited is confused about method of valuation of WIP. They have FIFO and Weighted Average Cost methods under consideration.

Finance manager Mr. Sahil has put forward that Weighted Average Cost method is suitable when there are significant fluctuations in price and quantity. In this method, calculation has to be done at every purchase and it is a complex and time-consuming method.

He also stated that price and quantity of input and output material of Sagar Limited is almost same for whole year; hence FIFO method would be more suitable for the company. He also revealed that in oil refinery industry; FIFO method is preferred over Weighted Average Cost method and switching to FIFO method will save time and money.

He further stated that by using FIFO method closing WIP is valued at current cost and provided the following information:

Opening WIP : 12,000 Units, Total cost ₹ 1,66,200.

<i>Degree of Completion :</i>	<i>Material</i>	<i>-</i>	<i>100%</i>
	<i>Labour and Overhead-</i>		<i>80%</i>

Material introduced: (74,500 Units) ₹ 4,76,465

Direct Labour ₹ 3,70,395

Direct Overhead ₹ 2,96,316

Units Scrapped : 1,900 units Degree of Completion :

<i>Material</i>	<i>100%</i>
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Labour and Overhead 70%

Closing WIP : 2,600 units Degree of Completion:

<i>Material</i>	<i>100%</i>
<i>Labour and Overhead</i>	<i>60%</i>

Rest of the units were transferred to next process.

Normal Loss is 2% of total input unit including opening work-in-process. Realizable value of normal loss is ₹ 2 per unit deducted from cost of material introduced.

You are required to calculate the following using FIFO method (MCQs 1 to 5) :

- Equivalent units of Material and Material cost per unit*
 - 86,500 units and ₹ 5.50 per unit*
 - 74,500 units and ₹ 6.39 per unit*
 - 72,770 units and ₹ 6.50 per unit*
 - 72,600 units and ₹ 6.56 per unit*
- Equivalent units of labour and overheads and total cost per unit*
 - 82,490 units and ₹ 8.08 per unit*
 - 74,079 units and ₹ 9.00 per unit*
 - 75,290 units and ₹ 8.85 per unit*
 - 79,790 units and ₹ 8.35 per unit*
- Value of abnormal loss to be shown in process account*
 - ₹ 2,176.00*
 - ₹ 2,182.00*
 - ₹ 2,168.35*
 - ₹ 1,896.52*
- Value of units transferred to next process*
 - ₹ 11,10,660*
 - ₹ 12,75,600*

(C) ₹ 12,51,200

(D) ₹ 12,72,800

5. Value of closing WIP

(A) ₹ 31,096

(B) ₹ 31,044

(C) ₹ 30,940

(D) ₹ 28,340

Case Scenario-II

FW Limited manufactures various types of footwear and covers a considerable market share. The footwear made by company are stylish and durable. The management calls for an urgent meeting because it has come to their notice that two of their old permanent customers have moved on to its competitors.

Marketing Manager has stated that there are circumstances when company cannot fulfill the demand of their customers due to shortage of supply and this is the main reason for move on.

Production Manager has stated that production team is working efficiently but workers have to wait long enough for raw material which leads to idle time and low production.

The cost accounts department of FW Limited has furnished the following data for the component B :

Purchase Price	₹ 4,800 per unit
Trade Discount	2% of purchase price
Total duties (No Credit availed)	8% of purchase price
Insurance Charges	₹ 62,000 per year
Units purchased during the year	60,000 units
Opening Stock	5,000 units @ ₹ 5,150 per unit
Closing Stock	4,500 units

Usages per week		Delivery period	
Minimum	1,050 units	Minimum	5 weeks
Maximum	1,200 units	Maximum	9 weeks
Average	1,125 units	Average	7 weeks

Lead time for emergency purchases is 2 weeks.

Additional Information :

- Normal wastage during the storage is 80 units (no realizable value) and abnormal wastage is 40 units.
- Factory works for 365 days in a year.

You are required to calculate the followings (MCQs 6 to 10):

6. Calculate per unit cost of material by using Average Price Method.
 - (A) ₹ 5,100
 - (B) ₹ 5,119
 - (C) ₹ 5,094
 - (D) ₹ 5,133
7. Calculate minimum stock level.
 - (A) 10,800 units
 - (B) 7,825 units
 - (C) 5,250 units
 - (D) 2,925 units
8. What will be danger level of stock ?
 - (A) 2,400 units
 - (B) 7,875 units
 - (C) 2,250 units
 - (D) 2,240 units
9. Calculate average number of days (round off) for which average inventory level to be held.

- (A) 27 days
(B) 29 days
(C) 26 days
(D) 30 days
10. Calculate amount of Abnormal Loss during storage to be transferred to Costing Profit & Loss Account (based on average price)
- (A) ₹ 2,04,000
(B) ₹ 2,04,760
(C) ₹ 2,03,760
(D) ₹ 2,05,320
11. PS Limited is facing downfall in its demand. Marketing team has suggested to reduce the selling price by 5% to compete in the market. Variable cost is 76% of the current selling price.
- You are required to find out the PN Ratio after reducing the price by 5%
- (A) 20%
(B) 24%
(C) 25.26%
(D) 19%
12. In the automotive machine manufacturing sector, a component is manufactured. The Economic Order Quantity (EOQ) for the component is 1,500 units. The cost of placing an order is ₹ 100, and the carrying cost per annum is 10%. The cost per unit of component is ₹ 20.
- Calculate the annual demand for this specific automotive component.
- (A) 45,500 units
(B) 75,000 units
(C) 36,000 units
(D) 22,500 units

13. In a mutual project, both Raj and Bhuvan are contributing their efforts, using identical materials. Raj receives a bonus based on the Rowan plan, while the Halsey plan determines Bhuvan's bonus. The standard time allocated for the project is 150 hours. Raj completes the project in 90 hours, while Bhuvan finishes it in 120 hours. The normal hourly wage rate for Raj is ₹ 30. The total earnings for both workers are equal.

Calculate the normal hourly wage rate to be paid to Bhuvan.

- (A) ₹ 26.50
(B) ₹ 24.00
(C) ₹ 22.50
(D) ₹ 28.00
14. On 01-04-2023 number of workers employed in a factory was 150. During the year 30 workers resigned and 5 workers were discharged. Due to resignation and discharge, 15 workers were replaced. For the year 2023-24, labour turnover rate by separation method will be :

- (A) 21.43%
(B) 18%
(C) 25%
(D) 30%

15. A Chemical is passed through three processes and the output of Process 1 Account is transferred to Process 2 Account. The input units in Process 1 are 58,500 units and the output units are 55,200 units, normal loss is 2% and rest is abnormal loss.

You are required to calculate the per unit cost of output units in Process 1 Account, if the total expenses incurred in Process 1 are, 6,87,960.

- (A) ₹ 11.76
(B) ₹ 12.00
(C) ₹ 12.20
(D) ₹ 12.46

Answer Key

Question No.	Answer
1.	(C)
2.	(B)
3.	(A)
4.	(D)
5.	(C)
6.	(A)
7.	(D)
8.	(C)
9.	(B)
10.	(A)
11.	(A)
12.	(D)
13.	(D)
14.	(C)
15.	(B)

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Part II

Question No. **1** is compulsory.

Attempt any **four** questions out of the remaining **five** questions.

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer.

Question 1

(a) *Language Achievers, a renowned institute specializing in TOEFL preparation, has secured a spacious hall for 20,000 on weekly basis with a seating capacity of 250 students. The instructor, highly qualified and experienced, is compensated generously with an honorarium of 1,500 per lecture. Additionally, he receives reimbursement for travel expenses of ₹ 200 per day along with refreshments costing 1,500 per week to ensure his comfort and focus during teaching sessions. Administrative and miscellaneous expenses, covering essential utilities and materials are, 500 per week. Language Achievers has meticulously planned its curriculum, scheduling batches of 2 lectures per day, 5 days a week for 30 weeks, ensuring comprehensive coverage of the TOEFL syllabus.*

Required:

- (i) Calculate the total cost per batch.*
- (ii) Determine the minimum fee per student in a batch to cover costs, if the batch is fully occupied.*
- (iii) Calculate the fee to be charged from. each student if batch is 80% filled and institute aims to achieve a profit margin of 25% on the fee.*

(5 Marks)

- (b) XYZ Ltd. declared a net profit of ₹2,25,000 based on their financial accounts for the year ending 31st March, 2024. The profit disclosed in cost books are not matched with financial accounts. The following information were revealed during the scrutiny of the figures of both the sets of books:

Sr. No.	Particulars	₹
1.	Preliminary expenses written off in financial accounts	35,000
2.	Factory Overheads Over charged in cost accounts	20,000
3.	Expenses on issue of shares in financial accounts	30,000
4.	Undervaluation of closing stock in cost accounts	65,000
5.	Interest on Bank Deposits in financial accounts	60,000
6.	Under recovery of administration overheads in cost accounts	25,000
7.	Notional Rent of own premises charged in cost accounts	30,000
8.	Under recovery of selling overheads in cost accounts	35,000
9.	Bad debts recovered in financial accounts	50,000

Required:

Prepare Reconciliation Statement to arrive at net profit/loss as per Cost Accounts. **(5 Marks)**

- (c) JC Ltd. has a production capacity of 80,000 units per year. Presently a company produces 60,000 units. Its cost structure is as under:

Material Cost ₹ 6 per unit

Labour Cost ₹ 4 per unit

Variable overheads ₹ 2 per unit

Total fixed cost ₹ 3,00,000 per annum. Present selling price ₹ 20 per unit in the month of January, 2024 company received an offer from a Japanese client to supply 20,000 units at a price of ₹ 14 per unit with the additional shipping cost of ₹ 8,000.

Required:

- (i) On the basis of changes in the profit, advice to the company, whether the offer should be accepted or not?
- (ii) Will your advice be different, if the customer is local one?
- (iii) If Japanese client offer for supply of 30,000 units to a price of ₹ 14 (part supply of order not accepted) and shipping cost treated as variable cost, analyze the impact on the profit of JC Ltd., if order accepted.

(4 Marks)

Answer

(a) (i) Calculation of Total cost per batch

Particulars	Amount (₹)
Hall Charges (₹ 20,000 x 30)	6,00,000
Honorarium of instructor (₹ 1,500 x 2 x 5 x 30)	4,50,000
Reimbursement of travel expenses (₹ 200 x 5 x 30)	30,000
Refreshment (₹ 1,500 x 30)	45,000
Administrative and miscellaneous expenses (₹ 500 x 30)	15,000
Total Cost	11,40,000
No. of Batches	1
Total cost per batch	11,40,000

(ii) Minimum fee per student in a batch to cover costs

$$= \frac{\text{Total cost per batch}}{\text{Students per batch}}$$

$$= \frac{11,40,000}{250} = ₹ 4,560$$

(iii) Number of Students if batch is 80% filled

$$= 250 \text{ students} \times 80\% = 200 \text{ students}$$

Total Fee to be recovered to achieve 25% profit margin on the fee

$$= ₹ 11,40,000 + (₹ 11,40,000 \times 1/4^{\text{th}} \text{ of sales or } 1/3^{\text{rd}} \text{ of the cost})$$

$$= ₹ 15,20,000$$

Fee per student

$$= \frac{\text{Total Fee per batch}}{\text{Students per batch}}$$

$$= \frac{15,20,000}{200} = ₹ 7,600$$

(b) **Reconciliation Statement**

	(₹)	(₹)
Profit (loss) as per Financial Accounts		2,25,000
Add:		
Preliminary expenses written off	35,000	
Expenses on issue of shares in financial accounts	30,000	
Under recovery of administration overheads in cost accounts	25,000	
Under recovery of selling overheads in cost accounts	35,000	
		1,25,000
Less:		
Factory Overheads Over charged in cost accounts	20,000	
Undervaluation of closing stock in cost accounts	65,000	
Interest on Bank Deposits	60,000	
Notional Rent of own premises charged in cost accounts	30,000	
Bad debts recovered in financial accounts	50,000	
		(2,25,000)
Net Profit as per Cost Accounts		1,25,000

(c) (i) Statement Showing "Cost and Profit under Both Situation"

Particulars	Existing Production (60,000 units) (₹)	After Offer (80,000 units) (₹)
Sales		
Existing (60,000 x ₹ 20)	12,00,000	12,00,000
Offer (20,000 x ₹ 14)	-	2,80,000
Total Sales	12,00,000	14,80,000
Less: Direct Materials @ ₹ 6	3,60,000	4,80,000
Direct Labour @ ₹ 4	2,40,000	3,20,000
Variable Overheads @ ₹ 2	1,20,000	1,60,000
Contribution	4,80,000	5,20,000
Less: Additional Shipping cost	-	8,000
Less: Fixed Cost	3,00,000	3,00,000
Profit	1,80,000	2,12,000

Since the Profit has increased by ₹ 32,000, the proposal of the Japanese client should be accepted

- (ii) Yes, the advice will be different, if the customer is local one since the company is currently selling at ₹ 20 in local market and therefore, selling at discounted price of ₹ 14 may impact its local market.

(iii) Statement Showing "Cost and Profit"

Particulars	After Offer (80,000 units) (₹)
Sales	
Existing (50,000 x ₹ 20)	10,00,000
Offer (30,000 x ₹ 14)	4,20,000
Total Sales	14,20,000

Less: Direct Materials @ ₹ 6	4,80,000
Direct Labour @ ₹ 4	3,20,000
Variable Overheads @ ₹ 2	1,60,000
Additional Shipping cost (₹ 8,000/20,000 units) x 30,000 units	12,000
Contribution	4,48,000
Less: Fixed Cost	3,00,000
Profit	1,48,000

If offer of Japanese client to supply 30,000 units at a price of ₹ 14 is accepted, **the Profit will decrease by ₹32,000 from the current level.**

Question 2

- (a) MNP Limited have the capacity to produce 84,000 units of a product very month. Its prime cost per unit at various levels of production is as follows:

Level	Prime Cost per unit (₹)
10%	50
20%	48
30%	46
40%	44
50%	42
60%	40
70%	38
80%	36
90%	34
100%	32

Its prime cost consists of raw material consumed, direct wages and direct expenses in the ratio of 3 : 2 : 1. In the month of January 2024, the company worked at 40% capacity and raw material purchased amounting to ₹ 8,40,000. In the month of February 2024, the company worked at 100% capacity and raw material purchased for ₹ 16,46,400.

It is the policy of the company to maintain opening stock of raw material equal to 1/3 of closing stock of raw material. Factory overheads are recovered at 60% of direct wages cost. Fixed administration expenses (as part of production cost) and fixed selling and distribution expenses are ₹ 2,01,600 and ₹ 1,68,000 per month respectively. During the month of January 2024 company sold 33,600 units @ ₹ 68.8 per unit. The variable distribution cost amounts to ₹ 1.5 per unit sold.

The management of the company chalks out a pl for the month of February 2024 to sell its whole output @ ₹ 61 per unit by incurring following further expenditure :

- (i) Company sponsors a television programme on every Sunday at a cost of ₹ 26,250 per week. There are 4 Sundays in February 2024.*
- (ii) Hi-tea programme every month for its potential customers at a cost of ₹ 1,05,000.*
- (iii) Special gift item costing ₹ 105 on sale of a dozen units.*
- (iv) Lucky draws scheme is introduced every month by giving the first prize of ₹ 1,00,000; second prize of ₹ 80,000; third prize of ₹ 40,000 and four consolation prizes of ₹ 8,000 each.*

Note: *(In the month of February 2024, there is a significant saving in material cost per unit due to entry of new suppliers in the market and saving in per unit cost of Direct wages and Direct expenses due to introduction of new-policy by the management.)*

Prepare a cost sheet for the month of January 2024 and February 2024 showing prime cost (with different elements of prime cost), factory cost, cost of production, total cost and profit earned. **(8 Marks)**

- (b) In a factory there are 50 workers, working 8 hours per day including 30 minutes for lunch break, worked for 160 days during a period of six months ended on 31st December, 2023. During this period total employee's cost was recorded ₹ 3,90,000. The management of the factory decided the overtime premium rates for the month of January 2024 as under :*

<i>Sundays and holidays</i>	<i>180% of basic wages rate</i>
<i>Before and after normal working hours</i>	<i>160% of basic wages rate</i>

During the last six months (ended on 31st December, 2023), the following hours were worked:

Normal time	56,250
Sundays and holidays	750
Before and after normal working hours	<u>3,000</u>
Total hours	60,000

During the month of January 2024, the factory worked on a job BX in the following manner.

Normal working	2,400 men hours
Overtime on Sundays and holidays	200 men hours
Overtime before and after normal working	400 men hours
Total hours	3,000

You are required to calculate the labour cost chargeable to job BX and overheads in each of the following situations:

- (i) Where overtime is worked regularly in whole year as a policy on account of shortage of workers.
- (ii) Where overtime is worked irregularly to meet the requirement of production.
- (iii) Where overtime is worked at the request of the customer to complete the job in time.
- (iv) Where overtime is worked on account of flood in the area. **(6 Marks)**

Answer

(a) Cost Sheet

Particulars	January 2024	February 2024
	33,600 Units	84,000 Units
Opening Stock of Raw Material	50,400	1,51,200
Add: Purchases	8,40,000	16,46,400
Less: Closing stock of Raw Material	<u>(1,51,200)</u>	<u>(4,53,600)</u>
Direct materials consumed:	7,39,200	13,44,000

Direct Wages	4,92,800	8,96,000
Direct expenses	<u>2,46,400</u>	<u>4,48,000</u>
Prime Cost	14,78,400	26,88,000
Factory overheads (60% of direct wages)	2,95,680	5,37,600
Factory / Works Cost	17,74,080	32,25,600
Add: Administration overhead (Production)	2,01,600	2,01,600
Cost of Production / Cost of goods sold	19,75,680	34,27,200
Add: Fixed selling and distribution Overhead	1,68,000	1,68,000
Variable distribution overheads (₹ 1.5 per unit)	50,400	1,26,000
- Sponsorship cost	-	1,05,000
- Hi tea programme	-	1,05,000
- Special gifts (84,000 x 1/12 x 105)	-	7,35,000
- Lucky draw prize *	-	2,52,000
Cost of sales / Total Cost	21,94,080	49,18,200
Profit (Balancing figure)	1,17,600	2,05,800
Sales revenue	23,11,680	51,24,000

***Lucky draw prize:**

	Amount (₹)
1 st Prize	1,00,000
2 nd Prize	80,000
3 rd Prize	40,000
Consolation Prizes (4 × ₹ 8,000)	<u>32,000</u>
Total	2,52,000

Working note :**Calculation of opening and costing stock of Raw Material****January**

Units Manufactured	=	84,000 x 40%	=	33,600 units
Prime Cost	=	33,600 x 44	=	₹ 14,78,400
Raw Material consumed	=	₹ 14,78,400 X 3/6	=	₹ 7,39,200
Raw Material purchase (given)	=		=	₹ 8,40,000
Let closing stock of Raw Material be x				
Opening stock of Raw Material be 1/3x				
Opening Stock + Purchase – closing stock = Raw Material consumed				
1/3x + ₹ 8,40,000 – x	=		=	₹ 7,39,200
1/3x – x	=		=	₹ 7,39,200 – ₹ 8,40,000
2/3x	=		=	₹ 1,00,800
x	=		=	₹ 1,51,200 (closing stock)
Opening stock	=		=	₹ 1,51,200 x 1/3 = ₹ 50,400

February

Prime Cost	=	84,000 x 32	=	₹ 26,88,000
Raw Material consumed	=	₹ 26,88,000 x 3/6	=	₹ 13,44,000
Raw Material purchased (given)	=		=	₹ 16,46,400
Opening Stock + Purchase – closing stock = Raw Material consumed				
₹ 1,51,200 + ₹ 16,46,400 – closing stock = ₹ 13,44,000				
Closing stock = ₹ 4,53,600				

(b) Workings**Calculation of Basic Wage Rate**

Effective Working Hours for six months ended 31st December, 2023

= 50 workers x (8-0.5) hours per day x 160 days = 60,000 hours

$$\text{Basic Wage Rate} = \frac{\text{₹ } 3,90,000}{60,000}$$

= ₹ 6.50 per hour

Basic wage rate : ₹ 6.50 per hour

Overtime wage rate for Sundays and holidays : ₹ 6.50 × 180%
= ₹ 11.70 per hour

Overtime wage rate before and after working hours : ₹ 6.50 × 160%
= ₹ 10.40 per hour

Computation of average inflated wage rate (including overtime premium):

Particulars	(₹)
Annual wages for the normal time (56,250 hrs × ₹ 6.50)	3,65,625
Wages for overtime on Sundays and holidays (750 hrs × ₹ 11.70)	8,775
Wages for overtime before and after working hours (3,000 hrs × ₹ 10.40)	31,200
Total wages for 60,000 hrs	4,05,600

$$\text{Average inflated wage rate} = \frac{\text{₹ } 4,05,600}{60,000 \text{ hours}} = \text{₹ } 6.76 \text{ per hour}$$

(a) Where overtime is worked regularly as a policy due to shortage of workers:

The overtime premium is treated as a part of employee cost and job is charged at an inflated wage rate. Hence, employee cost chargeable to job BX

$$= \text{Total hours} \times \text{Inflated wage rate} = 3,000 \text{ hrs.} \times \text{₹ } 6.76 = \text{₹ } 20,280$$

(b) Where overtime is worked irregularly to meet the requirements of production:

Basic wage rate is charged to the job and overtime premium is charged to factory overheads as under:

Employee cost chargeable to Job BX: 3,000 hours @ ₹ 6.50 per hour
= ₹ 19,500

Factory overhead: {200 hrs. × ₹ (11.70 – 6.50)} + {400hrs × ₹ (10.40 – 6.50)} = {₹ 1,040 + ₹ 1,560} = ₹ 2,600

(c) Where overtime is worked at the request of the customer to complete the job in time.

Basic wage rate is charged to the job and overtime premium is charged to job as under:

Employee cost chargeable to Job BX: 3,000 hours @ ₹ 6.50 per hour
= ₹ 19,500

Overtime premium: {200 hrs × ₹ (11.70 – 6.50)} + {400hrs × ₹ (10.40 – 6.50)} = {₹ 1,040 + ₹ 1,560} = ₹ 2,600

Total = ₹ 19,500 + ₹ 2,600 = ₹ 22,100

(d) Where overtime is worked on account of flood in the area

Basic wage rate is charged to the job and overtime premium is charged to costing P & L Account as under:

Employee cost chargeable to Job BX: 3,000 hours @ ₹ 6.50 per hour
= ₹ 19,500

Costing P&L A/c : {200 hrs × ₹ (11.70 – 6.50)} + {400hrs × ₹ (10.40 – 6.50)} = {₹ 1,040 + ₹ 1,560} = ₹ 2,600

Total = ₹ 19,500 + ₹ 2,600 = ₹ 22,100

Question 3

(a) GST Limited is a multi-product company. The production and cost details of its two products P and Q are given as follows:

Particulars	Product	
	P	Q
Quantity produced (No.)	9,000	7,200
Direct material cost (₹)	72,000	50,000
Direct labour hours	800	600
Purchase requisition (No.)	180	144
Production runs (No.)	144	108
Quality inspections (No.)	27	18

Direct wages rate is ₹ 14.50 per hour. Presently the company uses a single overhead recovery rate based on direct labour hours. Overhead incurred by the company during the year 2023-24 are as follows:

Technical staff salary	₹ 45,000
Machine operation expenses	₹ 1,62,000
Machine maintenance expenses	₹ 27,000
Wages and salary of stores staff	₹ 36,000

During this period direct labour hours worked 72,000.

Now the Company wants to adopt Activity Based Costing. For this purpose, following activities are identified:

- Quality control
- Setup of machine for production runs
- Store receiving

It is also decided that salary of technical staff should be distributed among machine maintenance, setup and quality control in the ratio of 1 : 2 : 2. Machine maintenance expenses and machine operation expenses should be distributed in the ratio of 2 : 3 in between stores and production setup activities.

During this period cost drivers for these activities are identified as under:

- Requisition raised 5,760
- Production setup 7,200
- No. of quality test 720

You are required to compute:

- (i) The cost of products P and Q based on traditional absorption costing system.
 - (ii) The cost of products P and Q based on ABC Costing system. **(8 Marks)**
- (b) Savi Limited is currently working at 80% of its capacity level and furnished the following information for current period:

Production / Sales	96,000 units
Direct Variable Cost	₹ 20 per unit
Factory Overheads	₹ 8,40,000
Administrative Overheads (Fixed)	₹ 20,60,000
Sales Commission	2% of Sales Value
Transportation Expenses	₹ 4,000 per truck

(Loading Capacity 4,000 units)

The selling price of the product is ₹ 120 per unit and Factory Overheads are 80% variable in nature.

The management of Savi Limited has come to know that there will be high fluctuations in the demand of the product in upcoming year and it would not be an easy task to predict the demand. Selling price per unit will not be affected by demand fluctuations.

Savi Limited has decided to prepare a flexible budget for the product at 60%, 80% and 100% capacity level.

You are required to prepare the Flexible Budget showing total cost of the product at each level. **(6 Marks)**

Answer**(a) (i) Statement Showing "Total Cost - Traditional Method"**

Particulars of Costs	P	Q
	(₹)	(₹)
Direct Materials	72,000	50,000
Direct Labour [(800,600 hours) × ₹ 14.5]	11,600	8,700
Production Overheads [(800,600 hours) × ₹ 3.75] (WN1)	3,000	2,250
Total Cost	86,600	60,950
Cost per unit (9,000, 7,200)	9.62	8.47

WN1: Calculation of Production Overhead:

	(₹)
Technical staff salary	45,000
Machine operation expenses	1,62,000
Machine maintenance expenses	27,000
Wages and salary of stores staff	36,000
Total Production Overhead	2,70,000
Total direct labour hours worked	72,000 hours
Production Overhead rate per hour	3.75

(ii) Statement Showing "Total Cost - Activity Based Costing"

Products	P	Q
Production (units)	9,000	7,200
	(₹)	(₹)
Direct Materials	72,000	50,000
Direct Labour [(800,600 hours) × ₹ 14.5]	11,600	8,700
Requisition Related Costs @ ₹ 20 per requisition raised (180,144) (WN2)	3,600	2,880

Production Setup Costs @ ₹ 19 per production runs (144,108) (WN2)	2,736	2,052
Quality Inspection Costs @ ₹ 25 per quality test (27,18) (WN2)	675	450
Total Costs	90,611	64,082
Cost per unit (9,000, 7,200)	10.07	8.90

WN2: Statement Showing Distribution of Expenses

	Machine maintenance expenses	Total Stores	Production Setup	Quality Control
Technical staff salary of ₹ 45,000 (1:2:2)	9,000	-	18,000	18,000
Machine operation expenses of ₹ 1,62,000 (2:3)	-	64,800	97,200	-
Machine maintenance expenses of ₹ 36,000 (2:3)	(9,000)	14,400	21,600	-
Wages and salary of stores staff	-	36,000	-	-
Total	-	1,15,200	1,36,800	18,000

WN3: Cost for each activity cost driver:

Activity (1)	Total cost (₹) (2)	Cost allocation base (3)	Cost driver rate (4) = [(2) ÷ (3)]
Stores Receiving	1,15,200	5,760 Requisitions Raised	₹ 20 per requisition raised
Production Setup	1,36,800	7,200 Production Setup	₹ 19 per production setup
Quality Control	18,000	720 Quality Test	₹ 25 per quality test

(b) Flexible Budget of Savi Ltd

	60% (72,000 units) (₹)	80% (96,000 units) (₹)	100% (1,20,000 units) (₹)
Sales (A)	120.00	120.00	120.00
Variable Costs:			
- Direct Variable Cost	20.00	20.00	20.00
- Variable Factory Overheads (WN1)	7.00	7.00	7.00
- Sales Commission (2%)	2.40	2.40	2.40
- Transportation Expenses	1.00	1.00	1.00
Total Variable Cost (B)	30.40	30.40	30.40
Contribution Per Unit (C) = (A - B)	89.60	89.60	89.60
Total Contribution (D)	64,51,200.00	86,01,600.00	1,07,52,000.00
Fixed Costs:			
- Administrative Overheads (100%)	20,60,000.00	20,60,000.00	20,60,000.00
- Factory Overheads (20%)	1,68,000.00	1,68,000.00	1,68,000.00
Total Fixed Costs (E)	22,28,000.00	22,28,000.00	22,28,000.00
Profit (D-E)	42,23,200.00	63,73,600.00	85,24,000.00
Total Cost	44,16,800.00	51,46,400.00	58,76,000.00

WN1:

Variable factory Overheads = ₹ 8,40,000 x 80% = ₹ 6,72,000

Variable factory Overheads per unit = ₹ 6,72,000/96,000 units = ₹ 7

Question 4

(a) BG company produces a standard product and sold in a packet of 10 kg. The standard cost card per pack is as follows:

Direct Material:

A - 4 kg @ ₹ 50 per kg

B - 8 kg @ ₹ 40 per kg

Direct Labour:

6 hours @ ₹ 20 per hour

The company manufactured and sold 1,600 packets during the month. Actual data for material and labour recorded as under.

Direct Material:

A - 7,000 kg @ ₹ 40

B - 12,500 kg @ ₹ 45

Labour hours paid for two different categories of workers:

Skilled 6,000 hours @ ₹ 25

Semi-skilled 4,000 hours @ ₹ 20

5% of the time paid was lost due to an abnormal reason.

Calculate the following variances indicating their nature (Favourable or Adverse):

(i) Material cost variances

(ii) Material price variances

(iii) Material usage variances

(iv) Material mix variances

(v) Material yield variances

(vi) Labour cost variances

(vii) Labour rate variances

(viii) Labour efficiency variances

(ix) Labour Idle time variances

(9 Marks)

(b) Explain Build-Operate-Transfer (BOT) approach and classify the following expenses in Capital Cost or Operating and Maintenance Cost for Toll Roads:

(i) Land acquisition

(ii) Interest expenses incurred for servicing term loans

(iii) Material and Labour

(iv) Toll Collection Expenses

(v) Contingency Allowance

(vi) Periodic painting cost of railings etc.

(2 + 3 = 5 Marks)

Answer

(a)

	Budget			Actual		
	Qty. (Kg.) [SQ]	Price (₹) [SP]	Amount (₹) [SQ x SP]	Qty. (Kg.) [AQ]	Price (₹) [AP]	Amount (₹) [AQ x AP]
A	6,400	50	3,20,000	7,000	40	2,80,000
B	12,800	40	5,12,000	12,500	45	5,62,500
	19,200		8,32,000	19,500		8,42,500

Material Cost Variance = (SQ X SP – AQ X AP)
 = ₹ 8,32,000 – ₹ 8,42,500 = **₹ 10,500 (A)**

Material Price Variance = (SP – AP) x AQ
 A (₹ 50 – ₹ 40) x 7,000 Kg = **₹ 70,000 (F)**
 B (₹ 40 – ₹ 45) x 12,500 Kg = **₹ 62,500 (A)**
 ₹ 7,500 (F)

Material Usage Variance = SP x (SQ – AQ)
 A ₹ 50 x (6,400 Kg – 7000 Kg) = **₹ 30,000 (A)**
 B ₹ 40 x (12,800 Kg – 12,500 Kg) = **₹ 12,000 (F)**
 ₹ 18,000 (A)

Material Mix Variance = (RSQ - AQ) X SP
 A = (6,500 Kg – 7,000 Kg) x ₹ 50 = **₹ 25,000 (A)**
 B = (13,000 Kg – 12,500 Kg) x ₹ 40 = **₹ 20,000 (F)**
 ₹ 5,000 (A)

Material Yield Variance = (SQ – RSQ) X SP

A = (6,400 Kg – 6,500 Kg) x ₹ 50 = ₹ **5,000 (A)**

B = (12,800 Kg – 13,000 Kg) x ₹ 40 = ₹ **8,000 (A)**
 ₹ 13,000 (A)

Labour

Standard Hours for actual Production = 6 Hours X 1,600 Units = 9,600 Hours

Labour Cost Variance = (SH X SR – AH X AR)

= 9,600 hrs x ₹ 20 – {(6,000 hrs x ₹ 25) + (4,000 hrs x ₹ 20)}
 = ₹ 1,92,000 – ₹ 2,30,000 = ₹ **38,000 (A)**

Labour Rate Variance = (SR – AR) X AH

= (₹ 20 – ₹ 25) x 6,000 hrs = ₹ **30,000 (A)**

Efficiency Variance = (SH – AH worked) x SR

= (9,600 hrs – 9,500 hrs) x ₹ 20 = ₹ **2,000 (F)**

Idle time Variance = Idle Hours X SR

= (AH – AH[#]) x SR

= (10,000 hours – 9,500 hours) x ₹ 20 = ₹ **10,000 (A)**

AH[#] refers to Actual Hours Worked

(b) Build-Operate-Transfer (BOT) Approach: BOT is an option for the Government to outsource public projects to the private sector.

With BOT, the private sector designs, finances, constructs and operates the facility and eventually, after specified concession period, the ownership is transferred to the Government. Therefore, BOT can be seen as a developing technique for infrastructure projects by making them amenable to private sector participation.

Expenses	Classification
Land acquisition	Capital Cost
Interest expenses incurred for servicing term loans	Operating and Maintenance Cost

Material and Labour	Capital Cost
Toll Collection Expenses	Operating and Maintenance Cost
Contingency Allowance	Capital Cost
Periodic painting cost of railings etc.	Operating and Maintenance Cost

Question 5

(a) This data pertains to the three machines operating in the manufacturing division of PQR Corp for the financial year 2023-2024:

Particulars	Estimated Expenses			
	TOTAL (₹)	Machines		
		X (₹)	Y (₹)	Z (₹)
Direct Labour Expenses (per quarter)	2,50,000			
Oil Expenses (per quarter)	1,03,125	37,500	37,500	28,125
Machine Insurance Expenses (per quarter)	60,000			
Depreciation (per annum)	6,00,000	1,00,000	2,00,000	3,00,000
Building Maintenance Expenses (per quarter)	1,00,000			
Wages of Operator (per quarter)	2,25,000			
Electricity Expenses (per quarter)	3,00,000			
Rent and Rates (per month)	80,000			
Salary of Technician (per month)	62,500			

(The Technician works only on machines X and Y and the Operator controls all three machines and both spend equal time on each of the machines worked upon by them.)

There are 14 holidays besides Sundays in the year, of which six are on Saturdays. There was a Strike of workers for 5 working days (including one Saturday). The manufacturing department operates for 8 hours per day on regular week days, while on Saturdays, the operating hours are reduced by 2 hours per day. All machines operate at 80% capacity throughout the year. Assume 366 days in a year.

The following additional information is also available:

- (i) A 20% hike in the price of oil.
- (ii) A 10% rise in Oil consumption for machines 'X' and 'Y' only.
- (iii)

Particulars	Machines		
	X	Y	Z
No. of Workers	5	3	2
Ratio of K.W. Rating	3	3	4
Ratio of Floor space utilized	1	2	1

Required:

Prepare a Statement detailing the allocation of expenses to each machine on an annual basis and thereafter, compute the comprehensive machine hour rate for each of the specified machine. **(7 Marks)**

- (b) ABC Ltd. is a well-known company for producing baby care products.

The company produces and sells two variants of organic shampoo for children: "Baby Rose" and "Baby Lily". The sales and cost data for both products are provided below:

Particulars	Baby Rose	Baby Lily
Current demand and Sales (Number of bottles)	4,000	3,000
Production Capacity (Number of bottles)	7,500	6,000
Selling Price per bottle (₹)	600	750
Variable Costs per bottle:		
- Direct Materials (₹ 20 Per litre)	160	200
- Other Variable Costs	270	350

The fixed costs amount to ₹ 5,00,000 and ₹ 4,50,000 for Baby Rose and Baby Lily respectively. The Production Manager has informed that 1,00,000 litres of material is available for production. A dealer has approached the company and proposed to purchase both products at the existing selling prices, which are to be produced by utilizing the remaining unused material. However, he has insisted that all the bottles must be packed with eco-friendly packaging, which will result in an additional cost of ₹ 10 per bottle for the company. Presently, the company is not using eco-friendly material for packing of bottles.

Required:

Prepare a detailed statement showing the overall contribution and profit of the company after acceptance of the dealer's proposal. **(7 Marks)**

Answer

(a) Computation of Comprehensive Machine Hour Rate

Particulars	Basis of Apportionment	Total (₹)	Machines		
			X (₹)	Y (₹)	Z (₹)
Standing Charges (Per Annum)					
Direct Labour Expenses	No. of Workers (5:3:2)	10,00,000	5,00,000	3,00,000	2,00,000
Wages of Operator	Equal	9,00,000	3,00,000	3,00,000	3,00,000
Machine Insurance Expenses	Depreciation (1:2:3)	2,40,000	40,000	80,000	1,20,000
Building Maintenance Expenses	Floor Space (1:2:1)	4,00,000	1,00,000	2,00,000	1,00,000
Rent and Rates	Floor Space (1:2:1)	9,60,000	2,40,000	4,80,000	2,40,000
Salary of Technician	(1:1:0)	7,50,000	3,75,000	3,75,000	-
Total Standing Charges		42,50,000	15,55,000	17,35,000	9,60,000
Hourly Rate (A)			856.28	955.40	528.63
Machine Expenses (Per Annum)					

Oil Expenses	Direct (W.N.1)	5,31,000	1,98,000	1,98,000	1,35,000
Depreciation	Direct	6,00,000	1,00,000	2,00,000	3,00,000
Electricity Expenses	K. W. Rating (3:3:4)	12,00,000	3,60,000	3,60,000	4,80,000
Total Machine Expenses		23,31,000	6,58,000	7,58,000	9,15,000
Hourly Rate (B)			362.33	417.40	503.85
Total Expenses		65,81,000	22,13,000	24,93,000	18,75,000
(A) + (B)			1,218.61	1,372.80	1,032.49

Calculation of Effective Working Hours.

	Per Machine Per Annum
Full Day Working Hours (250 days x 8 hours)	2,000
6 hours per day Working Hours (45 days x 6 hours)	270
Total Hours	2,270
Capacity Utilization	80%
Effective working hours	1,816

No. of Shutdown Days

Sundays	52
Holidays	14
Strike Period	<u>5</u>
	<u>71</u>

No. of 6 Hours Working Days

Saturdays	52
Less: Holidays	(6)
Less: Strike Period	<u>(1)</u>
	<u>45</u>

No. of Full Working Days

Total No of Days in a year	366
Less: No of Shutdown Days	(71)
Less: No. of 6 Hours Working Days	(45)
	<u>250</u>

Working notes**1. Calculation of Oil Expenses.**

Particulars	Machines		
	X (₹)	Y (₹)	Z (₹)
Oil Expenses	1,50,000	1,50,000	1,12,500
Add: Increase in Price @20%	30,000	30,000	22,500
	1,80,000	1,80,000	1,35,000
Add: Increase in Consumption @10%	18,000	18,000	-
Total	1,98,000	1,98,000	1,35,000

(b) Statement showing the Overall contribution and profit of the company

Particulars	Baby Rose	Baby Lily	Total
	(₹)	(₹)	(₹)
Selling price per bottle	600	750	-
Less: Direct Materials	160	200	-
Other variable costs	270	350	-
Additional packaging	10	10	-
Contribution per bottle	160	190	-
Material required per bottle	8 litres	10	-
Contribution per litre of material	20	19	-

	I	II	
Ranking on the basis of Contribution per litre of material			
	Baby Rose (4,000 + 3,500 bottles)	Baby Lily (3,000 + 1,000 bottles)	
Selling price per bottle	600	750	-
Sales Value	45,00,000	30,00,000	
Variable Cost			
Direct Materials	7,500 units x ₹ 160 = 12,00,000	4,000 units x ₹ 200 = 8,00,000	
Other Variable Costs	7,500 units x ₹ 270 = 20,25,000	4,000 units x ₹ 350 = 14,00,000	
Eco-friendly pack cost	3,500 units x ₹ 10 = 35,000	1,000 units x ₹ 10 = 10,000	
Total Variable Costs	32,60,000	22,10,000	
Contribution	4,000 units x 170 3,500 units x 160 = 12,40,000	3,000 units x 200 1,000 units x 190 = 7,90,000	20,30,000
Less: Fixed Cost	5,00,000	4,50,000	9,50,000
Profit	7,40,000	3,40,000	10,80,000

WN1

	Baby Rose	Baby Lily
Raw Material used per unit of bottle (a)	8 litres (₹ 160/₹ 20)	10 litres (₹ 200/₹ 20)
Current Demand and Sales (b)	4,000 bottles	3,000 bottles
Total Raw Material used (c = a x b)	32,000 litres	30,000 litres

WN2

Raw Material available after current sales = 1,00,000 litres – 62,000 litres
= 38,000 litres

Since the contribution per unit of Baby Rose is higher than Baby Lily, the company will produce and sale Baby Rose shampoo to the dealer.

Number of units that can be produced in 38,000 litres = 38,000 litres/8 litres
 = 4,750 bottles

However, the Production capacity of Baby Rose is 7,500 bottles, only 3,500 bottles can be produced.

Raw materials used in 3,500 bottles = 8 litres x 3,500 bottles = 28,000 litres

Remaining material = 10,000 litres

Number of Baby Lily that can be produced in 10,000 litres = 10,000 litres/10 litres

= 1,000 bottles

Alternatively, Solution can also be presented in following way:

Statement showing the Overall contribution and profit of the company

Particulars	Baby Rose	Baby Lily	Total
	(₹)	(₹)	(₹)
Selling price per bottle	600	750	-
Less: Direct Materials	160	200	-
Other variable costs	270	350	-
Contribution per bottle Before additional packaging	170	200	-
Contribution per bottle per unit of raw material Before additional packaging	21.25	20	
Ranking on the basis of Contribution per bottle per unit of raw material	I	II	

Particulars	Current Sales (WN2)	Additional Sales of Baby Rose (3,500 bottles)	Additional Sales of Baby Lily (1,000 bottles)	Total
	(₹)	(₹)	(₹)	(₹)
Selling price per bottle	-	600	750	-
Less: Direct Materials	-	160	200	-

Other variable costs	-	270	350	-
Additional packaging	-	10	10	-
Contribution per unit	-	160	190	-
Total Contribution	12,80,000	5,60,000	1,90,000	20,30,000
Less: Fixed Cost	9,50,000	-	-	9,50,000
Profit	3,30,000	5,60,000	1,90,000	10,80,000

WN1

		Baby Rose	Baby Lily
Raw Material used per unit of bottle	(a)	8 litres (₹ 160/₹ 20)	10 litres (₹ 200/₹ 20)
Current Demand and Sales	(b)	4,000 bottles	3,000 bottles
Total Raw Material used	(c = a x b)	32,000 litres	30,000 litres

WN2

Statement showing the current contribution and profit of the company

Particulars	Baby Rose	Baby Lily	Total
	(₹)	(₹)	(₹)
Selling price per bottle	600	750	-
Less: Direct Materials	160	200	-
Other variable costs	270	350	-
Contribution per bottle Before additional packaging	170	200	-
Contribution per bottle per unit of raw material Before additional packaging	21.25	20	
Total Contribution Before additional packaging	6,80,000	6,00,000	12,80,000
Less: Fixed Cost	5,00,000	4,50,000	9,50,000
Profit	1,80,000	1,50,000	3,30,000

WN3

Raw Material available after current sales = 1,00,000 litres – 62,000 litres
= 38,000 litres

Since the contribution per unit of Baby Rose is higher than Baby Lily, the company will produce and sale Baby Rose shampoo to the dealer.

Number of units that can be produced in 38,000 litres = 38,000 litres/8 litres
= 4,750 bottles

However, the Production capacity of Baby Rose is 7,500 bottles, only 3,500 bottles can be produced.

Raw materials used in 3,500 bottles = 8 litres x 3,500 bottles = 28,000 litres

Remaining material = 10,000 litres

Number of Baby Lily that can be produced in 10,000 litres = 10,000 litres/10 litres

= 1,000 bottles

Question 6

(a) Describe any five benefits of the Digital Costing System. **(5 Marks)**

(b) Define the following terms:

(i) Controllable Variance

(ii) Uncontrollable Variance

(iii) Budget Manual

(iii) Performance Budgeting

(iv) Budget Period

(5 Marks)

(c) Discuss the treatment of By-products in cost accounting. **(4 Marks)**

OR

(c) Define Job costing and explain differences between job and batch Costing.

(4 Marks)

Answer**(a) Benefits of Digital Costing System are as follows:**

- (i) Ascertainment of cost with certainty on a cost object. This helps to analyse the activities for cost allocation and apportionment.
- (ii) Analysis of data on time spent on each activity to study and formulate incentive plans.
- (iii) Helps in material requirement planning and scheduling the material procurement. Data on resource consumption can be analysed for resource optimisation and finding the possibilities for zero wastage and Just-in Time (JIT).
- (iv) Helps to identify and eliminate the non-value-added activities.
- (v) Data on resource consumption is helpful in setting the standards and measurement of variances on real time basis.
- (vi) Data on current market prices of material and consumables helps to estimate cost and setting standards on Marked to Market (M2M) basis.
- (vii) Extrapolation of data on customer behaviour towards the products to predict the market demand. It is helpful in preparation of budgets and planning of production.
- (viii) A better analysis of cost behaviour improves the cost benefit analysis and equipping the management in informed decision making.

(b) (i) Controllable variances: Controllable variances are those which can be controlled under the normal operating conditions if a responsibility centre takes preventive measures and acts prudently. Responsibility centres are answerable for all adverse variances which could have been controlled.

(ii) Uncontrollable variances: Uncontrollable variances are those which occurs due to conditions which are beyond the control of a responsibility centre and cannot be controlled even though all preventive measures are in place.

(iii) Budget Manual: The budget manual is a booklet specifying the objectives of an organisation in relation to its strategy. The budget is

made to decide how much an organisation would earn and spend and in what manner. In the budget, the organisation sets its priorities too.

Budget manual is also defined as, "A document which sets out the responsibilities of the persons engaged in, the routine of, and the forms and records required for, budgetary control."

Effective budgetary planning relies on the provision of adequate information to the individuals involved in the planning process. Many of these information needs are contained in the budget manual. A budget manual is a collection of documents that contains key information for those involved in the planning process.

- (iv) Performance budgeting:** Performance budgeting (PB) involves evaluation of the performance of an organisation in the context of both specific as well as overall objectives of the organisation.

Performance Budgeting provide a meaningful relationship between estimated inputs and expected outputs as an integral part of the budgeting system. A performance budget is one which presents the purposes and objectives for which funds are required, the costs of the programmes proposed for achieving those objectives, and quantitative data measuring the accomplishments and work performed under each programme. Thus, PB is a technique of presenting budgets for costs and revenues in terms of functions. Programmes and activities correlate the physical and financial aspect of the individual items comprising the budget.

- (v) Budget period:** The period covered by a budget is known as budget period. There is no general rule governing the selection of the budget period. In practice the Budget Committee determines the length of the budget period suitable for the business. Normally, a calendar year or a period co-terminus with the financial year is adopted. The budget period for the calendar or financial year is then divided into shorter periods; it may be monthly or quarterly or for such periods as coincide with period of trading activity of the business.

- (c) By-product cost can be dealt in cost accounting in the following ways:
- (i) **When they are of small total value:** When the by-products are of small total value, the amount realised from their sale may be dealt in any one the following two ways:
 1. The sales value of the by-products may be credited to the Costing Profit and Loss Account and no credit be given in the Cost Accounts. The credit to the Costing Profit and Loss Account here is treated either as miscellaneous income or as additional sales revenue.
 2. The sale proceeds of the by-product may be treated as deductions from the total costs. The sale proceeds in fact should be deducted either from the production cost or from the cost of sales.
 - (ii) **When the by-products are of considerable total value:** Where by-products are of considerable total value, they may be regarded as joint products rather than as by-products. To determine exact cost of by-products the costs incurred upto the point of separation, should be apportioned over by-products and joint products by using a logical basis. In this case, the joint costs may be divided over joint products and by-products by using relative market values; physical output method (at the point of split off) or ultimate selling prices (if sold).
 - (iii) **Where they require further processing:** In this case, the net realisable value of the by-product at the split-off point may be arrived at by subtracting the further processing cost from the realisable value of by-products.

If total sales value of by-products at split-off point is small, it may be treated as per the provisions discussed above under (i).

In the contrary case, the amount realised from the sale of by-products will be considerable and thus it may be treated as discussed under (ii).

OR

- (c) Job Costing is defined as "the category of basic costing methods which is applicable where the work consists of separate contracts, jobs or batches, each of which is authorised by specific order or contract." According to this method, costs are collected and accumulated according to jobs, contracts,

products or work orders. Each job or unit of production is treated as a separate entity for the purpose of costing.

Difference between job and batch costing

Sr. No.	Job Costing	Batch Costing
1.	Method of costing used for non- standard and non-repetitive products produced as per customer specifications and against specific orders.	Homogeneous products produced in a continuous production flow in lots.
2.	Cost determined for each Job	Cost determined in aggregate for the entire Batch and then arrived at on per unit basis.
3.	Jobs are different from each other and independent of each other. Each Job is unique.	Products produced in a batch are homogeneous and lack of individuality