

Chapter 1
Introduction to Cost and management accounting

Multiple Choice Questions:

(10 Marks)

1. Prime cost is _____
 - a. all costs incurred in manufacturing a product
 - b. the total of direct costs
 - c. the material cost of a product
 - d. the cost of operating a department

2. A company employs three drivers to deliver goods to its customers. The salaries paid to these drivers are:
 - a. a part of prime cost
 - b. a direct production expense
 - c. a production overhead
 - d. a selling and distribution overhead

3. A company has to pay a ₹ 1 per unit royalty to the designer of a product which it manufactures and sells. The royalty charge would be classified in the company's accounts as a
 - a. Direct expense
 - b. Production overhead
 - c. Administrative overhead
 - d. Selling overhead

4. _____ is a method of dealing with overheads which involves spreading common costs over cost centers on the basis of benefit received.
 - a. overhead absorption
 - b. overhead apportionment
 - c. overhead allocation
 - d. overhead analysis

5. Which of the following classification is meant for distinction between direct cost and indirect cost?
 - a. Function
 - b. Element
 - c. Variability
 - d. Controllability

6. Which of the following is applicable for Cost Control?
- It is related with the future
 - It is a corrective function
 - It ends when the targets are achieved
 - It challenges the standards set
7. is anything for which a separate measurement of cost is required.
- Cost driver
 - Cost centre
 - Cost unit
 - Cost object
8. Ticket counter in a Metro Station is an example of
- Profit centre
 - Investment centre
 - Cost centre
 - Revenue centre
9. Which of the following is an example of functional classification of cost?
- Direct labour cost
 - Direct material cost
 - Factory overhead
 - Indirect material cost
10. Absorption costing is also referred as _____
- Historical costing
 - Traditional costing
 - Full costing
 - All of the above terms Answer:

1	b	2	d	3	a	4	b	5	b
6	c	7	d	8	d	9	c	10	d

Question 1

MNQ LLP submits the following information on 31st March 2022. Based on the given data prepare a statement of cost.

Details	(₹)
Sales for the year	275000
Inventories at the beginning of the year: Finished goods	7000
Work in Progress	4000
Purchase of the material for the year	110000
Material inventory: At the beginning of the year	3000
At the end of the year	4000
Direct Labour	65000
Factory overhead: 60% of direct labour cost	
Inventories at the end of the year: Finished goods	8000
Work in Progress	6000
Other expenses for year:	
Selling expenses - 10% of sales	
Administrative expense – 5% of sales	

(8 Marks)

Solution

Details	(₹)	(₹)
Inventory (RM) at the beginning of the year	3000	
Add: Purchase of RM during the year	110000	
	113000	
Less: Inventory (RM) at the end of the year	(4000)	
Material consumed		109000
Add: Direct Labour		65000
Prime Cost		174000
Add: Factory Overhead @ 60% of direct labour		39000
Works Cost		213000
Adjustment for work in progress Opening WIP	4000	
Less: Closing WIP	(6000)	(2000)
		211000

Add: Administrative Overhead @ 5% of Sales (275000)		13750
Cost of Production		224750
Adjustment for Finished goods Opening Stock of Finished Goods Less: Closing stock of Finished Goods	7000 (8000)	(1000)
Cost of goods sold		223750
Add: Selling overhead @ 10% of sales (275000)		27500
Cost of Sales		251250
Profit (Balancing figure) Sales		23750
		275000

Question 2

X Ltd Provides you the following figures for the year 2021-22:

Particulars	Amount (₹)
Direct Material	3,20,000
Direct Wages	8,00,000
Production Overheads (25% variable)	4,80,000
Administration Overheads (75% fixed)	1,60,000
Selling and Distribution Overheads	2,40,000
Sales @ ₹ 125 per unit	25,00,000

For the year 2022-23, it is estimated that:

- Output and sales quantity will increase by 20% by incurring additional advertisement expenses of ₹ 45,200.
- Material prices will go up 10%.
- Wage Rate will go up by 5% along with, increase in overall direct labour efficiency by 12%.
- Variable Overheads will increase by 5%.
- Fixed Production Overheads will increase by 33

Required:

- Calculate the Cost of Sales for the year 2021-22 and 2022-23.
- Find out the new selling price for the year 2022-23.
 - If the same amount of profit is to be earned as in 2021-22.
 - If the same percentage of profit to sales is to be earned as in 2021-22.
 - If the existing percentage of profit to sales is to be increased by 25%.
 - If Profit per unit ₹10 is to be earned.

Solution:

(a) Computation of Cost of Sales for the year 2021-22 and 2022-23

(12 Marks)

	2021-22	2022-23	
Sales Unit	$\frac{\text{₹ } 25,00,000}{\text{₹ } 125} = 20,000$	$20,000 \times 120\% = 24,000$	
Direct Material	3,20,000	$3,20,000 \times 120\% \times 110\%$	4,22,400
Direct Wages	8,00,000	$8,00,000 \times 120\% \times 105\%$ $\times \frac{100}{112}$	9,00,000
Prime Cost	11,20,000		13,22,400
Add: Variable Production OH	$4,80,000 \times 25\% =$ 1,20,000	$1,20,000 \times 120\% \times 105\%$	1,51,200
Fixed Production OH	$4,80,000 \times 75\% =$ 3,60,000	$3,60,000 \times 133\frac{1}{3}\%$	4,80,000
Works Cost	16,00,000		19,53,600
Add: Variable Administrative OH	$1,60,000 \times 25\% =$ 40,000	$40,000 \times 120\% \times 105\%$	50,400
Fixed Administrative OH	$1,60,000 \times 75\% =$ 1,20,000		1,20,000
Cost of Production	17,60,000		21,24,000
Add: Variable Selling & Distribution OH	$\frac{1}{3} \times 2,40,000 =$ 80,000	$80,000 \times 120\% \times 105\%$	1,00,800
Fixed Selling & Distribution OH	$\frac{2}{3} \times 2,40,000 =$ 1,60,000		1,60,000
Advertisement Exp.			45,200
Cost of Sales	20,00,000		24,30,000

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(b) Profit for the year 2021-22 = Sales – Cost of Sales = 25,00,000 – 20,00,000 = ₹ 5,00,000

(i) **Selling Price of 2022-23 if same amount of profit is to be earned as in 2021-22:**

$$= \frac{\text{Cost of Sales} + \text{Expected Profit}}{\text{No. of Sales Unit}} = \frac{24,30,000 + 5,00,000}{24,000} = ₹ 122.08$$

(ii) **Selling Price of 2022-23 if the same percentage of profit to sales is to be earned as in 2021-22:**

$$\text{Percentage of Profit to Sales in 2021-22} = \frac{5,00,000}{25,00,000} \times 100 = 20\%$$

Cost of Sales + Profit = Sales

or, 24,30,000 + 20% of Sales = Sales

$$\text{or, Sales} = \frac{24,30,000}{80\%} = ₹ 30,37,500$$

$$\text{Selling Price per unit} = \frac{30,37,500}{24,000} = ₹ 126.5625$$

(iii) **Selling Price of 2022-23 if the existing profit to sales percentage is increased by 25%:**

Profit to Sales percentage = 20 + 25% × 20 = 25%

Cost of Sales + Profit = Sales

or, 24,30,000 + 25% of Sales = Sales

$$\text{or, Sales} = \frac{24,30,000}{75\%} = ₹ 32,40,000$$

$$\text{Selling Price per unit} = \frac{32,40,000}{24,000} = ₹ 135$$

(iv) **Selling Price of 2022-23 if profit per unit of ₹ 10 is to be earned:**

Sales = 24,30,000 + 10 × 24,000 = ₹ 26,70,000

$$\text{Selling Price per unit} = \frac{26,70,000}{24,000} = ₹ 111.25$$



Question 3

PR Ltd manufactures and sells a typical brand of Tiffin Boxes under its own brand name. The installed capacity of the plant is 1,20,000 units per year distributable evenly over each month of calendar year. The Cost Accountant of the company has informed the following cost structure of the product, which is as follows:

Raw Material ₹ 20 per unit.

Direct Labour ₹ 12 per unit.

Direct Expenses ₹ 2 per unit

Variable Overheads ₹ 16 per unit

Fixed Overheads ₹ 3,00,000.

Semi-variable Overheads are as follows:

₹ 7,500 per month upto 50% capacity and additional ₹ 2,500 per month for every additional 25% capacity utilization or part thereof.

The plant was operating at 50% capacity during the first seven months of the calendar year 2022, at 100% capacity in the remaining months of the year.

The selling price for the period from 1st January, 2022 to 31st July, 2022 was fixed at ₹ 69 per unit. The firm has been monitoring the profitability and revising the selling price to meet its annual profit target of ₹ 8,00,000. You are required to suggest the selling price per unit for the period from 1st August, 2022 to 31st December, 2022.

Prepare Cost Sheet clearly showing the total and per unit cost and also profit for the period.

1. From 1st January to 31st July, 2022.
2. From 1st August to 31st December, 2022.

Solution:

Cost Sheet

Capacity Utilisation Period	50% Capacity 1st January – 31st July		100% Capacity 1st August– 31st December	
Units	$\frac{1,20,000}{12} \times 7 \times 50\% = 35,000$		$\frac{1,20,000}{12} \times 5 \times 100\% = 50,000$	
Raw Material	$20 \times 35,000$	7,00,000	$20 \times 50,000$	10,00,000
Capacity Utilisation Period	50% Capacity 1st January – 31st July		100% Capacity 1st August– 31st December	
Direct Labour	$12 \times 35,000$	4,20,000	$12 \times 50,000$	6,00,000
Direct Expenses	$2 \times 35,000$	70,000	$2 \times 50,000$	1,00,000
Variable Overheads	$16 \times 35,000$	5,60,000	$16 \times 50,000$	8,00,000
Fixed Overheads	$\frac{3,00,000}{7} \times \frac{7}{12}$	1,75,000	$\frac{3,00,000}{5} \times \frac{5}{12}$	1,25,000
Semi-Variable Overhead	$7,500 \times 7$	52,500	$12,500 \times 5$	62,500
Total Cost		19,77,500		26,87,500
Profit (WN 1)		4,37,500		3,62,500
Sales (WN 2)	$69 \times 35,000$	24,15,000		30,50,000
Selling Price per unit(WN 2)		69	$\frac{30,50,000}{50,000}$	61
Cost per unit	$\frac{19,77,500}{35,000}$	56.50	$\frac{26,87,500}{50,000}$	53.75

Working Notes:

1. Selling Price for 1st January – 31st July = ₹69

∴ Sales = $69 \times 35,000 = ₹ 24,15,000$ Profit for 1st January – 31st July = $24,15,000 - 19,77,500 = ₹ 4,$

37,500

2. Expected total profit for the year ₹ 8,00,000

Profit to earn from 1st August – 31st December = 8,00,000 – 4,37,500 = ₹

3,62,500 Expected Sale from 1st August – 31st December = 30,50,000

Expected Selling price per unit from 1st August – 31st December

$$= ₹ \frac{30,50,000}{50,000} = ₹ 6$$



Chapter 2 Material Costing**Multiple Choice Questions (MCQs)****(1 Mark Each)**

1. Direct material can be classified as
 - (a) Fixed cost
 - (b) Variable cost
 - (c) Semi-variable cost.
 - (d) Prime Cost
2. In most of the industries, the most important element of cost is
 - (a) Material
 - (b) Labour
 - (c) Overheads
 - (d) Administration Cost
3. Which of the following is considered to be the normal loss of materials?
 - (a) Loss due to accidents
 - (b) Pilferage
 - (c) Loss due to breaking the bulk
 - (d) Loss due to careless handling of materials.
4. In which of following methods of pricing, costs lag behind the current economic values?
 - (a) Last-in-first out price
 - (b) First-in-first out price
 - (c) Replacement price
 - (d) Weighted average price
5. Continuous stock taking is a part of
 - (a) Annual stock taking
 - (b) Perpetual inventory
 - (c) ABC analysis.
 - (d) Bin Cards

6. In which of the following methods, issues of materials are priced at pre-determined rate?
- (a) Inflated price method
 - (b) Standard price method
 - (c) Replacement price method
 - (d) Market price method.
7. When material prices fluctuate widely, the method of pricing that gives absurd results is
- (a) Simple average price
 - (b) Weighted average price
 - (c) Moving average price
 - (d) Inflated price.
8. When prices fluctuate widely, the method that will smooth out the effect of fluctuations is
- (a) Simple average
 - (b) Weighted average
 - (c) FIFO
 - (d) LIFO
9. Under the FSN system of inventory control, inventory is classified on the basis of:
- (a) Volume of material consumption
 - (d) Frequency of usage of items of inventory
 - (c) Criticality of the item of inventory for production
 - (d) Value of items of inventory
10. Form used for making a formal request to the purchasing department to purchase materials is a - :
- (a) Material Transfer Note
 - (b) Purchase Requisition Note
 - (c) Bill of Materials
 - (d) Material Requisition Note

Answers to the MCQs

1.	(b)	2.	(a)	3.	(c)	4.	(b)	5.	(b)
7.	(a)	8.	(b)	9.	(b)	10.	(b)	6.	(b)



Question 1

A company manufactures 5000 units of a product per month. The cost of placing an order is Rs. 100. The purchase price of the raw material is Rs. 10 per kg. The re-order period is 4 to 8 weeks. The consumption of raw materials varies from 100 kg to 450 kg per week, the average consumption being 275 kg. The carrying cost of inventory is 20% per annum.

You are required to calculate:

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

(10 Marks)

Solution:

$$A = \text{Annual consumption} = 275 \times 52 =$$

$$14300 \text{ kg } O = \text{Ordering Cost} = ₹ 100$$

$$C = \text{Carrying Cost} = 10 \times$$

$$20\% = 2 \text{ Reorder Quantity} =$$

$$\frac{\sqrt{2 \times A \times O}}{C}$$

$$\frac{\sqrt{2 \times 14300 \times 100}}{2}$$

$$= \underline{1196 \text{ kg}}$$

	Consumption	Lead Time
Maximum	450	8
Minimum	100	4
Average	275	6

$$\begin{aligned} \text{Reorder Level} &= 450 \\ &\times 8 \\ &= \underline{3600 \text{ kg}} \end{aligned}$$

$$\begin{aligned} \text{Maximum Level} &= 3,600 + 1,196 - (100 \times 4) \\ &= \underline{4396 \text{ kg}} \end{aligned}$$

$$\begin{aligned} \text{Minimum Level} &= 3600 - (275 \times 6) \\ &= \underline{1950 \text{ kg}} \end{aligned}$$

$$\begin{aligned} \text{Average stock level} &= \frac{4396+1950}{2} = \underline{3173 \text{ kg}} \end{aligned}$$

Question 2

Prepare a statement showing the pricing of issues, on the basis of

- a. Simple Average and
- b. Weighted Average methods

from the following information pertaining to Material D

2022 March	1	Purchased 100 units @ ₹ 10 each
	2	Purchased 200 units @ ₹ 10.20 each
	5	Issued 250 units to Job X vide M.R. No. 12
	7	Purchased 200 units @ ₹ 10.50 each
	10	Purchased 300 units @ ₹ 10.80 each
	13	Issued 200 units to Job Y vide M.R. No. 15
	18	Issued 200 units to Job Z vide M.R. No. 17
	20	Purchased 100 units @ ₹ 11 each
	25	Issued 150 units to Job K vide M.R. No. 25

Solution:

a. Simple Average Method



Stores Ledger Account

Date	Receipts			Issue			Balance		
	Qty	Rate ₹	Amount ₹	Qty	Rate ₹	Amount ₹	Qty	Rate ₹	Amount ₹
2022									
01/03	100	10	1,000				100	10	1,000
02/03	200	10.20	2,040				300		3,040
05/03				250	10.10	2,525	50		515
07/03	200	10.50	2,100				250		2,615
10/03	300	10.80	3,240				550		5,855
13/03				200	10.50	2,100	350		3,755
18/03				200	10.65	2,130	150		1,625
20/03	100	11	1,100				250		2,725
25/03				150	10.90	1,635	100		1,090

(10 Marks)



Working Notes

1. Calculation of Simple Average Price for

$$\text{Issue on 05/03/2022} = \frac{10 + 10.20}{2} = ₹ 10.10$$

$$\text{Issue on 13/03/2022} = \frac{10.20 + 10.50 + 10.80}{3} = ₹ 10.50$$

$$\text{Issue on 18/03/2022} = \frac{10.50 + 10.80}{2} = ₹ 10.65$$

$$\text{Issue on 25/03/2022} = \frac{10.80 + 11}{2} = ₹ 10.90$$

b. Weighted Average Method

Stores Ledger Account

Date	Receipts			Issue			Balance		
	Qty	Rate ₹	Amount ₹	Qty	Rate ₹	Amount ₹	Qty	Rate ₹*	Amount ₹
2022 01/03	100	10	1,000				100	10	1,000
02/03	200	10.20	2,040				300	10.13	3,040
05/03				250	10.13	2,533	50	10.13	507
07/03	200	10.50	2,100				250	10.43	2,607
10/03	300	10.80	3,240				550	10.63	5,847
13/03				200	10.63	2,126	350	10.63	3,721
18/03				200	10.63	2,126	150	10.63	1,595
20/03	100	11	1,100				250	10.78	2,695
25/03				150	10.78	1,617	100	10.78	1,078

$$* \text{ Balance Rate} = \frac{\text{Balance Amount}}{\text{Balance Quantity}}$$

Question 3

From the following particulars with respect to a particular item of materials of a manufacturing company, calculate the best quantity to order:

Ordering quantities (tonnes)	Price per tonne Amount (₹)
Less than 250	6.00
250 but less than 800	5.90
800 but less than 2,000	5.80
2,000 but less than 4,000	5.70
4,000 and above	5.60

The annual demand for the material is 4,000 tonnes. Stock holding costs are 20% of material cost p.a. The delivery cost per order is ₹ 6.00



Solution:

Computation of Total Inventory Cost for different Ordering Quantities

Particulars	Ordering Quantities (tonne)				
	200	250	800	2,000	4000
1. Annual Demand (tonne)	4,000	4,000	4,000	4,000	4,000
2. No. of Orders [(1)/ordering quantity]	20	16	5	2	1
3. Price per tonne (₹)	6.00	5.90	5.80	5.70	5.60
4. Average Quantity(tonne) Ordering Quantities $\frac{\quad}{2}$	100	125	400	1,000	2,000
5. Cost per Order (₹)	6.00	6.00	6.00	6.00	6.00
6. Rate of Interest	20%	20%	20%	20%	20%
Purchase Cost (1) × (3) (₹)	24,000	23,600	23,200	22,800	22,400
Ordering Cost (2) × (5) (₹)	120	96	30	12	6
Carrying Cost (₹) (4) × (3) × (6)	120	147.50	464	1,140	2,240
Total Inventory Cost (₹)	24,240	23,843.50	23,694	23,952	24,646

(12 Marks)

From the above computations the best quantity to order is 800 units.

Chapter 3
Employee Cost and Direct Expenses

Multiple Choice Questions:

(12 Marks)

1. Idle time is the time under which-
 - (a) Full wages are paid to workers
 - (b) No productivity is given by the workers
 - (c) Both (a) and (b)
 - (d) None of the above

2. Cost of idle time due to non- availability of raw material is-
 - (a) Charged to overhead costs
 - (b) Charged to respective jobs
 - (c) Charged to costing profit and loss account
 - (d) None of the above

3. Time and motion study is conducted by-
 - (a) Time keeping department
 - (b) Personnel department
 - (c) Payroll department
 - (d) Engineering department

4. Identify, which one of the following, does not account for increasing labour productivity-
 - (a) Job satisfaction
 - (b) Motivating workers
 - (c) High labour turnover
 - (d) Proper supervision and control

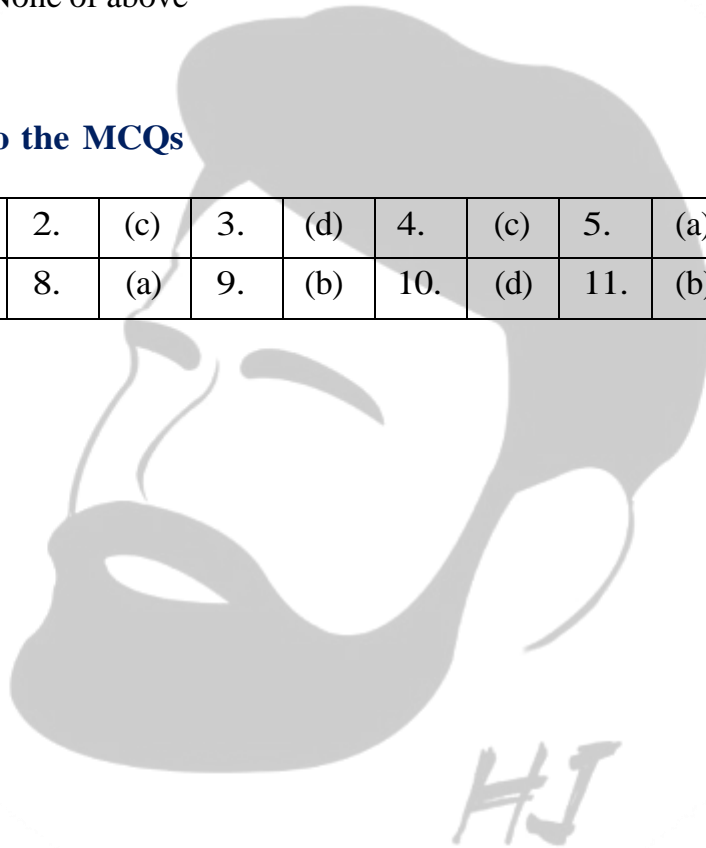
5. Labour turnover is measured by-
 - (a) Number of persons replaced/ average number of worker
 - (b) Numbers of persons separated / number of workers at the beginning of the year
 - (c) $(\text{Number of persons replaced} + \text{number of persons separated}) / (\text{number of persons at the beginning} + \text{the number of persons at the end of the year})$
 - (d) None of the above

6. Time booking refers to a method wherein _____ of an employee is recorded.
- (a) Attendance
 - (b) Food expenses
 - (c) Health status
 - (d) Time spent on a particular job
7. Employee Cost includes-
- (a) Wages and salaries
 - (b) Allowances and incentives
 - (c) Payment for overtime
 - (d) All of the above
8. If the time saved is less than 50% of the standard time, then the wages under Rowan and Halsey premium plan on comparison gives-
- (a) More wages to workers under Rowan plan than Halsey plan
 - (b) More wages to workers under Halsey plan than Rowan plan
 - (c) Equal wages under two plans
 - (d) None of the above
9. Standard time of a job is 60 hours and guaranteed time rate is ₹0.30 per hour. What is the amount of wages under Rowan plan if job is completed in 48 hours?
- (a) ₹ 16.20
 - (b) ₹ 17.28
 - (c) ₹ 18.00
 - (d) ₹ 14.40
10. Important factors for control of employee cost can be-
- (a) Time and Motion Study
 - (b) Control over idle time and overtime
 - (c) Control over employee turnover
 - (d) All of the above

11. Out of the following methods attendance is marked by recognizing an employee based on physical and behavioral traits-
- Punch Card Attendance method
 - Bio- Metric Attendance system
 - Attendance Register method
 - Token Method
12. If overtime is required for meeting urgent orders, the overtime premium should be charged as-
- Respective job
 - Overhead cost
 - Costing P& L A/c
 - None of above

Answers to the MCQs

1.	(c)	2.	(c)	3.	(d)	4.	(c)	5.	(a)	6.	(d)
7.	(d)	8.	(a)	9.	(b)	10.	(d)	11.	(b)	12.	(a)



Question 1

Compute of Employee Cost

(4 Marks)

Dr.

Trial Balance as on 31.3.2022 (relevant extracts only)

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Particulars	Amount (₹)	Particulars	Amount (₹)
Materials Consumed	25,00,000	Special Subsidy received from Government towards Employee Salary	2,75,000
Salaries	15,00,000		
Employee Training Cost	2,00,000		
Perquisites to Employee	4,50,000	Recoverable amount from Employee out of perquisites extended	35,000
Contribution to Gratuity Fund	4,00,000		
Lease rent for accommodation provided to employees	3,00,000		
Festival Bonus	50,000		
Unamortised amount of Employee cost related to a discontinued operation	90,000		

Solution:

Computation of Employee Cost

Particulars	Amount (₹)
Salaries	15,00,000
Add: Net cost of Perquisites to Employees = 4,50,000 – 35,000	4,15,000
Add: Contribution to Gratuity Fund	4,00,000
Add: Lease rent for accommodation provided to employees	3,00,000
Add: Festival Bonus	50,000
Less: Special Subsidy received from Government towards employee salary	2,75,000
Employee Cost	23,90,000

Note:

1. Recoverable amount from employee is excluded from the cost of perquisites.
2. Employee training cost is not an employee cost. It is to be treated as an overhead, hence not included.
3. Special subsidy received is to be excluded, as it reduces the cost of the employer.
4. Unamortised amount of employee cost related to a discontinued operation is not an includible item of cost.

Question 2

A manufacturer introduces a new machinery into his factory with the result that production per worker is increased. The workers are paid by results and it is agreed for every 2% increase in average individual output, an increase of 1% on the rate of wages will be paid.

At the time the machinery is installed the selling price of the products falls $8\frac{1}{3}\%$. Show the net saving in production costs which would be required to offset the losses expected from the turnover and bonus paid to workers.

	I st period	II nd period
No. of workers	175	125
Number of articles produced	16,800	14,000
Wages paid	₹ 33,600	
Total Sales	₹ 75,600	

(6 Marks)

Solution:-

$$\begin{aligned}
 \text{Number of units per worker in Period I} &= \frac{16,800}{175} = 96 \\
 \text{Number of units per worker in Period II} &= \frac{14,000}{125} = 112 \\
 \text{Increase in production per worker} &= 112 - 96 = 16 \text{ units} \\
 \text{Percentage increase in output in Period II} &= \frac{16}{96} \times 100 = 16\frac{2}{3}\% \\
 \text{Wages in Period I} &= ₹ 33,600
 \end{aligned}$$

Wages in Period II (at Period I labour rate)	= $\frac{33,600}{175} \times 125 = ₹ 24,000$
Increase in Wages $16\frac{2}{3}\% \times \frac{1}{2} = 8\frac{1}{3}\%$	= $24,000 \times 8\frac{1}{3}\% = ₹ 2,000$
Sales in Period I	= ₹ 75,600
Sales in Period II (at Period I sales price)	= $\frac{75,600}{16,800} \times 14,000 = ₹ 63,000$
Decrease in Sales in Period II	= $₹ 63,000 \times 8\frac{1}{3}\% = ₹ 5,250$
Total loss due to increase in wages and reduction in sales	= $2,000 + 5,250 = ₹ 7,250$
To offset the loss, the required net savings in production costs must be	₹ 7,250

Question 3

Ten men work as a group. When the weekly production of the group exceeds standard (200 pieces per hour) each man in the group is paid a bonus for the excess production in addition to his wages at hourly rates. The bonus is computed thus:

The percentage of production in excess of the standard amount is found and one-half of this percentage is considered as the men's share. Each man in the group is paid as bonus this percentage of a wage rate of ₹ 3.20 per hour. There is no relationship between the individual workman's hourly rate and the bonus rate. The following is the week's records.

	Hours Worked	Production (units)
Monday	90	22,100
Tuesday	88	22,600
Wednesday	90	24,200
Thursday	84	20,100
Friday	88	20,400
Saturday	40	10,200
Total	480	1,19,600

- Compute the rate and amount of bonus for the week;
- Compute the total pay of Ram who worked $41\frac{1}{2}$ hours and was paid ₹ 2 per hour basic and of Shyam who worked $44\frac{1}{2}$ hours and was paid ₹ 2.50 per hour basic.

(6 Marks)

Solution:

- a. Standard Production in Actual Time = $480 \times 200 = 96,000$ units
 b. Actual Production = 1,19,600 units
 c. Excess of Actual Production over standard = $1,19,600 - 96,000 = 23,600$ units
 d. Percentage of excess over standard = $\frac{96,000}{23,600} \times 100 = 24.58\%$
 e. Percentage of Bonus = $\frac{1}{2} \times 24.58\% = 12.29\%$
 f. Bonus Rate per hour = $\text{₹ } 3.20 \times 12.29\% = \text{₹ } 0.393$
 g. Total Bonus for week = $480 \times 0.393 =$

₹ 188.64 Computation of Total Earnings of Ram & Shyam:

Particulars		Ram (₹)		Shyam (₹)
Basic Wages	41.50×2	83.00	44.50×2.50	111.25
Bonus	41.50×0.393	16.31	44.50×0.393	17.49
Total Earnings		99.31		128.74

Question 4

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

Because of assurance, the increase in productivity has been observed as revealed by the figures for the month of April 2016.

Hourly rate of wages (guaranteed)

Rate 30

Average time for producing one unit by One worker at the previous performance

(This may be taken as time allowed) 1.975 hours

Number of working days in the month 24

Number of working hours per day of Each worker 8

Actual production during the month 6,120 units

Required:

- i. Calculate the effective rate of earnings under the Halsey scheme and 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 his assurance. (12 Marks)

Solution :-

Given:

Standard Hours = 12087 Hours (6120 × 1.975 Hours)
 Actual Hours = 9600 Hours (24 × 8 × 50)
 ∴ Time Saved = 2487 Hours

Bonus Hours:**As per Halsey:**

Bonus Hours = 50% of 2487 = 1243.50 Hours

As per Rowan

Bonus Hours = $\frac{9600}{12087} \times 2487 = 1975.28$ Hours

1) Statement showing effective rate per hour

	(Actual Hours	+ Bonus Hours)	× Rate per hours	= Wages	÷ Actual	= Effective Rate per hour
Halsey	9,600	1,243.50	30	3,25,305	9,600	33.88
Rowan	9,600	1,975.28	30	3,47,258	9,600	36.17

ii) Statement showing saving per pieces

	Present cost per piece	Proposed cost per piece	Saving per piece
Halsey	59.25	53.15	6.10
Rowan	59.25	56.74	2.51

Note A:**Present cost per piece**

1.975 Hours × ₹ 30 = 59.25

Proposed cost per piece

Halsey $325305/6120 = ₹$

53.15 Rowan $347258/6120$

$= ₹ 56.74$

iii) Present Payment to worker =	2,88,000
$(24 \times 8 \times 50) \times ₹ 30$	
Increased by 20%	<u>57,600</u>
Minimum payment	<u>3,45,600</u>

Conclusion:

The above analyses clearly show that the saving per unit as per Halsey is more than Rowan but we have to see that assurance part also so we have to make the payment according to Rowan

Question 5

Arnav Limited manufactures and sales plastic chairs. It pays wages under the differential piece rate system by following F.W. Taylor's System with a standard piece rate of ₹ 12.50 per unit of chair produced by the workers. Standard production per hour is 4 chairs. Each worker is supposed to work 8 hours a day from Monday to Friday and 5 hours on Saturday.

Presently, there are 118 workers who are entitled for this plan. The plant and machinery used to manufacture the chairs was purchased long back and does not match with the efficiency of the workers. Workers appraised their concerns to the management and demanded wages on the time rate basis i.e. ₹ 50 per hour and the incentive under the Halsey Premium plan.

The following production estimates has been made for the month of November, 2023 under the three scenarios:

Scenario	Worst case	Optimal case	Best case
Production (in units)	42,400	84,960	1,27,400

Required:

(a) Calculate total wages and average wages per worker per month, under the each scenario, when

(i) Current system of wages and incentive payment system is followed

(ii) Workers' demand for time rate wages and Halsey premium plan is accepted.

(b) Mr. K, during the month of October 2023, has produced 1,050 units. What will be impact on his earning if he will be able to produce the same number of units in next month also. Should he support the workers' demand?

(Take 4 working weeks in a month)

(16 Marks)

Solution:-

1. (a) Calculation of Total wages and average wages per worker per month.

When Current system of wages and incentive payment system is followed:

		Worst case	Optimal case	Best case
I	Standard Production (in units) (45 hours × 4 units × 4 weeks × 118 workers)	84,960	84,960	84,960
II	No. of units to be produced	42,400	84,960	1,27,400
III	Efficiency {(II ÷ I) × 100}	49.91%	100%	149.95%
IV	Differential piece rate*	₹10 (₹12.5 × 0.8)	₹15 (₹12.5 × 1.2)	₹15 (₹12.5 × 1.2)
V	Total Wages (II × IV)	₹4,24,000	₹12,74,400	₹19,11,000
VI	Average wages per worker(V ÷ 118)	₹3,593.22	₹10,800	₹16,194.92

*For efficiency less than 100%, 83% of piece rate and for efficiency more than or equals to 100%, 125% of piece rate may also be taken.

When workers' demand for time rate wages and Halsey premium plan is accepted:

		Worst case	Optimal case	Best case
I	No. of units expected to be reproduced (units)	42,400	84,960	1,27,400
II	Standard no. units in an hour (units)	4	4	4
III	Standard Hours (I ÷ II)	10,600	21,240	31,850
IV	Expected working hours (45 hours × 4 weeks × 118 workers)	21,240	21,240	21,240
V	Hours to be saved (III – IV)	--	--	10,610
VI	Time wages (IV × ₹50)	₹10,62,000	₹10,62,000	₹10,62,000
VII	Incentive under Halsey Premium Plan	--	--	₹2,65,250
VIII	1 Time saved * ₹ 50			
IX	2 -	₹10,62,000	₹10,62,000	₹13,27,250

Total Wages (VI +VII)	₹9,000	₹9,000	₹11,247.88
Average wages per worker(VIII ÷ 118)			

(b) Calculation of gain or loss in the current monthly income of Mr. K:

I	Wages earned in October 2023:	
	Standard production unit (45 hours × 4 weeks × 4 units)	720 units
	No. of units produced	1,050 units
	Efficiency	145.83%
	Differential piece rate (refer the above part)	₹15
		₹15,750

II	Expected wages under the new scheme	
	Standard hours (1,050 units ÷ 4 units)	262.50 hours
	Expected hours to be taken (45 hours × 4 weeks)	180 hours
	Time saved	82.50 hours
	Time wages (180 hours × ₹50)	₹9,000
	Incentive	₹2,062.50
	1 Time saved ₹ 50	
	2	
	Total expected wages	₹11,062.50
	Loss from the proposed scheme (II – I)	₹4,687.50

Supporting the demand of colleague workers will cost ₹4,687.50 in the next month to Mr. K.

Question 6

Royalty paid on sales ₹ 30,000; Royalty paid on units produced ₹ 20,000, Hire charges of equipment used for production ₹ 2,000, Design charges ₹ 15,000, Software development charges related to production ₹ 22,000. Compute the direct expenses. (4 Marks)

Solution:

Computation of Direct Expenses

Particulars	₹
Royalty paid on sales	30,000
Add: Royalty paid on units produced	20,000
Add: Hire charges of equipment used for production	2,000
Add: Design charges	15,000
Add: Software development charges related to production	22,000
Direct Expenses	89,000

Note:

- Expenses are related to either manufacturing of the product or rendering of service.
- These costs are directly identifiable and can be linked with the cost object and are not related to direct material cost or direct employee cost. Hence, these are considered as direct expenses

Question 7

A manufacturing unit produces two products X and Y. the following information is furnished:

Particulars	Product X	Product Y
Units produced (quantity)	20,000	15,000
Units sold (quantity)	15,000	12,000
Machine Hours utilized	10,000	5,000
Design charges	15,000	18,000
Software development charges	24,000	36,000

Royalty paid on sales ₹ 54,000 [@ ₹ 2 per unit sold, for both the products];

Royalty paid on units produced ₹ 35,000 [@ ₹ 1 per unit produced, for both the products], Hire charges of equipment used in manufacturing process of Product X only ₹ 5,000. Compute the direct expenses. (6

Marks) Solution:

Computation of Direct Expenses

Particulars	Product X ₹	Product Y ₹
Royalty paid on sales	15,000 × 2 = 30,000	12,000 × 2 = 24,000
Add: Royalty paid on units produced	20,000 × 1 = 20,000	15,000 × 1 = 15,000
Add: Hire charges of equipment used in manufacturing	5,000	-

process of Product X only		
Add: Design charges	15,000 24,000	18,000 36,000
Add: Software development charges related to production		
Direct Expenses	94,000	93,000

Note:

- Royalty on production and royalty on sales are allocated on the basis of units produced and units sold respectively. These are directly identifiable and traceable to the number of units produced and units sold. Hence, this is not an apportionment.

No adjustments are made related to units held, i.e., closing stock



Chapter 4
Overhead – Absorption Costing Method

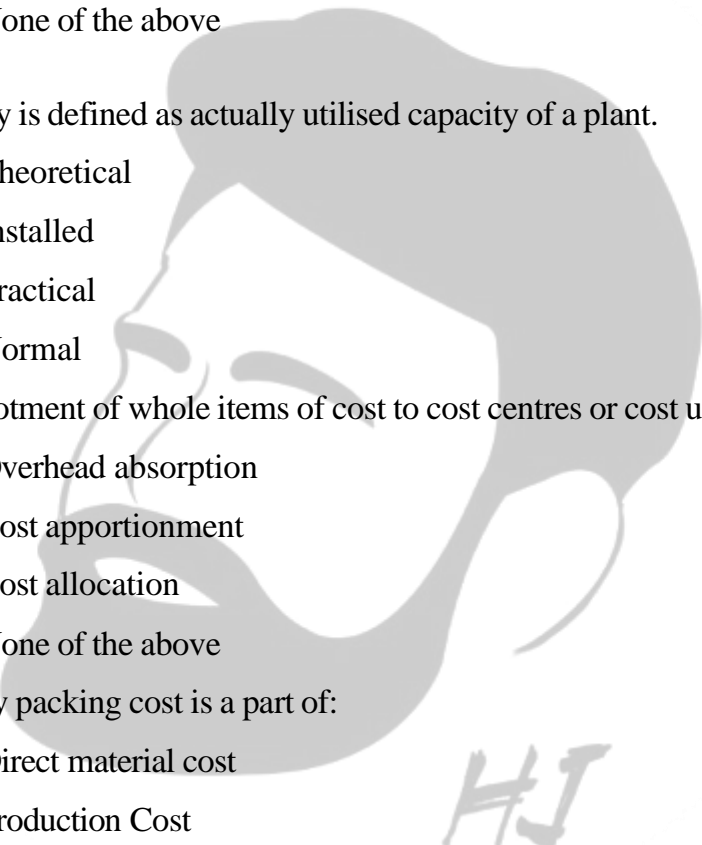
Multiple Choice Questions:

(10 Marks)

1. “Fixed overhead costs are not affected in monetary terms during a given period by a change in output”. But this statement holds good provided:
 - (a) Increase in output is not substantial
 - (b) Increase in output is substantial
 - (c) Both (a) and (b)
 - (d) None of the above

 2. capacity is defined as actually utilised capacity of a plant.
 - (a) Theoretical
 - (b) Installed
 - (c) Practical
 - (d) Normal

 3. The allotment of whole items of cost to cost centres or cost units is called:
 - (a) Overhead absorption
 - (b) Cost apportionment
 - (c) Cost allocation
 - (d) None of the above

 4. Primary packing cost is a part of:
 - (a) Direct material cost
 - (b) Production Cost
 - (c) Selling overheads
 - (d) Distribution overheads
- 

5. Director's remuneration and expenses form part of:
- (a) Production overhead
 - (b) Administration overhead
 - (c) Selling overhead
 - (d) Distribution overhead
6. Which of the following is not the classification of overhead based on its functionality?
- (a) Factory Overhead
 - (b) Administrative Overhead
 - (c) Fixed Overhead
 - (d) Selling Overhead
7. Bad debt is an example of:
- (a) Distribution overhead
 - (b) Production overhead
 - (c) Selling overhead
 - (d) Administration overhead
8. Normal capacity of a plant refers to the difference between:
- (a) Maximum capacity and practical capacity
 - (b) Practical capacity and normal capacity
 - (c) Practical capacity and estimated idle capacity as revealed by long term sales trend.
 - (d) Maximum capacity and actual capacity
9. The difference between actual factory overhead and absorbed factory overhead will be usually at the minimum level, provided pre-determined overhead rate is based on:
- (a) Maximum capacity
 - (b) Direct labour hours
 - (c) Machine hours
 - (d) Normal capacity

10. Which of the following overhead cost may not be apportioned on the basis of direct wages?
- (a) Worker's Holiday Pay
 - (b) Perquisites to worker
 - (c) ESI contribution
 - (d) Managerial Salaries

Answers to the MCQs

1.	(a)	2.	(c)	3.	(c)	4.	(b)	5.	(b)	6.	(c)
7.	(c)	8.	(c)	9.	(d)	10	(d)				



Question 1

In an Engineering Factory, the following particulars have been extracted for the quarter ended 31st December, 2022. Compute the departmental overhead rate for each of the production departments, assuming that overheads are recovered as a percentage of direct wages.

	Production Departments			Service Departments	
	A	B	C	X	Y
Direct Wages ₹	30,000	45,000	60,000	15,000	30,000
Direct Material ₹	15,000	30,000	30,000	22,500	22,500
No. of workers	1,500	2,250	2,250	750	750
Electricity KWH	6,000	4,500	3,000	1,500	1,500
Assets Value	60,000	40,000	30,000	10,000	10,000
No. of Light points	10	16	4	6	4
Area Sq. Yards	150	250	50	50	50

The expenses for the period were:

	Amount (₹)
Power	1,100
Lighting	200
Stores Overheads	800
Welfare of Staff	3,000
Depreciation	30,000
Repairs	6,000
General Overheads	12,000
Rent and Taxes	550

Apportion the expenses of Service Department Y according to direct wages and those of Service Department X in the ratio of 5 : 3 : 2 to the production departments. (12 Marks)

Solution

Statement Showing Apportionment of Overheads

Particulars	Basis of Apportionment	Total ₹	A ₹	B ₹	C ₹	X ₹	Y ₹
Material	Actual	45,000	-	-	-	22,500	22,500

Particulars	Basis of Apportionment	Total ₹	A ₹	B ₹	C ₹	X ₹	Y ₹
Wages	Actual	45,000	-	-	-	15,000	30,000
Power	KWH (4:3:2:1:1)	1,100	400	300	200	100	100
Lighting	No. of Light Points (5:8:2:3:2)	200	50	80	20	30	20
Stores Overhead	Direct Material (2:4:4:3:3)	800	100	200	200	150	150
Welfare of Staff	No. of workers (2:3:3:1:1)	3,000	600	900	900	300	300
Depreciation	Asset Value (6:4:3:1:1)	30,000	12,000	8,000	6,000	2,000	2,000
Repairs	Asset Value (6:4:3:1:1)	6,000	2,400	1,600	1,200	400	400
General Overheads	Direct Wages (2:3:4:1:2)	12,000	2,000	3,000	4,000	1,000	2,000
Rent and Taxes	Area (3:5:1:1:1)	550	150	250	50	50	50
Total		1,43,650	17,700	14,330	12,570	41,530	57,520
Cost of X	As given (5:3:2)		20,765	12,459	8,306	(41,530)	-
Cost of Y	Direct Wages (2:3:4)		12,782	19,173	25,565		(57,520)
Total Overheads of Production Department			51,247	45,962	46,441	-	-

Computation of Overhead Recovery Rate

Production Overhead	Overhead Amount ₹	Wages ₹	Overhead Recovery Rate
A	51,247	30,000	$\frac{51,247}{30,000} \times 100 = 170.82\%$
B	45,962	45,000	$\frac{45,962}{45,000} \times 100 = 102.14\%$
C	46,441	60,000	$\frac{46,441}{60,000} \times 100 = 77.40\%$

Question 2

In a machine department of a factory there are five identical machines. From the particulars given below; prepare the machine hour rate for one of the machines.

Space of the department	10,000 Sq. mts.
Space occupied by the machine	2,000 Sq. mts.
Cost of the machine	₹ 20,000
Scrap value of the machine	₹ 300
Estimated life of the machine	13 years
Depreciation charged at	7½ % p.a.
Normal running of the machine	2,000 hours
Power consumed by the machine as shown by the meter	₹ 3,000 p.a.

Estimated repairs and maintenance throughout the working life of the machine ₹ 5,200. Sundry supplies including oil, waste etc. charged direct to the machine amount to ₹ 600 p.a.

Other expenses of the department are:

	Amount (₹)
Rent and Rates	9,000
Lighting (to be apportioned according to workers employed)	400
Supervision	1,250
Other charges	5,000

It is ascertained that the degree of supervision required by the machine is $\frac{2}{5}$ and $\frac{3}{5}$ being devoted to other machines.

There are 16 workers in the department of whom 4 attended to the machine and the remaining to the other machines.

(8 Marks)

Solution

Computation of Machine Hour Rate

Particulars	Workings	Cost per annum per machine (₹)	Total(₹)
Standing Charges			
Rent and Rates	$\frac{₹ 9,000}{5 \text{ machines}}$	1,800	
Lighting	$\frac{4 \text{ workers}}{16 \text{ workers}} \times ₹ 400$	100	
Supervision	$₹ 1,250 \times \frac{2}{5}$	500	
Other Charges	$\frac{₹ 5,000}{5 \text{ machines}}$	1,000	
Total Standing Charges			3,400
Machine Expenses			
Depreciation	$₹ 20,000 \times 7.5\%$	1,500	
Repair and Maintenance	$\frac{₹ 5,200}{13 \text{ years}}$	400	
Sundries		600	
Power		3,000	
Total Machine Expenses			5,500
Total Cost p.a.			8,900
Machine Hours			2,000
Machine Hour Rate	$\frac{₹ 8,900}{2,000 \text{ hours}}$		₹ 4.45 per hour

Question 3

In a factory the expenses of factory are charged on a fixed percentage basis on wages and office overhead expenses are calculated on the basis of percentage of works cost.

	Order I (₹)	Order II (₹)
Material	12,500	18,000
Wages	10,000	14,000
Selling price	44,850	61,880
Percentage of profit on cost	15%	12%

Find the rate of Factory Overhead and Office Overhead.

(10 Marks)

Solution:

Let X be the percentage of works overhead on wages, and Y be the percentage of office overhead on works cost

Particulars	Order I	Order II
Material	12,500	18,000
Add: Wages	10,000	14,000
Prime Cost	22,500	32,000
Add: Works Overhead	$\frac{X}{100} \times 10,000 = 100X$	$\frac{X}{100} \times 14,000 = 140X$
Works Cost	$22,500 + 100X$	$32,000 + 140X$
Add: Office Overhead	$\frac{Y}{100} \times (22,500 + 100X) = 225Y + XY$	$\frac{Y}{100} \times (32,000 + 140X) = 320Y + 1.4XY$
Total Cost	$22,500 + 100X + 225Y + XY$	$32,000 + 140X + 320Y + 1.40XY$
Total Cost (WN)	39,000	55,250

$$\text{So, } 22,500 + 100X + 225Y + XY = 39,000$$

$$\text{or, } 100X + 225Y + XY = 16,500 \dots\dots\dots \text{equation (1)}$$

and $32,000 + 140X + 320Y + 1.40XY = 55,250$

or, $140X + 320Y + 1.40XY = 23,250$ equation (2)

equation (1) \times \Rightarrow $140X + 315Y + 1.40XY = 23,100$

Less: equation (2) \Rightarrow $140X + 320Y + 1.40XY = 23,250$

$-5Y = -150$

or, $Y = 30$

Now, putting the value of $Y = 30$ in equation (1)

We have, $100X + 225 \times 30 + 30X = 16,500$

or, $130X = 16,500 - 6,750$

or, $X = 75$

Hence, Percentage of Works Overhead on Wages = 75%

and Percentage of Office Overhead on Works Cost = 30%

Working Notes:

1. Calculation of Total Cost for Order I

Total Cost + Profit = Sales

or, Total Cost + 15% Total Cost = 44,850

or, Total Cost = $44,850 \times \frac{100}{115} = ₹ 39,000$

2. Calculation of Total Cost for Order II

Total Cost + 12% Total Cost = 61,880

or, Total Cost = $61,880 \times \frac{100}{112} = ₹ 55,250$

Question 4

For a production department of a manufacturing company, you are required to:

- Prepare a fixed budget of overhead
- Prepare a flexible budget of overhead, at 70% and 110% of budget volume;
- Calculate a departmental hourly rate of overhead absorption as per (a) and (b) above.

The budgeted level of activity of the department is 5,000 hours per period and the study of the various items of expenditure reveals the following:

Particulars	Particulars	Amount (₹)	₹ per hour
Indirect wages			0.40
Repairs	upto 2,000 hours	100	
	for each additional 500 hours upto a total of 4,000 hours	35	
	additional from 4,001 to 5,000 hours	60	
	additional above 5,000 hours	70	
Rent and Rates		350	
Power	upto 3,600 hours		0.25
	for hours above 3,600		0.20
Consumable supplies			0.24
Supervision	upto 2,500 hours	400	
	additional for each extra 600 hours above 2,500 and upto 4,900 hours	100	
	additional above 4,900 hours	150	
Depreciation	upto 5,000 hours	650	
	above 5,000 hours and upto 6,500 hours	820	
Cleaning	upto 4,000 hours	60	
	above 4,000 hours	80	
Heat and Lighting	from 2,100 hours to 3,500 hours	120	
	from 3,500 hours to 5,000 hours	150	
	above 5,000 hours	175	

(6 Marks)

Solution:

Fixed and Flexible Budget showing overhead cost per hour

Particulars	At 70% Capacity $5,000 \times 70\% =$ 3,500 hours		At 100% Capacity 5,000 hours		At 110% Capacity $5,000 \times 110\% =$ 5,500 hours	
	Workings	(₹)	Workings	(₹)	Workings	(₹)
Indirect Wages	$0.40 \times 3,500$ hrs	1,400	$0.40 \times 5,000$ hrs	2,000	$0.40 \times 5,500$ hrs	2,200
Repairs	$100 + 35 \times$ $\frac{3,500 - 2,000}{500}$	205	$100 + (35 \times$ $\frac{4,000 - 2,000}{500}) + 60$	300	$100 + (35 \times$ $\frac{4,000 - 2,000}{500}) + 60 + 70$	370
Rent and Rate		350		350		350
Power	$0.25 \times 3,500$	875	$0.25 \times 3,600$ $+ 0.20 \times$ 1,400	1,180	$0.25 \times$ 3,600 $+ 0.20 \times$ 1,900	1,280
Consumable Supplies	$0.24 \times 3,500$	840	$0.24 \times 5,000$	1,200	$0.24 \times 5,500$	1,320
Supervision (Slab rounded off to next digit)	$400 + 100 \times$ $\frac{3,500 - 2,500}{600}$	600	$400 + 100 \times$ $\frac{4,900 - 2,500}{600} + 150$	950	$400 + 100 \times$ $\frac{4,900 - 2,500}{600} + 150$	950
Depreciation		650		650		820
Cleaning		60		80		80
Heating and Lighting		120		150		175
Total Overhead		5,100		6,860		7,545
Overhead Rate per hour	$\frac{₹ 5,100}{3,500 \text{ hours}}$	1.457	$\frac{₹ 6,860}{5,000 \text{ hours}}$	1.372	$\frac{₹ 7,545}{5,500 \text{ hours}}$	1.372

If under-absorbed overhead is 10% or more of actual overhead incurred then supplementary overhead rate is applied otherwise the balance amount can be charged to Profit and Loss Account or can be carried forward to next year.

Chapter 5 Activity Based Costing

Multiple Choice Questions:

(10 Marks)

1. A cost driver is:
 - (a) An item of production overheads
 - (b) A common cost which is shared over cost centres
 - (c) Any cost relating to transport
 - (d) An activity which generates costs

2. In activity based costing, costs are accumulated by activity using:
 - (a) Cost drivers
 - (b) Cost objects
 - (c) Cost pools
 - (d) Cost benefit analysis

3. A cost driver:
 - (a) Is a force behind the overhead cost
 - (b) Is an allocation base
 - (c) Is a transaction that is a significant determinant of cost
 - (d) All of the above

4. Which of the following is not a correct match:

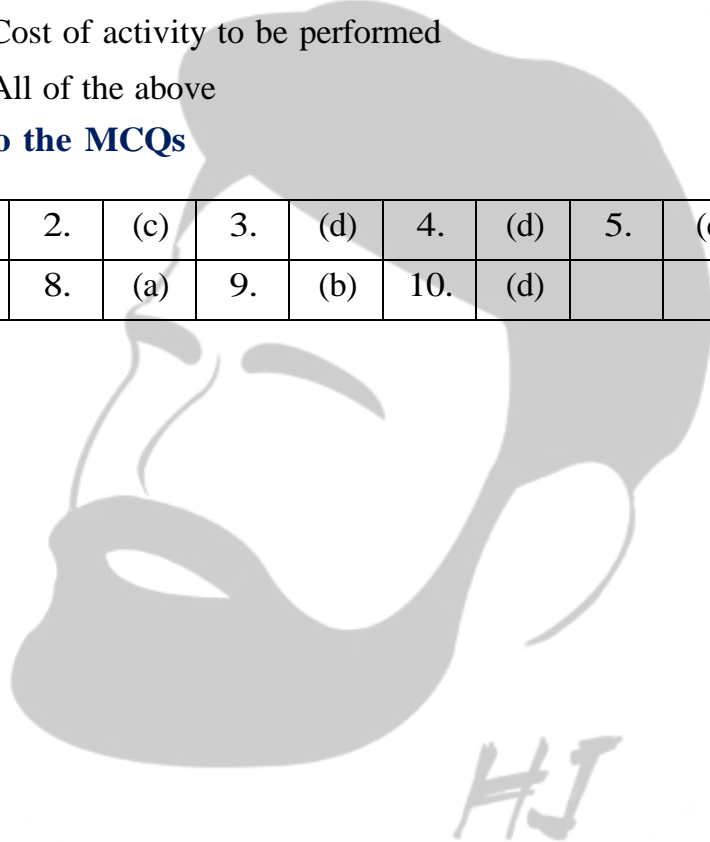
Activity	Cost Driver
(a) Production Scheduling	Number of Production runs
(b) Dispatching	Number of dispatch orders
(c) Goods receiving	Goods received orders
(d) Inspection	Machine hours

5. Transactions undertaken by support department personnel are the appropriate cost drivers. Find the one which is not appropriate:
- (a) The number of purchase, supplies and customers' orders drives the cost associated with new material inventory, work-in-progress and finished goods inventory
 - (b) The number of production runs undertaken drives production scheduling, inspection and material handling
 - (c) The quality of raw material issued drives the cost of receiving department costs
 - (d) The number of packing orders drives the packing costs
6. Steps in ABC include:
- (a) Identification of activities and their respective costs
 - (b) Identification of cost driver of each activity and computation of allocation rate per activity
 - (c) Allocation of overhead cost to products/ services based on the activities involved
 - (d) All of the above
7. Which of the following is not a benefit of ABC?
- (a) Accurate cost allocation
 - (b) Improved decision making
 - (c) Better control on activity and costs
 - (d) Reduction of prime cost
8. The steps involved for installation of ABC in a manufacturing company include the following except:
- (a) Borrowing fund
 - (b) Feasibility study
 - (c) Building up necessary IT infrastructure and training of line employees
 - (d) Strategy and value chain analysis

9. Which of the following statements are true: (1) Activity based Management involves activity analysis and performance measurement. (2) Activity based costing serves as a major source of information in ABM.
- (a) (1) True; (2) False
 (b) (1) True; (2) True
 (c) (1) False; (2) True
 (d) (1) False; (2) False
10. The key elements of activity based budgeting are:
- (a) Type of activity to be performed
 (b) Quantity of activity to be performed
 (c) Cost of activity to be performed
 (d) All of the above

Answers to the MCQs

1.	(d)	2.	(c)	3.	(d)	4.	(d)	5.	(c)	6.	(d)
7.	(d)	8.	(a)	9.	(b)	10.	(d)				



Question 1

A company produces four products viz. P, Q, R and S. The data relating to production activity are as under:- Production overhead is as under:-

Product	Quantity of Production	Materials cost/unit Rs.	Direct Labour hours/unit	Machine hours/unit	Direct Labour cost/unit Rs.
P	1,000	10	1	0.5	6
Q	10,000	10	1	0.5	6
R	1,200	32	4	2	4
S	14,000	34	3	3	18

	Rs.
1. Overhead applicable to machine oriented activity	1,49,700
2. Overhead relating to ordering materials	7,680
3. Set up costs	17,400
4. Administration overheads for spare parts	34,380
5. Material handling costs,	30,294

The following further Information has been complied:-

Product	Number of Set up	Number of Material orders	Number of times material handled	Number of Spare parts
P	3	3	6	6
Q	18	12	30	15
R	5	3	9	3
S	24	12	36	12

Required:

- Select a suitable cost driver for each item of overhead expense and calculate the cost per unit of cost driver
- Using the concept of Activity Based Costing, compute the factory cost per unit of each product.

(12 Marks)

Solution:-

Step: 1 Statement showing cost driver rate

Activity	Cost driver used	$\left(\frac{\text{Activity}}{\text{Cost driver}}\right)$
1) Machine Oriented	No. of Machine hrs (Note i)	$\left(\frac{149700}{49900}\right) = 3$
2) Material Ordering	No. of orders (3 + 12 + 3 + 12)	$\left(\frac{7680}{30}\right) = 256$
3) Set up costs	No. of Setup (3 + 18 + 5 + 24)	$\left(\frac{17400}{50}\right) = 348$
4) Admin OH	No. of Spare parts (6 + 15 + 3 + 12)	$\left(\frac{34380}{36}\right) = 955$
4) Material Handling	No. of times material handled (6 + 30 + 9 + 36)	$\left(\frac{30294}{81}\right) = 374$

* Note (i) No. of Machine hrs. (500+5000+2400+42000)= 49900

Products	Units
P	$1000 \times 0.50 = 500$
Q	$10000 \times 0.50 = 5000$
R	$1200 \times 2.00 = 2400$
S	$14000 \times 3.00 = 42000$

Step 2: Statement showing cost driver rate per unit/per production

Activity	Products	Cost driver used × Cost driver rate ÷ Production = cost per unit
i) Machine Oriented		No. of hrs.
	P	$500 \times 3.00 \div 1000 = 1.50$
	Q	$5000 \times 3.00 \div 10000 = 1.50$
	R	$2400 \times 3.00 \div 1200 = 6.00$
ii) Material Ordering		No. of Orders
	P	$3 \times 256 \div 1000 = 0.768$
	Q	$12 \times 256 \div 10000 = 0.308$
	R	$3 \times 256 \div 1200 = 0.640$
iii) Machine Setup		No. of Setup
	P	$3 \times 348 \div 1000 = 1.05$
	Q	$18 \times 348 \div 10000 = 0.63$
	R	$5 \times 348 \div 1200 = 1.45$
IV) Admin OH		
	P	$6 \times 955 \div 1000 = 5.23$
	Q	$15 \times 955 \div 10000 = 1.43$
	R	$3 \times 955 \div 1200 = 2.38$
V) Material Handling		
	P	$6 \times 374 \div 1000 = 2.25$
	Q	$30 \times 374 \div 10000 = 1.12$
	R	$9 \times 374 \div 1200 = 2.80$
	S	$36 \times 374 \div 14000 = 0.82$

Statement showing cost sheet as per A.B.C

Products	P	Q	R	S
Units	500	5000	2000	42000
D Material	10	10	32	34
D Labour	6	6	4	18
Prime cost	16	16	36	52
Indirect Cost				
F.ON				
Activity 1)	1.50	1.50	6.00	9.00
Activity 2)	0.77	0.31	0.64	0.22
Activity 3)	1.04	0.63	1.45	0.60
Activity 4)	5.73	1.43	2.39	0.82
Activity 5)	2.24	1.12	2.81	0.96
	27.28	20.99	49.29	63.60

2) Inspection

No. of production

A	$750 \times 298 \div 10000 = 22.35$
B	$1050 \times 298 \div 20000 = 15.65$
C	$1200 \times 298 \div 30000 = 11.92$

3) Dispatch

A	$180 \times 280 \div 10000 = 5.04$
B	$270 \times 280 \div 20000 = 3.78$
C	$300 \times 280 \div 30000 = 2.80$

4) M Setup

A	$360 \times 1000 \div 10000 = 36.00$
B	$390 \times 1000 \div 20000 = 19.50$
C	$450 \times 298 \div 30000 = 15.00$

Step 3:- Statement showing cost sheet as per ABC

Products	A	B	C
Units	10000	20000	30000
	P.V	P.V	P.V
Direct cost			
D.M	50.00	40.00	40.00
D.L	30.00	40.00	50.00
Prime cost	80.00	80.00	90.00
Indirect Cost			
F.ON			
Activity 1)	7.10	5.33	3.95
Activity 2)	22.35	15.65	11.92
Activity 3)	5.04	3.78	2.80
Activity 4)	36.00	19.50	15.00
	70.49	44.26	33.67

Question 2

Traditional LTD is a manufacturer of range of goods. The cost structure of its different products is as follows:-

Particular	Product A	Product B	Product C
Direct Material	50	40	40 Rs./U
Direct Labour @ 10 Rs./ hour	30	40	50 Rs./U
Production Overhead	30	40	50 Rs./U
<u>Total Cost</u>	<u>110</u>	<u>120</u>	<u>140 Rs./U</u>
Quantity Produced	10,000	20,000	30,000 Units

Traditional 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 drivers and cost pools as follows:

Activity cost pool	Cost driver	Associated Cost
Stores Receiving	Purchase requisition	2,96,000
Inspection	Number of production runs	8,94,000
Dispatch	Orders executed	2,10,000
Machine Setup	Number of Setups	12,00,000

The following information is also supplied:

Details	Product A	Product B	Product C
No. of Setups	360	390	450
No. of orders executed	180	270	300
No. of production runs	750	1050	1200
No. of Purchase requisition	300	450	500

You are required to calculate activity based production cost of all the three products.

(8 Marks)

Solution:-

Step 1:- Statement showing cost driver rate (C.D.R)

Activity	Cost driver used	$(\frac{\text{Activity}}{\text{Cost driver}}) = \text{Cost driver rate}$
1) Stores/Rec.	No. of production req. (300 + 450 + 500)	$(\frac{296000}{1250}) = 236.80$
2) Inspections	No. of production runs (750 + 1050 + 1200)	$(\frac{894000}{3000}) = 298.00$
3) Dispatch	No. of orders executed (180 + 270 + 300)	$(\frac{21000}{750}) = 280.00$
4) M Setup	No. of setups (360 + 390 + 450)	$(\frac{1200000}{1200}) = 1000.00$

Step (2)
Statement showing cost driver rate

Activity	Products	Cost driver used \times Cost driver rate \div Production =
Stores Req.	A	No. of hrs. $300 \times 236.80 \div 10000 = 7.10$
	B	$450 \times 236.80 \div 20000 = 5.33$
	C	$500 \times 236.80 \div 30000 = 3.95$

Question 3

Family Store wants information about the profitability of individual product lines: Softdrinks, Fresh produce and Packaged food. Family store provides the following data for the year 2020-21 for each product line:

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

Family store also provides the following information for the year 2020-21:

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

Required:

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

(14 Marks)

Solution:-

Working notes:

Total support cost:

	(₹)
Bottles returns	60,000
Ordering	7,80,000
Delivery	12,60,000
Shelf stocking	8,64,000
Customer support	15,36,000
Total support cost	45,00,000

Percentage of support cost to cost of goods sold (COGS):

$$= \frac{\text{Total support cost}}{\text{Total cost of goods sold}} \times 100$$

$$= \frac{₹ 45,00,000}{₹ 1,50,00,000} \times 100 = 30\%$$

Cost for each activity cost driver:

Activity (1)	Total cost(₹) (2)	Cost allocation base (3)	Cost driver rate (4) = [(2) ÷ (3)]
Ordering	7,80,000	1,560 purchase orders	₹ 500 per purchase order
Delivery	12,60,000	3,150 deliveries	₹ 400 per delivery
Shelf-stocking	8,64,000	8,640 hours	₹ 100 per stocking hour
Customer support	15,36,000	15,36,000 items sold	₹ 1 per item sold

(i) Statement of Operating income and Operating income as a percentage of revenues for each product line

(When support costs are allocated to product lines on the basis of cost of goods sold of each product)

	Soft Drinks (₹)	Fresh Produce (₹)	Packaged Foods (₹)	Total (₹)

Revenues: (A)	39,67,500	1,05,03,000	60,49,500	2,05,20,000
Cost of Goods sold(COGS): (B)	30,00,000	75,00,000	45,00,000	1,50,00,000
Support cost (30% ofCOGS): (C) (Refer working notes)	9,00,000	22,50,000	13,50,000	45,00,000

Total cost: (D) = {(B) +(C)}	39,00,000	97,50,000	58,50,000	1,95,00,000
Operating income: (E) = {(A)-(D)}	67,500	7,53,000	1,99,500	10,20,000
Operating income as a percentage of revenues: (F)= {(E)/(A)× 100}	1.70%	7.17%	3.30%	4.97%

- (i) Statement of Operating income and Operating income as a percentage of revenues for each product line
(When support costs are allocated to product lines using an activity -based costing system)

	Soft drinks (₹)	Fresh Produce (₹)	Packaged Food (₹)	Total (₹)
Revenues: (A)	39,67,500	1,05,03,000	60,49,500	2,05,20,000
Cost & Goods sold	30,00,000	75,00,000	45,00,000	1,50,00,000
Bottle return costs	60,000	0	0	60,000
Ordering cost*(360:840:360)	1,80,000	4,20,000	1,80,000	7,80,000
Delivery cost* (300:2,190:660)	1,20,000	8,76,000	2,64,000	12,60,000
Shelf stocking cost*(540:5,400:2,700)	54,000	5,40,000	2,70,000	8,64,000
Customer Supportcost* (1,26,000:11,04,000:3,06,000)	1,26,000	11,04,000	3,06,000	15,36,000
Total cost: (B)	35,40,000	1,04,40,000	55,20,000	1,95,00,000
Operating income:(C) = {(A)- (B)}	4,27,500	63,000	5,29,500	10,20,000
Operating income as a % of revenues:(D) = {(C)/(A) × 100}	10.78%	0.60%	8.75%	4.97%

* Refer to working note 3

Question 4

ABC Ltd. Manufactures two types of machinery equipment Y and Z and applies/absorbs overheads on the basis of direct-labour hours. The budgeted overheads and direct-labour hours for the month of December are ₹ 12,42,500 and 20,000 hours respectively. The information about

Company's products is as follows:

	Equipment	Equipment
	Y	Z
Budgeted Production volume	2,500 units	3,125 units
Direct material cost	₹ 300 per unit	₹ 450 per unit
Direct labour cost		
Y : 3 hours @ ₹ 150 per hour		
Z : 4 hours @ ₹ 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 orders processed, machine hours worked, and inspection hours, respectively. The data relevant to these activities is as follows:

	Orders processed	Machine hours worked	Inspection hours
Y	350	23,000	4,000
Z	250	27,000	11,000
Total	600	50,000	15,000

Required:

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

(14 Marks)

Solution :-

- Overheads application base: Direct labour hours

	Equipment	Equipment
	Y (₹)	Z (₹)
Direct material cost	300	450

Direct labour cost	450	600
Overheads*	186.38	248.50
	936.38	1,298.50

*Pre-determined rate = $\frac{\text{Budgeted overheads}}{\text{Budgeted direct labour hours}}$

= $\frac{₹12,42,500}{20,000 \text{ hours}}$
 = ₹62.125

20,000 hours

(ii) Estimation of Cost-Driver rate

Activity	Overhead cost (₹)	Cost-driver level	Cost driver rate (₹)
Order processing	2,10,000	600 Orders processed	350
Machine processing	8,75,000	50,000 Machine hours	17.50
Inspection	1,57,500	15,000 Inspection hours	10.50

	Equipment	Equipment
	Y (₹)	Z (₹)
Direct material cost	300	450
Direct labour cost	450	600
Prime Cost	750	1,050
Overhead Cost		
Order processing 350 : 250 or Rs 350 per order	1,22,500	87,500
Machine processing 23,000 : 27,000 or ₹ 17.5 per hour	4,02,500	4,72,500
Inspection 4,000 : 11,000	42,000	1,15,500
Total overhead cost	5,67,000	6,75,500
Per unit cost	Y (₹)	Z (₹)
5,67,000 / 2,500	226.80	₹ 216.16
6,75,500 / 3,125		
Unit manufacturing cost (Prime Cost + Overhead per unit)	₹ 976.80	₹ 1,266.16

(iii)

	Equipment	Equipment
	Y (₹)	Z (₹)
Unit manufacturing cost—using directlabour hours as an application base	936.38	1,298.50
Unit manufacturing cost-using activitybased costing	976.80	1,266.16
Cost distortion	(-)40.42	+ 32.34

Low volume product Y is under-costed and high volume product Z is over costed using direct labour hours for overhead absorption.

Chapter 6 Cost Sheet

Multiple Choice Questions:

(10 Marks)

1. Generally, for the purpose of cost sheet preparation, costs are classified on the basis of:
 - (a) Functions
 - (b) Variability
 - (c) Relevance
 - (d) Nature
2. Which of the following does not form part of prime cost:
 - (a) Cost of packing
 - (b) Cost of transportation paid to bring materials to factory
 - (c) GST paid on raw materials (input credit cannot be claimed)
 - (d) Overtime premium paid to workers.
3. A Ltd. received an order, for which it purchased a special frame for manufacturing, it is a part of:
 - (a) Direct Materials
 - (b) Direct expenses
 - (c) Factory Overheads
 - (d) Administration Overheads
4. Salary paid to plant supervisor is a part of
 - (a) Direct expenses
 - (b) Factory overheads
 - (c) Quality control cost
 - (d) Administration cost
5. Depreciation of director's laptop is treated as a part of:
 - (a) Administration Overheads
 - (b) Factory Overheads
 - (c) Direct Expenses

- (d) Research & Development cost.
6. A manufacture has set-up a lab for testing of products for compliance with standards, salary of this lab staffs are part of:
- (a) Works overheads
- (b) Quality Control Cost
- (c) Direct Expenses
- (d) Research & Development Cost.
7. Audit fees paid to auditors is part of:
- (a) Administration Cost
- (b) Production cost
- (c) Selling & Distribution cost
- (d) Not shown in cost sheet.
8. Salary paid to factory store staff is part of:
- (a) Factory overheads
- (b) Production Cost
- (c) Direct Employee cost
- (d) Direct Material Cost.
9. Canteen expenses for factory workers are part of:
- (a) Factory overhead
- (b) Administration Cost
- (c) Marketing cost
- (d) None of the above.
10. A company pays royalty to State Government on the basis of production, it is treated as:
- (a) Direct Material Cost
- (b) Factory Overheads
- (c) Direct Expenses
- (d) Administration Cost

Answers to the MCQs

1.	(a)	2.	(a)	3.	(b)	4.	(b)	5.	(a)	6.	(b)
7.	(a)	8.	(a)	9.	(a)	10.	(c)				

Question 1

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

	On June 1 (₹)	On June 30 (₹)
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 2020		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.

(10 Marks)

Solution:-

Statement of Cost & Profit
(for the month of June)

	(₹)
Opening stock of raw materials	60,000
Add: Purchase of raw materials during the month of June	4,80,000
Less: Closing stock of raw materials	(50,000)
(a) Raw materials consumed	4,90,000
Add: Direct wages	2,40,000
(b) Prime cost	7,30,000
Add: Factory overheads	1,00,000
Works cost	8,30,000
Add: Opening work-in-process	12,000
Less: Closing work-in-process	(15,000)
(c) Factory cost	8,27,000
Add: Administration overheads	50,000
Cost of production	8,77,000
Add: Opening stock of finished goods	90,000
Less: Closing stock of finished goods	(1,10,000)
(d) Cost of goods sold	8,57,000
Add: Selling & distribution overheads	25,000
Cost of sales	8,82,000
(e) Net Profit	1,18,000
Sales	10,00,000

Question 2

The following details are available from the books of R Ltd. for the year ending 31st March 2022:

Particulars	Amount (₹)
Purchase of raw materials	84,00,000
Consumable materials	4,80,000
Direct wages	60,00,000
Carriage inward	1,72,600
Wages to foreman and store keeper	8,40,000
Other indirect wages to factory staffs	1,35,000
Expenditure on research and development on new production technology	9,60,000
Salary to accountants	7,20,000
Employer's contribution to EPF & ESI	7,20,000
Cost of power & fuel	28,00,000
Production planning office expenses	12,60,000
Salary to delivery staffs	14,30,000
Income tax for the assessment year 2021-22	2,80,000
Fees to statutory auditor	1,80,000
Fees to cost auditor	80,000
Fees to independent directors	9,40,000
Donation to PM-national relief fund	1,10,000
Value of sales	2,82,60,000
Position of inventories as on 01-04-2021:	
- Raw Material	6,20,000
- W-I-P	7,84,000
- Finished goods	14,40,000
Position of inventories as on 31-03-2022:	
- Raw Material	4,60,000
- W-I-P	6,64,000
- Finished goods	9,80,000

From the above information PREPARE a cost sheet for the year ended 31st March 2022

(12 Marks)

Solution :-

Sl. No.	Particulars	Amount (₹)	Amount (₹)
(i)	Material Consumed: - Raw materials purchased - Carriage inward Add: Opening stock of raw materials Less: Closing stock of raw materials Direct employee (labour) cost:	84,00,000 1,72,600 6,20,000 (4,60,000)	87,32,600
(ii)	- Direct wages - Employer's Contribution towards PF & ESIS Direct expenses:	60,00,000 7,20,000	67,20,000
(iii)	- Consumable materials - Cost of power & fuel Prime Cost	4,80,000 28,00,000	32,80,000
(iv)	Works/ Factory overheads: - Wages to foreman and store keeper - Other indirect wages to factory staffs Gross factory cost Add: Opening value of W-I-P Less: Closing value of W-I-P	8,40,000 1,35,000	1,87,32,600 9,75,000
(v)	Factory Cost Research & development cost paid for improvement in production process Production planning office expenses		1,97,07,600 7,84,000 (6,64,000) 1,98,27,600
(vi)	Cost of Production Add: Opening stock of finished goods Less: Closing stock of finished goods Cost of Goods Sold		9,60,000 12,60,000 2,20,47,600 14,40,000 (9,80,000)
(vii)	Administrative overheads: - Salary to accountants - Fees to statutory auditor - Fees to cost auditor - Fee paid to independent directors - Income tax for the assessment year 2021-22 - Donation to PM-national relief fund Selling overheads & Distribution overheads: - Salary to delivery staffs Cost of Sales	7,20,000 1,80,000 80,000 9,40,000 2,80,000 1,10,000	2,25,07,600 23,10,000
(viii)			

	Profit (balancing figure)	14,30,000
	Sales	2,62,47,600
		20,12,400
		2,82,60,000

Question 3

A factory manufactures a uniform type of article and has a capacity of 4,000 units per week. The following information shows the different element of cost for three consecutive weeks when the output has changes every week.

Units Produced	Direct material (Rs.)	Direct labour (Rs.)	Factory overheads (Partly variable & Party fixed) (Rs.)
2,000	12,000	6,000	12,500
2,800	16,800	8,400	16,500
3,700	22,200	11,100	21,000

The factory has received an order for 5000 units and it desires a profit of 16- 2/3% on selling price. Find out the price at which each unit should be sold.

(8 Marks)

Solution:-

Application of semi variable O/H in cost sheet:

Note (i)

Let variable cost per unit be x Therefore, fixed cost by y Now,

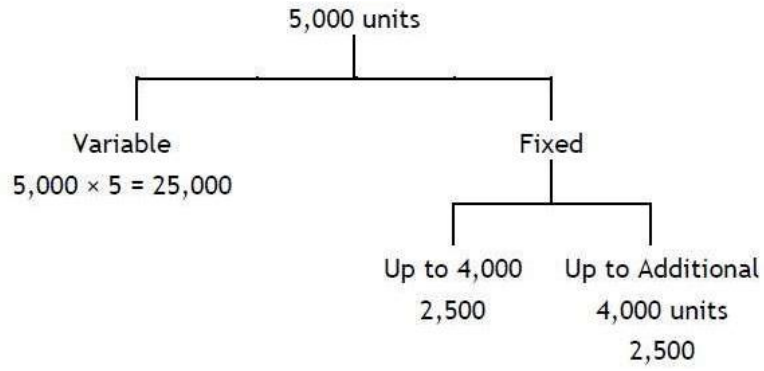
$$\begin{array}{rclcl}
 2000x & + & y & = & 12,500 \\
 2800x & + & y & = & 16,600 \\
 \hline
 - & & - & & - \\
 \hline
 & & - 800x & = & - 4,000 \\
 & & x & = & 5
 \end{array}$$

Verification Table

$$2,000 \rightarrow 2,000 \times 5 + 2,500 = 12,500$$

$$2,800 \rightarrow 2,800 \times 5 + 2,500 = 16,500$$

$$3,700 \rightarrow 3,700 \times 5 + 2,500 = 21,000$$

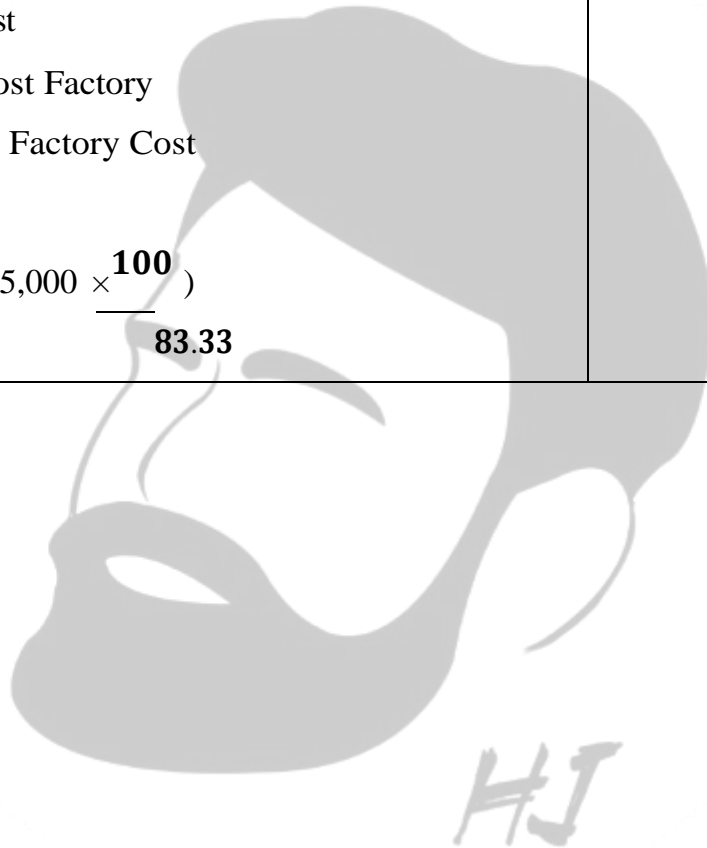


Therefore, Total Overhead = $25,000 + 2,500 + 2,500 = ₹ 30,000$



Statement showing cost sheet

	Production = 5000 units	
	Total	Per unit
I. Direct Cost		
i. Direct Material ($\frac{12,000}{5,000} \times 5,000$)	30,000	6
<u> </u> 2,000	15,000	3
ii. Direct Labour ($\frac{6,000}{5,000} \times 5,000$)	45,000	9
<u> </u> 2,000	30,000	6
Prime Cost	75,000	15
	15,000	3
	90,000	18
II. Indirect Cost Factory		
Overhead Factory Cost		
Profit		
Sales ($75,000 \times \frac{100}{83.33}$)		
<u> </u> 83.33		



Chapter 7
Cost Accounting System

Multiple Choice Questions:

(10 Marks)

1. Under the Non-integrated accounting system
 - (a) Same ledger is maintained for cost and financial accounts by accountants
 - (b) Separate ledgers are maintained for cost and financial accounts
 - (c) (a) and (b) both
 - (d) None of the above
2. Notional costs
 - (a) May be included in Integrated accounts
 - (b) May be included in Non- integrated accounts
 - (c) Cannot be included in Non-integrated accounts
 - (d) None of the above
3. Under Non-integrated accounting system, the account made to completedouble entry is
 - (a) Stores ledger control account
 - (b) Work in progress control account
 - (c) Finished goods control account
 - (d) General ledger adjustment account
4. Integrated systems of accounts are maintained
 - (a) In separate books of accounts for costing and financial accountingpurposes
 - (b) In same books of accounts
 - (c) Both (a) & (b)
 - (d) None of the above
5. Under Non-integrated system of accounting, purchase of raw material is debited to which account

- (a) Material control account / Stores ledger control account
- (b) General ledger adjustment account
- (c) Purchase account
- (d) None of the above
6. Under Non-integrated accounts, if materials worth ₹ 1,500 are purchased for a special job, then which account will be debited:
- (a) Special job account / Work in Process account
- (b) Material Control account
- (c) Cost Control account
- (d) None of the above
7. Which account is to be debited if materials worth ₹ 500 are returned to vendor under Non-integrated accounts:
- (a) Cost ledger control account
- (b) Finished goods control account
- (c) WIP control account
- (d) None of the above
8. Which of the following items is included in cost accounts?
- (a) Notional rent
- (b) Donations
- (c) Transfer to general reserve
- (d) Rent receivable
9. When costing loss is ₹ 5,600, administrative overhead under-absorbed being ₹ 600, the loss as per financial accounts should be
- (a) ₹ 5,600
- (b) ₹ 6,200
- (c) ₹ 5,000
- (d) None of the above

10. Which of the following items should be added to costing profit to arrive at financial profit?
- (a) Over-absorption of works overhead
 - (b) Interest paid on debentures
 - (c) Income tax paid
 - (d) All of the above

Answers to the MCQs

1.	(b)	2.	(b)	3.	(d)	4.	(b)	5.	(a)	6.	(a)
7.	(a)	8.	(a)	9.	(b)	10.	(a)				



Question 1

Following are the figures extracted from the Cost Ledger of a manufacturing unit.

	(₹)
Stores:	
Opening balance	15,000
Purchases	80,000
Transfer from WIP	40,000
Issue to WIP	80,000
Issue to repairs and maintenance	10,000
Sold as a special case at cost	5,000
Shortage in the year	3,000
Work-in-Process:	
Opening inventory	30,000
Direct labour cost charged	30,000
Overhead cost charged	1,20,000
Closing Balance	20,000
Finished Products:	
Entire output is sold at 10% profit on actual cost from Work-in-Process.	
Others:	
Wages for the period	35,000
Overhead Expenses	1,25,000

ASCERTAIN the profit or loss as per financial account and cost accounts and reconcile them.

(16 Marks)

Solution:-

Stores Ledger Control A/c

		(₹)			(₹)
To	Balance b/d	15,000	By	Work-in-Process Control A/c (Issued to WIP)	80,000
“	Cost Ledger Control A/c (Purchases)	80,000	“	Overhead Control A/c (Issued for repairs)	10,000
“	Work-in-Process Control A/c (Return from WIP)	40,000	“	Cost Ledger Control A/c (Sold at cost)	5,000
			“	Overheads Control A/c* (Shortages)	3,000
			“	Balance c/d	37,000
		1,35,000			1,35,000

* Assumed normal

Wages Control A/c

		(₹)			(₹)
To	Cost Ledger Control A/c	35,000	By	Work-in-process Control A/c	30,000
			“	Overhead Control A/c	5,000
		35,000			35,000

Overhead Control A/c

		(₹)			(₹)
To	Stores Ledger Control A/c	10,000	By	Work-in-Process Control A/c	1,20,000
“	Stores Ledger Control A/c	3,000			
“	Cost Ledger Control A/c	1,25,000			
“	Wages Control A/c	5,000	“	Balance c/d	23,000
		1,43,000			1,43,000

WIP Control A/c

	(₹)		(₹)
To Balance b/d	30,000	By Stores Ledger Control A/c	40,000
“ Stores Ledger Control A/c	80,000	“ Finished Goods Control A/c	2,00,000*
“ Wages Control A/c	30,000		
“ Overheads Control A/c	1,20,000	“ Balance c/d	20,000
	2,60,000		2,60,000

* Finished output at cost	2,00,000
Profit at 10% on actual cost from WIP Sales	<u>20,000</u>
	<u>2,20,000</u>

Statement of Profit as per Costing Records

	(₹)
Direct Material Cost (₹80,000 – ₹40,000)	40,000
Direct wages	30,000
Prime Cost	70,000
Production Overheads	1,20,000
Works Cost	1,90,000
Add: Opening WIP	30,000
	2,20,000
Less: Closing WIP	(20,000)
Cost of finished goods	2,00,000
Profit (10% of cost)	20,000
Sales	2,20,000

Profit & Loss A/c

	(₹)		(₹)
To Material (Op. bal. + Purchases - Sale)	90,000	By Sales A/c	2,20,000
“ Opening WIP	30,000	“ Closing WIP	20,000
“ Wages for the period	35,000	“ Closing stock of Raw Material	37,000
“ Overheads expenses	1,25,000	“ Net loss	3,000
	2,80,000		2,80,000

Reconciliation Statement

	(₹)
Profit (loss) as per Financial Accounts	(3,000)
Add: Overheads over absorbed (refer Overhead control A/c)	23,000
Net Profit as per Cost Accounts	20,000

Question 2

The following incomplete accounts are furnished to you for the month ended 31st October, 2022.

Stores Ledger Control Account		
1.10.2022	To Balance	₹ 54,000
Work in Process Control Account		
1.10. 2022	To Balance	₹ 6,000
Finished Goods Control Account		
1.10. 2022	To Balance	₹ 75,000
Factory Overheads Control Account		
Total debits for October, 2022		₹ 45,000
Factory Overheads Applied Account		
Cost of Goods Sold Account		
Creditors for Purchases Account		
1.10. 2022	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 2022 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 31.10.2022 is ₹ 15,000 and the payments made to creditors in October, 2022 amount to ₹ 1,05,000.
- (iii) The finished goods inventory as on 31st October, 2022 is ₹ 66,000.
- (iv) The cost of goods sold during the month was ₹ 1,95,000.
- (v) On 31st October, 2022 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, 2022. All factory workers earn same rate of pay.
- (vii) All actual factory overheads incurred in October, 2022 have been posted. You are required to FIND:
 - (a) Materials purchased during October, 2022.
 - (b) Cost of goods completed in October, 2022.
 - (c) Overheads applied to production in October, 2022.
 - (d) Balance of Work-in-Process Control A/c on 31st October, 2022.
 - (e) Direct Materials consumed during October, 2022.
 - (f) Balance of Stores Ledger Control Account on 31st October, 2022.
 - (g) Over absorbed or under absorbed overheads for October, 2022. (14 Marks)

Solution:- Working Notes:

- (i) Overhead recovery rate per direct labour hour: Budgeted

Factory Overheads = ₹ 6,75,000 Budgeted

Direct Labour hours = 4,50,000

$$\begin{aligned} \text{Overhead recovery rate} &= \frac{\text{Budgeted Factory Overheads}}{\text{Budgeted Direct Labour hours}} \\ &= \frac{\text{₹ 6,75,000}}{4,50,000 \text{ hours}} \\ &= \text{₹ ₹ 1.50 per direct labour} \end{aligned}$$

(ii) Direct Wage rate per hour:

$$\begin{aligned} \text{Direct Labour cost of WIP} &= ₹ 3,000 \text{ (on 31st October 2022)} \\ \text{Direct labour hours of WIP} &= 1,200 \text{ hours} \\ \text{Direct wage rate per hour} &= \frac{\text{Direct labour cost on WIP}}{\text{Direct labour hours on WIP}} \\ &= \frac{₹ 3,000}{1,200 \text{ hours}} = ₹ 2.50 \end{aligned}$$

(iii) Total Direct Wages charged to production:

$$\begin{aligned} &\text{Total direct labour hours spent on production} \times \text{Direct wage rate per hour} \\ &= 28,200 \text{ hours} \times ₹ 2.50 = ₹ 70,500 \end{aligned}$$

(a) Material purchased during October, 2022

	(₹)
Payment made to creditors	1,05,000
Add: Closing balance in the account of creditors for purchase	15,000
Less: Opening balance	(30,000)
Material Purchased	90,000

(b) Cost of Finished Goods in October, 2022

	(₹)
Cost of goods sold during the month	1,95,000
Add: Closing finished goods inventory	66,000
Less: Opening finished goods inventory	(75,000)
Cost of goods completed during the month	1,86,000

(c) Overhead applied to production in October, 2022

$$= 28,200 \text{ hours} \times ₹ 1.50 = ₹ 42,300$$

(d) Balance of Work-in-Process on 31st October, 2022

	(₹)
Direct material cost	6,000
Direct labour cost	3,000
Overheads (₹ 1.50 × 1,200 hours)	1,800

	10,800
--	--------

- (e) Direct material consumed during October, 2022 = ₹ 78,000
(Refer to following Accounts)

Work in Process Control A/c

	(₹)		(₹)
To Balance b/d	6,000	By Finished goods control A/c [Refer (b) above]	1,86,000
“ Wages Control A/c [Refer working note (iii)]	70,500	“ Balance c/d [Refer (d) above]	10,800
“ Factory OH Control A/c [Refer (c) above]	42,300		
“ Material consumed (Balancing fig.)	78,000		
	1,96,800		1,96,800

- (f) Balance of Stores Control Account on 31st October, 2022 = ₹ 66,000
(Refer to following Account)

Stores Ledger Control Account

	(₹)		(₹)
“ Balance b/d	54,000	By Work-in-process Control A/c [Refer (e) above]	78,000
“ Payables (Creditors) A/c [Refer (a) above]	90,000	“ Balance c/d (Balancing fig.)	66,000
	1,44,000		1,44,000

- (g) Over-absorbed or under-absorbed overheads for October, 2022: Balance in Factory Overhead Account below showing that ₹ 2,700 is under-absorbed.

Factory Overhead Account

	(₹)		(₹)
To Bank A/c	45,000	By Work-in-process Control A/c (Factory OH applied)	42,300
		“ Costing P/L A/c (Under- absorbed)	2,700
	45,000		45,000

Question 3

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

Solution :-

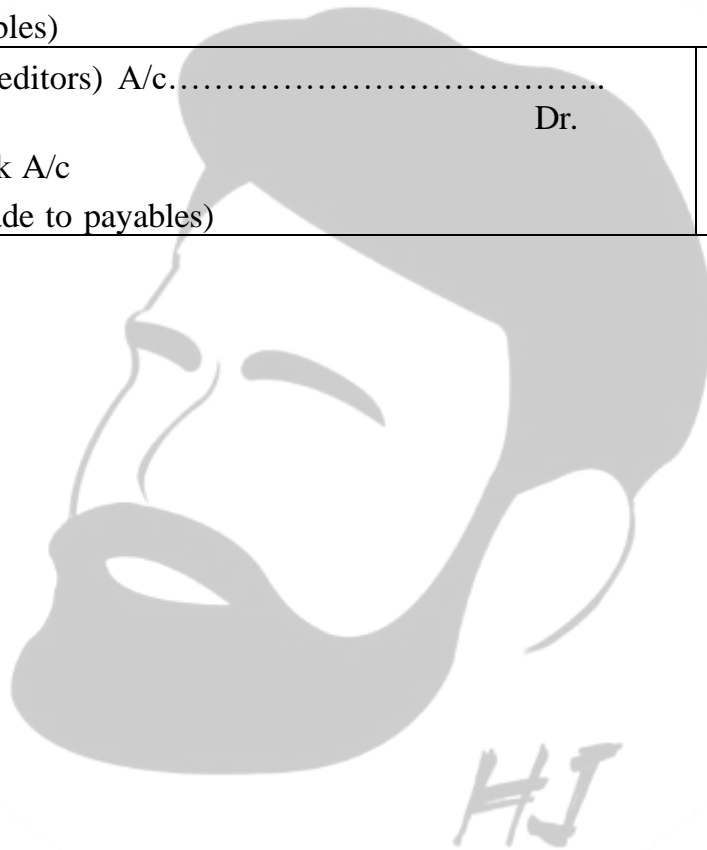
(12 Marks)

Journal entries are as follows:

	DR. (₹)	CR. (₹)
Stores Ledger Control A/c.....	2,00,000	

Dr.		2,00,000
To Payables (Creditors)/ Bank A/c (Materials purchased)		
Work-in-Process Control A/c.....	1,50,000	1,50,000
Dr.		
To Stores Ledger Control A/c (Materials issued to production)		
Wages Control A/c.....	1,20,000	1,20,000
Dr.		
To Bank A/c (Wages paid)		
Factory Overhead Control A/c.....	36,000	36,000
Dr.		
To Wages Control A/c (30% of wages paid being indirect charged to overhead)		
Work-in-Process Control A/c.....	84,000	84,000
Dr.		
To Wages Control A/c (Direct wages charged to production)		
Factory Overhead Control A/c.....	84,000	84,000
Dr.		
To Bank A/c (Manufacturing overhead incurred)		
Work-in-Process Control A/c.....	92,000	92,000
Dr.		
To Factory Overhead Control A/c (Manufacturing overhead charged to production)		
Selling & Distribution Overhead Control A/c.....	20,000	20,000
Dr.		
To Bank A/c (Selling and Distribution costs incurred)		
Finished Goods Control A/c.....	2,00,000	2,00,000
Dr.		
To Work-in-Process Control A/c (Cost of finished goods)		

Cost of Sales A/c..... Dr.	2,20,000	
To Finished Goods Control A/c		2,00,000
To Selling and Distribution Control A/c (Costs of sales)		20,000
Receivables (Debtors)/ Bank A/c..... Dr.	2,90,000	2,90,000
To Sales A/c (Finished goods sold)		
Bank A/c..... Dr.	69,000	69,000
To Receivables (Debtors) A/c(Receipts from receivables)		
Payables (Creditors) A/c..... Dr.	1,10,000	1,10,000
To Bank A/c (Payment made to payables)		



Chapter 8
Unit & Batch Costing

Multiple Choice Questions:

(10 Marks)

1. Different businesses in order to determine cost of their product or service offering follow:
 - (a) Different methods of Costing
 - (b) Uniform Costing
 - (c) Different techniques of costing
 - (d) None of the above

2. In order to determine cost of the product or service, following are used:
 - (a) Techniques of costing like Marginal, Standard etc.
 - (b) Methods of Costing
 - (c) Comparatives
 - (d) All of the above

3. Unit Costing is applicable where:
 - (a) Product produced are unique and no 2 products are same
 - (b) Dissimilar articles are produced as per customer specification
 - (c) homogeneous articles are produced on large scale
 - (d) Products made require different raw materials

4. In case product produced or jobs undertaken are of diverse nature, the system of costing to be used should be:
 - (a) Process costing
 - (b) Operating costing
 - (c) Job costing
 - (d) None of the above

5. Job Costing is:
- (a) Applicable to all industries regardless of the products or services provided
 - (b) Technique of costing
 - (c) Suitable where similar products are produced on mass scale
 - (d) Method of costing used for non- standard and non- repetitive products.
6. The production planning department prepares a list of materials and stores required for the completion of a specific job order, this list is known as:
- (a) Bin card
 - (b) Bill of material
 - (c) Material requisition slip
 - (d) None of the above
7. Batch costing is a type of:
- (a) Process costing
 - (b) Job Costing
 - (c) Differential costing
 - (d) Direct costing
8. Batch costing is similar to that under job costing except with the difference thata:
- (a) Job becomes a cost unit.
 - (b) Batch becomes the cost unit instead of a job
 - (c) Process becomes a cost unit
 - (d) None of the above
9. The main points of distinction between job and contract costing includes:
- (a) Length of time to complete.
 - (b) Big job
 - (c) Activities to be done outside the factory area
 - (d) All of the above

10. Economic batch quantity is that size of the batch of production where:
- (a) Average cost is minimum
 - (b) Set-up cost of machine is minimum
 - (c) Carrying cost is minimum
 - (d) Both (b) and (c)

Answers to the MCQs

1.	(a)	2.	(b)	3.	(c)	4.	(c)	5.	(d)	6.	(b)
7.	(b)	8.	(b)	9.	(d)	10.	(d)				



Question 1

Rio Limited undertakes to supply 1000 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 at actual. Overheads are levied at a rate per labour hour. The selling price is contracted at ₹ 15 per unit.

From the following data, CALCULATE the profit per unit of each batch order and the overall position of the order for the 3,000 units.

Month	Batch Output (Numbers)	Material Cost(₹)	Labour Cost (₹)
January	1,250	6,250	2,500
February	1,500	9,000	3,000
March	1,000	5,000	2,000

Labour is paid at the rate of ₹ 2 per hour. The other details are:

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

(10 Marks)

Solution:-

Statement of Cost and Profit per unit of each batch

	January	February	March	Total
a) Batch Output (Nos.)	1,250	1,500	1,000	3,750
b) Sales Value (@ ₹ 15 perunit)	(₹) 18,750	(₹) 22,500	(₹) 15,000	(₹) 56,250

Cost				
Material	6,250	9,000	5,000	20,250
Wages	2,500	3,000	2,000	7,500
Overheads	3,750	3,000	3,000	9,750
c) Total	12,500	15,000	10,000	37,500
d) Profit per batch (b) – (c)	6,250	7,500	5,000	18,750
e) Cost per unit (c) ÷ (a)	10	10	10	
f) Profit per unit (d) ÷ (a)	5	5	5	

Overall Position of the Order for 3,000 Units

Sales value (3,000 units × ₹ 15)	₹45,000
Less: Total cost (3,000 units × ₹ 10)	<u>30,000</u>
Profit	<u>15,000</u>

Calculation of overhead per hour:

	January	February	March
i. Labour hours:			
= $\frac{\text{Labour cost}}{\text{Labour rates per hour}}$	$\frac{₹2,500}{2} = 1,250$	$\frac{₹3,000}{2} = 1,500$	$\frac{₹2,000}{2} = 1,000$
ii. Overhead per hour:			
= $\frac{\text{Total Overheads Total}}{\text{labour hour}}$	$\frac{₹12,000}{4,000} = ₹3$	$\frac{₹9,000}{4,500} = ₹2$	$\frac{₹15,000}{5,000} = ₹3$
iii. Overhead for batch (i) × (ii)	₹3,750	₹3,000	₹3,000

Question 2

From the following information, calculate Economic Batch Quantity for a company using batch costing: Annual Demand for the components 2,400 units

Setting up cost per batch	₹ 100
Manufacturing cost per unit	₹ 200
Carrying cost per unit	6% p.a.

(3 Marks)

Solution:

$$EBQ = \sqrt{\frac{2AS}{C}}$$

where, EBQ = Economic Batch

Quantity A = Annual

Demand = 2,400 units

S = Set up cost per batch = ₹ 100

C = Carrying cost per unit per year = 200 × 6% = ₹12

$$\therefore EBQ = \sqrt{\frac{2 \times 2,400 \times 100}{12}} = 200 \text{ units}$$

Question 3

Component 'Gold' is made entirely in cost centre 100. Material cost is 6 paise per component and each component takes 10 minutes to produce. The machine operator is paid 72 paise per hour, and machine hour rate is ₹ 1.50. The setting up of the machine to produce the component 'Gold' takes 2 hours 20 minutes.

On the basis of this information, prepare a cost sheet showing the production and setting up cost, both in total and per component, assuming that a batch of:

- 10 components,
- 100 components, and
- 1,000 components are produced.

(12 Marks)

Chapter 9 Job Costing

Multiple Choice Questions:

(7 Marks)

1. In case product produced or jobs undertaken are of diverse nature, the system of costing to be used should be:
 - (a) Process costing
 - (b) Operating costing
 - (c) Job costing
 - (d) None of the above
2. The production planning department prepares a list of materials and stores required for the completion of a specific job order, this list is known as:
 - (a) Bin card
 - (b) Bill of material
 - (c) Material requisition slip
 - (d) None of the above
3. Job costing is similar to that under Batch costing except with the difference that:
 - (a) Job becomes a cost unit.
 - (b) Batch becomes the cost unit instead of a job
 - (c) Process becomes a cost unit
 - (d) None of the above.
4. In job costing which of the following documents are used to record the issue of direct material to a job?:
 - (a) Goods received note
 - (b) Material requisition
 - (c) Purchase order
 - (d) Purchase requisition

5. The most suitable cost system where the products differ in type of materials and work performed is :
- Job Costing
 - Process Costing
 - Operating Costing
 - None of these.
6. Which of the following statements is true:
- Job cost sheet may be used for estimating profit of jobs.
 - Job costing cannot be used in conjunction with marginal costing.
 - A production order is an order received from a customer for particular jobs.
 - None of these.
7. Which of the following statements is true:
- Job cost sheet may be prepared for facilitating routing and scheduling of the job
 - Job costing can be suitably used for concerns producing uniformly any specific product
 - Job costing cannot be used in companies using standard costing
 - Neither (a) nor (b) nor (c)

Answers to the MCQs

1.	(c)	2.	(b)	3.	(a)	4.	(b)	5.	(a)	6.	(a)
7.	(d)										

Question 1

Ispat Engineers Limited (IEL) undertook a plant manufacturing work for a client. It will charge a profit mark up of 20% on the full cost of the jobs. The following are the information related to the job:

Direct materials utilised – ₹1,87,00,000

Direct labour utilised – 2,400 hours at ₹80 per hour

Budgeted production overheads are Rs. 48,00,000 for the period and are recovered on the basis of 24,000 labour hours.

Budgeted selling and administration overheads are ₹18,00,000 for the period and recovered on the basis of total budgeted total production cost of ₹36,00,00,000.

Required:

CALCULATE the price to be charged for the job.

(6 Marks)

Solution :-

Calculation of job price

Particulars	Amount (₹)
Direct materials	1,87,00,000
Direct wages (₹80 × 2,400 hours)	1,92,000
Production overheads $\frac{₹48,00,000}{24,000\text{hrs}} \times 2,400\text{hrs}$	4,80,000
Production cost	1,93,72,000
Selling and administration overheads $\frac{₹18,00,000}{₹1,93,72,000} \times ₹36,00,00,000$	96,860
Total cost of sales	1,94,68,860
Profit mark-up @ 20%	38,93,772
Price for the job	2,33,62,632

Question 2

A company has been asked to quote for a job. The company aims to make a net profit of 30% on sales. The estimated cost for the job is as follows:

Direct materials 10 kg @ ₹10 per kg Direct labour 20 hours @ ₹5 per hour Variable production overheads are recovered at the rate of ₹ 2 per labour hour.

Fixed production overheads for the company are budgeted to be ₹1,00,000 each year and are recovered on the basis of labour hours.

There are 10,000 budgeted labour hours each year. Other costs in relation to selling, distribution and administration are recovered at the rate of ₹50 per job.

DETERMINE quote for the job by the Company.

(4 Marks)

Solution :-

Determination of quotation price for the job

Cost	(₹)
Direct Material (10kg × ₹10)	100
Direct Labour (20hrs × ₹5)	100
Variable production overhead (20hrs × ₹2)	40
Fixed Overhead	200
$\frac{1,00,000}{\text{budgeted hours } 10,000}$	
Other costs	50
Total costs	490

Net profit is 30% of sales, therefore total costs represent 70% ($₹ 490 \times 100$) $\div 70 = ₹ 700$ price to quote for job.

To check answer is correct; profit achieved will be ₹ 210 ($₹ 700 - ₹ 490$)

$= ₹ 210 \div ₹ 700 = 30\%$

Question 3

In a factory following the Job Costing Method, an abstract from the work-in-progress as on 30th September was prepared as under.

Job No.	Materials (₹)	Direct hrs.	Labour (₹)	Factory Overheads applied (₹)
115	1325	400 hrs.	800	640
118	810	250 hrs.	500	400
120	765	300 hrs.	475	380
	2,900		1,775	1,420

Materials used in October were as follows:

Materials Requisition No.	Job No.	Cost (₹)
54	118	300
55	118	425
56	118	515
57	120	665
58	121	910
59	124	720
		3,535

A summary for labour hours deployed during October is as under:

Job No.	Number of Hours	
	Shop A	Shop B
115	25	25
118	90	30
120	75	10
121	65	--
124	25	10
	275	75

Indirect Labour: Waiting of material	20	10
Machine breakdown	10	5
Idle time	5	6
Overtime premium	6	5
	316	101

A shop credit slip was issued in October, that material issued under Requisition No. 54 was returned back to stores as being not suitable. A material transfer note issued in October indicated that material issued under Requisition No. 55 for Job 118 was directed to Job 124.

The hourly rate in shop A per labour hour is ₹ 3 per hour while at shop B, it is ₹ 2 per hour. The factory overhead is applied at the same rate as in September. Job 115, 118 and 120 were completed in October.

You are asked to COMPUTE the factory cost of the completed jobs. It is the practice of the management to put a 10% on the factory cost to cover administration and selling overheads and invoice the job to the customer on a total cost plus 20% basis. DETERMINE the invoice price of these three jobs?

Solution :-

(12 Marks)

Factory Cost Statement of Completed Job.

Month	Job No.	Materials	Direct labour	Factory overheads (80% of direct labour cost)	Factory cost
	(₹)	(₹)	(₹)	(₹)	(₹)
September	115	1,325	800	640	2,765
October	115	--	125	100	225
Total		1,325	925	740	2,990
September	118	810	500	400	1,710
October	118	515	330	264	1,109
Total		1,325	830	664	2,819
September	120	765	475	380	1,620
October	120	665	245	196	1,106
Total		1,430	720	576	2,726

Invoice Price of Complete Job

Job No.	115 (₹)	118 (₹)	120 (₹)
Factory cost	2,990.00	2,819.00	2,726.00
Administration and selling overheads @ 10% of factory cost	299.00	281.90	272.60
Total cost	3,289.00	3,100.90	2,998.60
Profit (20% of total cost)	657.80	620.18	599.72
Invoice Price	3,946.80	3,721.08	3,598.32

Assumption: - Indirect labour costs have been included in the factory overhead has been recovered as 80% of the labour cost.



Chapter 10
Process and Operation Costing

Multiple Choice Questions (MCQs)

(1 Mark Each)

1. The type of process loss that should not be allowed to affect the cost of good units is:
 - (a) Abnormal loss
 - (b) Normal loss
 - (c) Seasonal loss
 - (d) Standard loss

2. 200 units were introduced in a process in which 20 units is the normal loss .If the actual output is 150 units, then there is:
 - (a) No abnormal loss
 - (b) No abnormal gain
 - (c) Abnormal loss of 30 units
 - (d) Abnormal gain of 30 units

3. 100 units are processed at a total cost of ` 160, normal loss is 10%, & scrap units are sold @ ` 0.25 each. If the output is 80 units, then the value of abnormal loss is:
 - (a) ` 2.50
 - (b) ` 16
 - (c) ` 17.50
 - (d) ` 17.75

4. When average method is used in process costing, the opening inventory costs are:
 - (a) Subtracted from the new costs
 - (b) Added to the new costs
 - (c) Kept separate from the costs of the new period
 - (d) Averaged with other costs to arrive at total cost

5. Spoilage that occurs under inefficient operating conditions and is ordinarily controllable is called:
 - (a) Normal spoilage
 - (b) Abnormal spoilage
 - (c) Normal defectives
 - (d) None of the above

6. The cost of normal process loss is -
- (a) Absorbed by good units produced and amount realised by the sale of loss units should be debited to the process account.
 - (b) Debited to costing profit and loss account.
 - (c) Absorbed by good units produced.
 - (d) Debited to costing profit and loss account and amount realised by the sale of loss units should be credited to the process account.
7. The value of abnormal loss is equal to:
- (a) Total cost of materials
 - (b) Total process cost less realizable value of normal loss
 - (c) Total process cost less cost of scrap
 - (d) Total process cost less realizable value of normal loss less value of transferred out goods.
8. Inter-process profit is calculated, because:
- (a) a process is a cost centres
 - (b) each process has to report profit
 - (c) the efficiency of the process is measured
 - (d) the wages of employees are linked to the process profitability.
9. Under Weighted Average (Average) Method:
- (a) The cost to complete the opening WIP is ignored.
 - (b) The cost to complete the opening WIP and other completed units are calculated separately.
 - (c) The cost of opening work-in-process and cost of the current period are aggregated and the aggregate cost is divided by output in terms of completed units.
 - (d) Closing stock of work in process is valued at current cost.
10. A process account is debited by abnormal gain, the value is determined as:
- (a) Equal to the value of normal loss
 - (b) Cost of good units less realizable value of normal loss
 - (c) Cost of good units less realizable value of actual loss
 - (d) Equal to the value of good units less closing stock

11. Lean Labs develops 55mm film using a four-step process that moves progressively through four departments. The company specializes in overnight service and has the largest drug store chain as its primary customer. Currently, direct labor, direct materials, and overhead are accumulated by departments.

The cost accumulation system that best describes the system Lean Labs is using is:

- (a) Operation costing.
 - (b) Activity-based costing.
 - (c) Job-order costing.
 - (d) Process costing.
12. When compared with normal spoilage, abnormal spoilage:
- (a) Arises more frequently from factors that are inherent in the manufacturing process.
 - (b) Is given the same accounting treatment as normal spoilage.
 - (c) Is generally thought to be more controllable by purchase department than production department.
 - (d) Is not typically influenced by the "tightness" of production standards.
13. Assume 550 units were worked on during a period in which a total of 500 good units were completed. Normal spoilage consisted of 30 units; abnormal spoilage, 20 units. Total production costs were ` 2,200. The company accounts for abnormal spoilage separately on the income statement as loss due to abnormal spoilage. Normal spoilage is not accounted for separately. What is the cost of the good units produced?
- (a) ` 2,080
 - (b) ` 2,115
 - (c) ` 2,200
 - (d) ` 2,332
14. IC Limited uses process costing systems and inspects its goods post manufacturing. An engineer noticed on May 31st the following:

Good units completed	15,000
Normal spoilage (units)	300
Abnormal spoilage (units)	100

Unit costs were: Material ` 2.50 and conversion costs (Labour & overheads) ` 6.00. The number of units that company would transfer to its finished goods stock and the related cost of these units are:

- (a) 15,000 units transferred at a cost of ` 127,500
- (b) 15,000 units transferred at a cost of ` 130,050
- (c) 15,000 units transferred at a cost of ` 135,000
- (d) 15,300 units transferred at a cost of ` 130,050

Answers to the MCQs

1.	(a)	2.	(c)	3.	(c)	4.	(b)	5.	(b)	6.	(c)
7.	(d)	8.	(c)	9.	(c)	10.	(b)	11.	(d)	12.	(d)
13.	(b)	14.	(b)								



Question 1

The product of a company passes through three distinct process to completion. From past experience, it is ascertained that normal wastage, in each process, is as under:

Process	Wastage	Sale value of wastage
A	2%	25 paise per unit
B	4%	50 paise per unit
C	2.50%	60 paise per unit

The expenses are as follows:

	<u>Process A</u>	<u>Process B</u>	<u>Process C</u>
Materials	12,000	10,000	9,000
Direct Labour	16,000	5,000	4,900
Manufacturing exps.	2,000	3,400	3,590
Other factory Exps.	3,500	2,005	2,004

4000 units were initially process A' at a cost of Rs.13,560. The output of each process was as under:

<u>Output</u>	<u>Process</u>
A	3,850
B	3,600
C	3,500

From the above information Show the following Accounts

1. Process A A/c
2. Process B A/c
3. Process C A/c
4. Normal Loss A/c
5. Abnormal Loss A/C

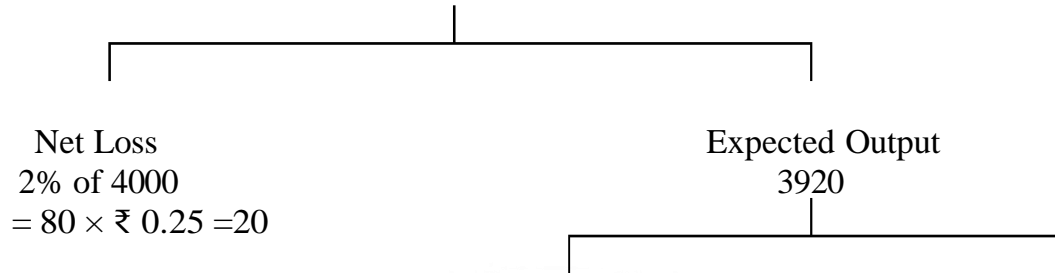
(15 Marks)

HJ

Answer:-

Working Note - (1)

Process A (Input = 4000 units)



$$\text{Cost Per unit} = \frac{47060 - 20}{4000 - 80} = 12$$

Actual
 3850×12
 $= 46200$

Abnormal Loss
 70×12
 $= 840$

Dr		Process A Account		Cr.	
	Qty.	Amt.		Qty.	Amt.
To Material A/C	4000	13560	By Normal Loss A/C	80	20
To Material A/C		12000	By Abnormal Loss	70	840
To Labour A/C		16000	A/C By		
To Mfg. Exp.		2000	Process B A/C	3850	46200
To Others Factory		3500			
Exp					
	4000	47060		4000	47060

Working Note –(2)

Process B

Input = 3850

Normal Loss

$$\begin{aligned}
 &4\% \text{ of } 3850 \\
 &= 154 \times ₹ \\
 &0.5 \\
 &= 77
 \end{aligned}$$

Expected Output

$$\begin{aligned}
 &3850 - 154 \\
 &= 3696
 \end{aligned}$$

Actual Abnormal Loss

$$\begin{aligned}
 \text{Cost Per unit} &= \frac{66605 - 77}{3850 - 154} = 18 \\
 3600 \times 18 &= 64800 \\
 96 \times 18 &= 1728
 \end{aligned}$$

Dr.		Process – B Account		Cr.	
	Qty.	Amt.		Qty.	Amt.
To Process A A/C	3850	46200	By Normal Loss	154	77
To Material A/C		10000	A/C By Abnormal	96	1728
To Labour A/C		5000	Loss A/C	3600	64800
To Mfg. Exp.		3400	By Process C A/C		
To Others Factory		2005			
Exp.					
	3850	66605		3850	66605

Working Note - (3)

Process C Input = 3600

$$\begin{aligned} \text{Normal Loss} &= 2.5\% \text{ of } 3600 \\ &= 90 \times ₹ \\ &= 0.60 \\ &= 54 \end{aligned}$$

$$\text{Cost Per unit} = \frac{84294 - 54}{3600 - 90} = 24 \text{ Expected Output } 3510$$

$$\begin{aligned} \text{Actual} \\ 3500 \times 24 \\ = 84000 \end{aligned}$$

$$\begin{aligned} \text{Abnormal} \\ \text{Loss} \\ 10 \times 24 \\ = 240 \end{aligned}$$

HJ

Dr.		Process C Account		Cr.	
	Qty.	Amt.		Qty.	Amt.
To Process B	3600	64800	By Normal Loss a/c	90	54
A/C To Material		9000	By Abnormal	10	240
A/C To Labour		4900	Loss By Process	3500	84000
A/C		3590	C a/c		
To Mfg. Exp.					
To Others Factory		2004			
Exp.					
	3600	84294		3600	84294

Dr.		Normal Loss Account		Cr.	
	Qty.	Amt.		Qty.	Amt.
To Process A A/C	80	20	By Cash A/C	80	20
To Process B A/C	154	77	By Cash A/C	154	77
To Process C A/C	90		By Cash A/C		
		54		90	54
	324	151		324	151

Dr.		Abnormal Loss Account		Cr.	
	Qty.	Amt.		Qty.	Amt.
To Process A A/C	70	840	By Cash A/C	70	17.5
To Process B	96	1728	By Cash	96	48
A/C To Process	10	240	A/C By Cash	10	6
C A/C			A/C		2736.5
			By Costing P & L		

Question 2

During a month 40,000 units were introduced into process A. The process cost was:

Rs.

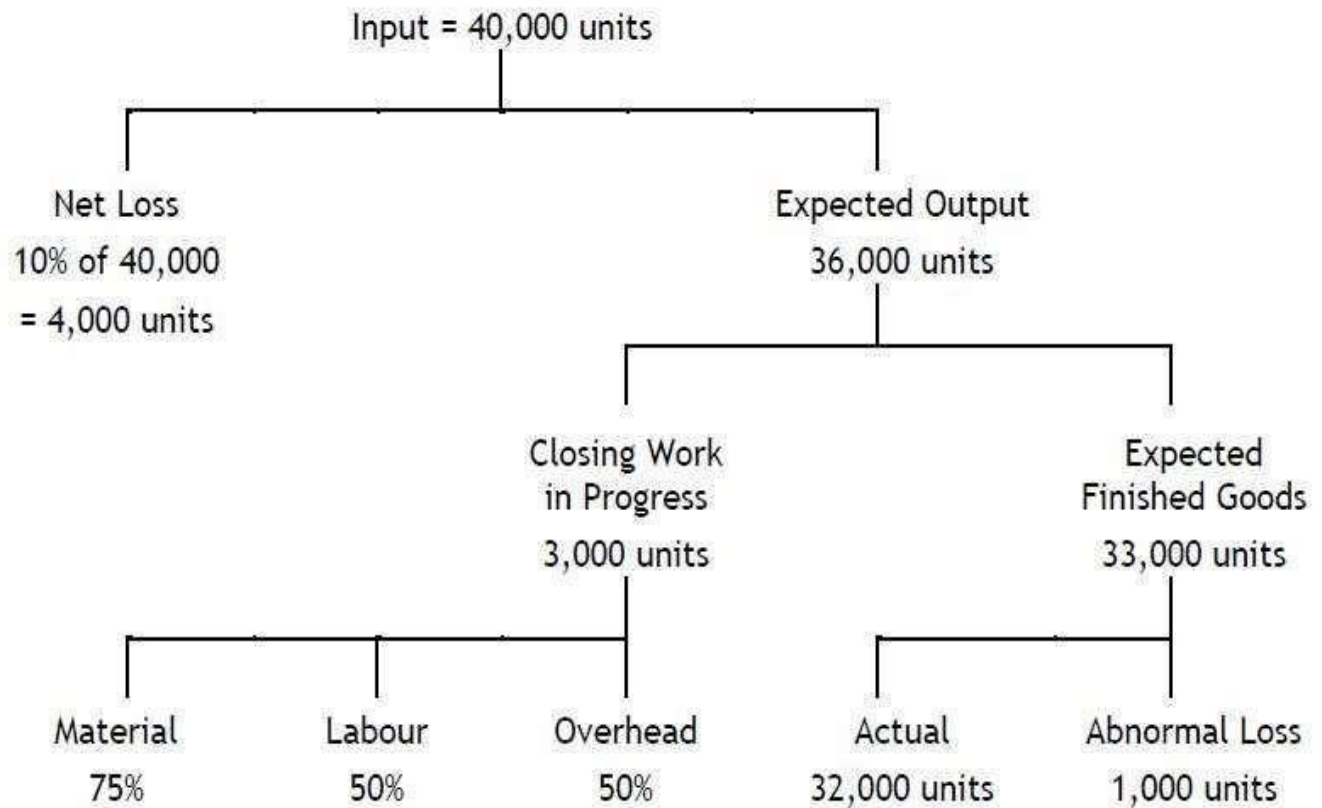
Direct Materials	3,02,000
Direct Wages	2,07,000
Factory overhead	50% of direct wages

The normal loss was estimated at 10% on input. At the end of the month, 32,000 units have been produced and transferred to process B. 5,000 units have been scrapped (scrapped units had been completely processed and realized Rs. 5/- per unit) and 3000 units were incomplete and the stage of completion in respect of these units was estimated to be :

Material 75%
 Labour 50%
 Overhead 50%

Find out (a) Equivalent production, (b) Cost per unit, (c) value of output to be transferred and show the necessary accounts. (12 Marks)

Given:



Statement showing equipment production

Input	Particulars	Output	Material		Labour		Overheads	
			%	QTY	%	QTY	%	QTY
40000	Input							
	Finished Goods	32000	100%	32000	100%	32000	100%	32000
	WIP	3000	75%	2250	50%	1500	50%	1500
	Normal Loss	4000	-	-	-	-	-	-
	Abnormal loss	1000	100%	1000	100%	1000	100%	1000
40000		40000		35250		34500		34500

Cost Per units:

	Total Cost	Equivalent Production	Cost Per units
Material	3,02,000		
(-) Realization from Net Loss (4000 ×5)	(20,000)		
	2,82,000	35,250	8
Labour	2,07,000	34,500	6
(50% of Labour) Overhead	1,03,500	34,500	3

Valuation of output:Finished goods / transferred to Process B:

	Quantity	Cost Per Unit	Total Cost
Material	32,000	8	2,56,000
Labour	32,000	6	1,92,000
Overhead	32,000	3	96,000
			5,44,000

Closing Work in Progress:

	Quantity	Cost Per Unit	Total Cost
Material	2250	8	18,000
Labour	1500	6	9,000
Overhead	1500	3	4,500
			31,500

Abnormal loss:

	Quantity	Cost Per Unit	Total Cost
Material	1,000 ×	8	= 8,000
Labour	1,000 ×	6	= 6,000
Overhead	1,000 ×	3	= 3,000
			17,000

Dr.		Process A/c		Cr.	
	Qty.	Amt.		Qty.	Amt.
To Material	40,000	3,02,000	By Normal Loss	4,000	20,000
To Labour		2,07,000	By Finished Goods	32,000	5,44,000
To Overhead		1,03,500	By C/S WIP	3,000	31,500
			By Abnormal loss	1,000	17,000
	40,000	6,12,500		40,000	6,12,500

Dr.		Normal Loss A/c		Cr.	
	Qty.	Amt.		Qty.	Amt.
To Process A/C	4,000	20,000	By Cash/Bank A/c	4,000	20,000
	4,000	20,000		4,000	20,000

Dr.		Abnormal Loss A/c		Cr.	
	Qty.	Amt.		Qty.	Amt.
To Normal Loss A/c	1,000	17,000	By Cash/Bank A/c	1,000	5,000
To costing P&L A/c			By costing P & L A/c		12,000
	1,000	17,000		1,000	17,000

Question 3

Following information is available regarding process A for the month of February, 2023:

Production Record		
Units in process as on 1.2.2023		4,000
(All materials used, 25% complete for labour and overhead)		
New units introduced		16,000
Units completed		14,000
Units in process as on 28-2-2023		6,000
(All materials used, 33 ¹ / ₃ % complete for Labour and overhead)		
Cost Records		
Work-in-process as on 1.2.2023		Rs.
Materials		6,000
Labour		1,000
Overhead		1,000
Cost during the month		
Materials		25,600
Overhead		15,000
Labour		15,000
		55,600

Presuming that average method of inventory is used, prepare:

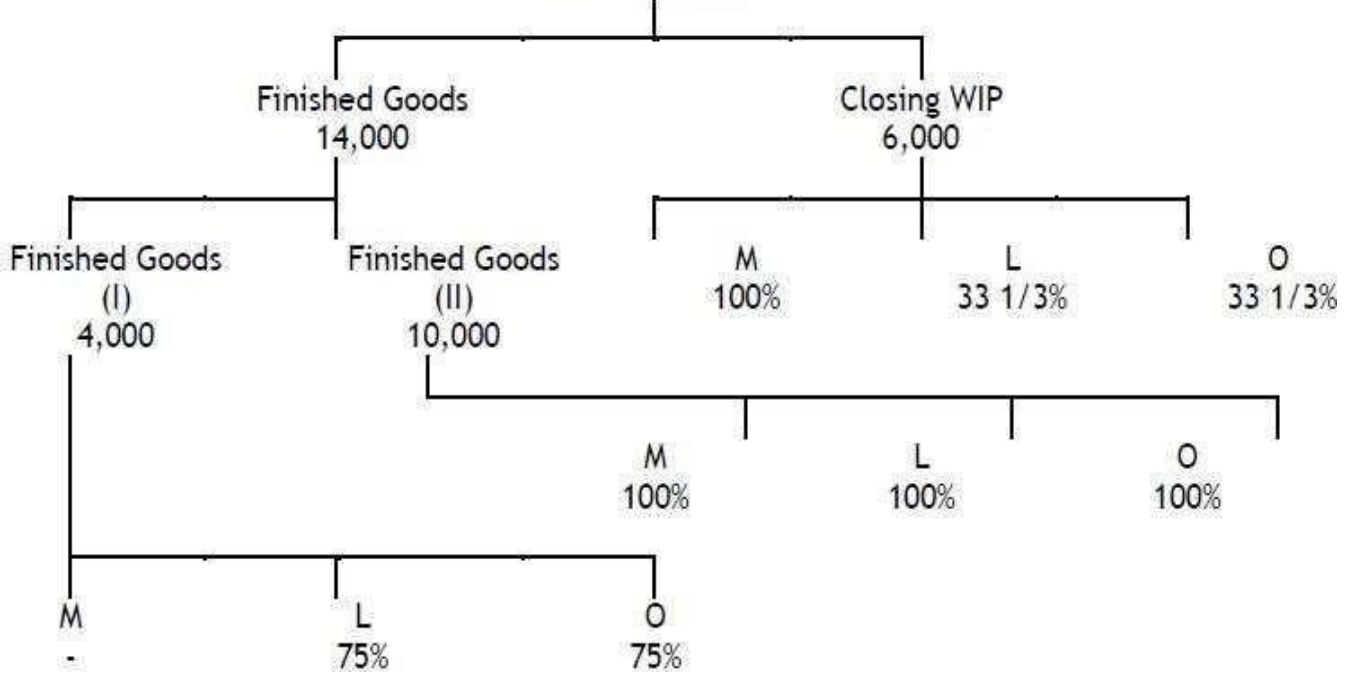
- i. Statement of equivalent production
- ii. Statement showing cost for each element.
- iii. Statement of Valuation of Finished Goods and Work in Progress
- iv. Process cost account for process A.

(12 Marks)

Working Note – 1:

Process A	=	(FIFO Method)	M	100 %
Opening WIP	=	4,000 units	L	25%
Input	=	16,000 units	O	25%
		20,000 units		

Process A	=	(FIFO Method)	}	M	100%
Opening WIP	=	4,000 units		L	25%
Input	=	16,000 units		O	25%
		20,000 units			



Statement showing Equivalent Production

Input	Particulars	Output	Material		Labour		Overheads	
			%	QTY	%	QTY	%	QTY
4000 16000	O/P WIP Input Finish Goods(i) Finish Goods(ii) C/S WIP	4000 10000 6000	- 100 100	- 10000 6000	75% 100% 33 1/3%	3000 10000 2000	75% 100% 33 1/3%	3000 10000 2000
20000		20000		16000		15000		15000

Cost Per unit:

	Total Cost	Equivalent Production	Cost Per unit
Material	25,600	16,000	1.6
Labour	15,000	15,000	1
Overhead	15,000	15,000	1

Valuation of output:

Finished goods (I):

	Quantity	Cost Per Unit	Total Cost
Opening Cost			8,000
Labour	3,000	1	3,000
Overhead	3,000	1	3,000
			14,000

Finished Goods (II):

	Quantity	Cost Per Unit	Total Cost
Material	10,000	1.6	16,000
Labour	10,000	1	10,000

Overhead	10,000	1	10,000
			36,000

Work in Progress:

	Quantity		Cost Per Unit	Total Cost
Material	6,000	×	1.6	9,600
Labour	2,000	×	1	= 2,000
Overhead	2,000	×	1	= 2,000
				13,600

Dr.	Process A A/c				Cr.
	Qty.	Amt.		Qty.	Amt.
I/P WIP	4,000	8,000	By Finished Goods	14,000	50,000
Material	16,000	25,600	By WIP	6,000	13,600
Labour		15,000			
Overhead		15,000			
	20,000	63,600		20,000	63,600



Chapter 11
Joint Product and By Product

Multiple Choice Questions:

(13 Marks)

1. In sugar manufacturing industries molasses is also produced along with sugar. Molasses may be of smaller value as compared with the value of sugar and is known as:
 - (a) Common product
 - (b) By- product
 - (c) Joint product
 - (d) None of them
2. Method of apportioning joint costs on the basis of output of each joint product at the point of split off is:
 - (a) Sales value method
 - (b) Physical unit method
 - (c) Average cost method
 - (d) Marginal cost and contribution method
3. In the Net realisable value method, for apportioning joint costs over the joint products, the basis of apportionment would be:
 - (a) Selling price per unit of each of the joint products
 - (b) Selling price multiplied by units sold of each of the joint products
 - (c) Sales value of each joint product less further processing costs of individual products
 - (d) Both (b) and (c)
4. The main purpose of accounting of joint products and by- products is to:
 - (a) Determine the opportunity cost
 - (b) Determine the replacement cost
 - (c) Determine profit or loss on each product line
 - (d) None of the above

5. Under net realizable value method of apportioning joint costs to joint products, the selling & distribution cost is:
- (a) Added to joint cost
 - (b) Deducted from further processing cost
 - (c) Deducted from sales value
 - (d) Ignored
6. Which of the following is a co-product:
- (a) Diesel and Petrol in an oil refinery
 - (b) Edible oils and oil cakes
 - (c) Curd and butter in a dairy
 - (d) Mustard oil and Sunflower oil in an oil processing company.
7. Which of the following is an example of by-product
- (a) Diesel and Petrol in an oil refinery
 - (b) Edible oils and oil cakes
 - (c) Curd and butter in a dairy
 - (d) Mustard seeds and mustard oil.
8. Which of following method can be used when the joint products are of unequal quantity and used for captive consumption:
- (a) Technical estimates, using market value of similar goods
 - (b) Net Realisable value method
 - (c) Physical Units method
 - (d) Market value at split-off method.
9. Which of the following statement is not correct in relation to Co-products:
- (a) Co-products may also have joint products
 - (b) Costing for co-products are done according to process costing method
 - (c) Co-products do not have any by-products
 - (d) Co-products are treated as a separate cost object for costing purpose.

10. When a by-product does not have any realisable value, the cost of by-product is:
- (a) Transferred to Costing Profit & Loss A/c
 - (b) By-product cost is borne by the good units
 - (c) By-product cost is ignored
 - (d) By-product cost is determined taking value of similar goods
11. SG Ltd manufactures two products from a joint milling process. The two products developed are Mine support (MS) and Commercial building (CB). A standard production run incurs joint costs of ₹ 1,00,000 and results in 60,000 units of MS and 90,000 units of CB. Each MS sells for ₹ 200 per unit, and each CB sells for ₹ 450 per unit.
- Assuming no further processing work is done after the split-off point, the amount of joint cost allocated to Commercial building (CB) on a physical quantity allocation basis would be:
- (a) ₹ 60,000.
 - (b) ₹ 180,000.
 - (c) ₹ 225,000.
 - (d) ₹ 120,000.
12. Kay Company manufactures two hair care lotions, Livi and Sili, out of a joint process. The joint (common) costs incurred are ₹ 6,30,000 for a standard production run that generates 1,80,000 gallons of Livi and 1,20,000 gallons of Sili. Livi sells for ₹ 240 per gallon, and Sili sells for ₹ 390 per gallon.
- If additional processing costs beyond the split-off point are ₹ 140 per gallon for Livi and ₹ 90 per gallon for Sili, the amount of joint cost of each production run allocated to Livi on a physical-quantity basis is:
- (a) ₹ 340,000.
 - (b) ₹ 378,000.
 - (c) ₹ 232,000.
 - (d) ₹ 580,000.

13. For the purpose of allocating joint costs to joint products, the sales price at point of sale, reduced by cost to complete after split-off, is assumed to be equal to the:
- (a) Joint costs
 - (b) Sales price less a normal profit margin at point of sale
 - (c) Net sales value at split off
 - (d) Total costs.

Answers to the MCQs

1.	(b)	2.	(b)	3.	(d)	4.	(c)	5.	(c)	6.	(d)
7.	(b)	8.	(a)	9.	(c)	10.	(b)	11.	(a)	12.	(b)
13.	(c)										



Question 1

XY Ltd manufacturers Product A which yields two By-Products B and C. The actual joint expenses of manufacturing for a period were ₹ 8,200. The profits on each product as a percentage of sales are $33\frac{1}{3}\%$, 25% and 15% respectively.

Subsequent expenses are as follows:

Particulars	Products		
	'A' Amount (₹)	'B' Amount (₹)	'C' Amount (₹)
Material	100	75	25
Direct Labour	200	125	50
Overheads	150	125	75
	450	325	150
Sales	6,000	4,000	2,500

Apportion the joint expenses.

(6 Marks)

Solution:

Statement Showing Apportionment of Joint Expenses

Particulars	'A' Amount (₹)	'B' Amount (₹)	'C' Amount (₹)	Total ₹
	Products	By Products	By Products	
Sales	6,000	4,000	2,500	12,500
Less: Profit	$33\frac{1}{3}\% \times 6,000 = 2,000$	$25\% \times 4,000 = 1,000$	$15\% \times 2,500 = 375$	3,375
Total Cost	4,000	3,000	2,125	9,125
Less: Separate Expenses	450	325	150	925
Share of Joint Cost	3,550	2,675	1,975	8,200

Question 2

The following data have been extracted from the books of M/s. Southern Coke Co. Ltd

Joint Products	Yield in kg of Recovered Products Per Tonne of Coal
Coke	1,420
Coal Tar Benzol	120
Sulphate of Ammonia	22
Gas	26
	412
	2,000

The price of coal is ₹ 80 per tonne. The direct labour and overhead costs to the point of split-off are ₹ 40 and ₹ 60 respectively per tonne of coal. Calculate the material, labour and total cost of each product on the basis of weight.

(10 Marks)

Solution:

Statement Showing Calculation of Material, Labour and Overhead Cost of Each Product

Element	Total	Coke = 1,420 ×100	Coal Tar = 120 ×100	Benzol = 22 ×100	Sulphate = 26 ×100	Gas = 412 ×100
	₹ / tonne	2,000 =71%	2,000 = 6%	2,000 = 1.1%	2,000 = 1.3%	2,000 =
Material	80.00	56.80	4.80	0.88	1.04	16.48
Labour	40.00	28.40	2.40	0.44	0.52	8.24
Overhead	60.00	42.60	3.60	0.66	0.78	12.36
Total	180.00	127.80	10.80	1.98	2.34	37.08

Question 3

In manufacturing the main Product 'A', a company processes the resulting waste material into two By- Products B and C. Using reversal cost method of By-Products, prepare a comparative profit and loss statement of the three products from the following data:

(i) Total cost up to separation point was ₹ 68,000

	A	B	C
(ii) Sales (all production)	₹ 1,64,000	₹ 16,000	₹ 24,000
(iii) Estimated net profit % to Sale Value	-	20%	30%
(iv) Estimated Selling Expenses as % of Sales Value	20%	20%	20%
(v) Costs after separation	-	₹ 4,800	₹ 7,200

Solution:

Allocation of Joint Cost to Product B and Product C (12 Marks)

	Product B (₹)	Product C (₹)
Sales	16,000	24,000
Less: Profit	$20\% \times 16,000 = 3,200$	$30\% \times 24,000 = 7,200$
Total Cost	12,800	16,800
Less: Selling Expenses	$20\% \times 16,000 = 3,200$	$20\% \times 24,000 = 4,800$
	9,600	12,000
Less: Cost after Separation	4,800	7,200
Share in Joint Cost	4,800	4,800

Share in Joint Cost of Product A = $68,000 - (4,800 + 4,800) = ₹ 58,400$

Comparative Profit and Loss Statement

Particulars	Product A (₹)	Product B (₹)	Product C (₹)	Total (₹)
Sales (A)	1,64,000	16,000	24,000	2,04,000
Joint Cost	58,400	4,800	4,800	68,000
Cost After Separation	-	4,800	7,200	12,000
Selling Expenses	32,800	3,200	4,800	40,800
Total Cost (B)	91,200	12,800	16,800	1,20,800
Profit (A - B)	72,800	3,200	7,200	83,200

Selling Expense of Product A = $20\% \times 1,64,000 = ₹ 32,800$

Question 4

A vegetable oil refining company obtains four products whose cost details are: Joint costs of the four products: ₹ 8,29,600

Outputs: A – 5,00,000 litres; B – 10,000 litres; C – 5,000 litres and D –

9,000 kgs Further processing costs: A – ₹ 2,40,000; B – ₹ 48,000; C –

Nil and D – ₹ 8,030.

The products can be sold as intermediates i.e., at split-off point without further processing. The sale prices are:

	As Finished Product	As Intermediate
A ₹ per litre	1.84	1.20
B ₹ per litre	8.00	4.00

C ₹ per litre	6.40	6.40
D ₹ per kg	26.67	24.00

- (a) Calculate the product-wise profit allocating joint costs on Net Realisable Value (NRV)
 (b) Compare the profitability in selling the products with and without further processing.

(14 Marks)

Solution:

- (a) Statement showing Computation of Profit after further Processing

Particulars	A	B	C	D	Total
Output	5,00,000 litres	10,000 litres	5,000 litres	9,000 kg	
Selling Price p.u.	₹ 1.84	₹ 8.00	₹ 6.40	₹ 26.67	
Sales after further Processing (₹)	9,20,000	80,000	32,000	2,40,030	12,72,030
Less: Post Separation Cost	2,40,000	48,000	Nil	8,030	2,96,030
Net Realisable Value (NRV)	6,80,000	32,000	32,000	2,32,000	9,76,000
Less: Joint Cost (WN 1)	5,78,000	27,200	27,200	1,97,200	8,29,600
Profit	1,02,000	4,800	4,800	34,800	1,46,400

- (b) Statement Showing Computation of Profit before further Processing

Particulars	A	B	C	D	Total
Output	5,00,000 litres	10,000 litres	5,000 litres	9,000 kg	
Selling Price p.u.	₹ 1.20	₹ 4.00	₹ 6.40	₹ 24.00	
Sales before further Processing	6,00,000	40,000	32,000	2,16,000	8,88,000

(₹)					
Less: Joint Cost (WN 1) (₹)	5,78,000	27,200	27,200	1,97,200	8,29,600
Profit (₹)	22,000	12,800	4,800	18,800	58,400

Statement of the profitability in selling the products with and without further processing.

	Particulars	A	B	C	D	Total
i.	Profit after further Processing (₹)	1,02,000	4,800	4,800	34,800	1,46,400
ii.	Profit before further Processing (₹)	22,000	12,800	4,800	18,800	58,400
iii.	Incremental Profit / (Loss) (i. – ii.) (₹)	80,000	(8,000)	Nil	16,000	88,000

Product A and Product D should be further processed, because there is incremental profit whereas Product B and Product C should not be further processed.

Working Note

1. Allocation of Joint Cost on NRV basis

$$\text{Share of Joint Cost for Product A} = \frac{6,80,000}{9,76,000} \times 8,29,600 = ₹ 5,78,000$$

$$\text{Share of Joint Cost for Product B} = \frac{32,000}{9,76,000} \times 8,29,600 = ₹ 27,200$$

$$\text{Share of Joint Cost for Product C} = \frac{32,000}{9,76,000} \times 8,29,600 = ₹ 27,200$$

$$\text{Share of Joint Cost for Product D} = \frac{2,32,000}{9,76,000} \times 8,29,600 = ₹ 1,97,200$$



Chapter 12 Service Costing

Multiple Choice Questions:

(10 Marks)

1. Composite cost unit for a hospital is:
 - (a) Per patient
 - (b) Per patient-day
 - (c) Per day
 - (d) Per bed
2. Cost of diesel and lubricant is an example of:
 - (a) Operating cost
 - (b) Fixed charges
 - (c) Semi-variable cost
 - (d) None of the above
3. Cost units used in power sector is:
 - (a) Kilo meter (K.M)
 - (b) Kilowatt-hour (kWh)
 - (c) Number of electric points
 - (d) Number of hours
4. Absolute Tonne-km. is an example of:
 - (a) Composite units in power sector
 - (b) Composite unit of transport sector
 - (c) Composite unit for bus operation
 - (d) Composite unit for oil and natural gas
5. Depreciation is treated as fixed cost if it is related to:
 - (a) Activity level
 - (a) Related with machine hours Efflux of time

- (b) None of the above
6. Jobs undertaken by IT & ITES organizations are considered as:
- (a) Project
 - (b) Batch work
 - (c) Contract
 - (d) All the above
7. In Toll Road costing, the repetitive costs include:
- (a) Maintenance cost
 - (b) Annual operating costs
 - (c) None of the above
 - (d) Both (a) and (b)
8. BOT approach means:
- (a) Build, Operate and Transfer
 - (b) Buy, Operate and Transfer
 - (c) Build, Operate and Trash
 - (d) Build, Own and Trash
9. Pre-product development activities in insurance companies, include:
- (a) Processing of Claim
 - (b) Selling of policy
 - (c) Provision of conditions
 - (d) Policy application processing
10. Which of the following costing method is not appropriate for costing of educational institutes:
- (a) Batch Costing
 - (b) Activity Based Costing
 - (c) Absorption Costing
 - (d) Process Costing

Answers to the MCQs

1.	(b)	2.	(a)	3.	(b)	4.	(b)	5.	(c)	6.	(a)
7.	(a)	8.	(a)	9.	(c)	10.	(d)				

Question 1

AXA Passenger Transport Company is running 5 buses between two towns, which are 40 kms apart. Seating capacity of each bus is 40 passengers. Following details are available from their books, for the month of April:

Particulars	Amount (₹)
Salary of Drivers, Cleaners and Conductors	24,000
Salary to Supervisor	10,000
Diesel and other Oil	40,000
Repairs and Maintenance	8,000
Tax and Insurance	16,000
Depreciation	26,000
Interest	20,000
	1,44,000

Actual passengers carried were 75% of the seating capacity. All the five buses run on all days for the month. Each bus made one round trip per day. CALCULATE cost per passenger – Kilometer.

(6 Marks)

SOLUTION :-

Working Note:

Total Passenger Kilometres =

Number of Buses × Distance × Seating Capacity × Used Capacity × Number of days in the month × Number of trips

= 5 Buses × 40 kms. × 40 Seats × 75% × 30 Days × 2 Single trips (1 Round Trip)

= 3,60,000 Passenger-Kms.

Cost per Passenger-Km = Total costs ÷ Total Passenger Kilometers

Statement of Cost per Passenger – Km

Particulars	Cost Per Month	Cost per Passenger – Km
A. Standing Charges:		
Wages of Drivers, Cleaners and Conductors	24,000	
Salary to Supervisor	10,000	
Tax and Insurance	16,000	
Depreciation	26,000	
Interest	20,000	
Total Standing Charges	96,000	0.267
B. Running Charges		
Diesel and other Oil	40,000	0.111
C. Maintenance Charges		
Repairs and Maintenance	8,000	0.022
Total	1,44,000	0.400

Cost per Passenger-Km = ₹ 0.40

Question 2

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 room's suite.

The other expenses for the year 2022-23 are as follows:

	(₹)
Staff salaries	14,25,000
Room attendants' wages	4,50,000
Lighting, heating and power	2,15,000
Repairs and renovation	1,23,500
Laundry charges	80,500
Interior decoration	74,000
Sundries	1,53,000

Provide profit @ 20% on total taking and assume 360 days in a year.

You are required to CALCULATE the rent to be charged for each type of suite.

(12 Marks)

SOLUTION :-

Working Notes:

(i) Total equivalent single room suites

Nature of suite	Occupancy (Room-days)	Equivalent single room suites (Room-days)
Single room suites	36,000 (100 rooms * 360 days * 100%)	36,000 (36,000 * 1)
Double rooms suites	14,400 (50 rooms * 360 days * 80%)	36,000 (14,400 * 2.5)
Triple rooms suites	6,480 (30 rooms * 360 days * 60%)	32,400 (6,480 * 5)
		1,04,400

(ii) Statement of total cost:

	(₹)
Staff salaries	14,25,000
Room attendant's wages	4,50,000
Lighting, heating and power	2,15,000
Repairs and renovation	1,23,500

Laundry charges	80,500
Interior decoration	74,000
Sundries	1,53,000
	25,21,000
Building rent {(₹10,000 * 12 months) + 5% on total taking}	1,20,000+ 5% on total takings
Total cost	26,41,000 + 5% on total takings

Profit is 20% of total takings

Total takings = ₹ 26,41,000 + 25% (5% +20%) of total

takings Let R be rent for single room suite

Then $1,04,400 R = 26,41,000 + (0.25 \times 1,04,400 R)$

Or, $1,04,400 R = 26,41,000 + 26,100 R$

Or, $78,300 R =$

$26,41,000$ Or, $R =$

₹33.73

Alternatively

Let total takings be x

■ $X = 26,41,000 + .25X (5\% + 20\%)$

■ $X = 35,21,333$

Let the rent of single room be R

Then $1,04,400 R =$

$35,21,333$

Or, $R = ₹33.73$

Rent to be charged:

Rent to be charged for single room suite = ₹33.73

Rent for double rooms suites ₹ 33.73 * 2.5 = ₹84.33

Rent for triple rooms suites ₹33.73 * 5 = ₹168.65

Question 3

Following are the data pertaining to Infotech Pvt. Ltd, for the year 2022-23:

	Amount (₹)
Salary to Software Engineers (5 persons)	15,00,000
Salary to Project Leaders (2 persons)	9,00,000
Salary to Project Manager	6,00,000
Repairs & maintenance	3,00,000
Administration overheads	12,00,000

The company executes a Project XYZ, the details of the same as are as follows: Project duration – 6 months

One Project Leader and three Software Engineers were involved for the entire duration of the project, whereas Project Manager spends 2 months' efforts, during the execution of the project.

Travel expenses incurred for the project – ₹ 1,87,500

Two Laptops were purchased at a cost of ₹ 50,000 each, for use in the project and the life of the same is estimated to be 2 years

PREPARE Project cost sheet. (8 Marks)

SOLUTION :-

Working Notes:

(1) Calculation of Cost per month and Overhead absorption rate

Particulars	Total Per Annum	Per Person Per Annum	Per Person Per Month
Salary to Software Engineer (5 Persons)	₹15,00,000	₹ 3,00,000	₹25,000
Salary to Project Leaders (2 persons)	₹ 9,00,000	₹ 4,50,000	₹ 37,500

Salary to Project Manager	₹ 6,00,000	₹ 6,00,000	₹ 50,000
Total	₹ 30,00,000		₹ 1,12,500

(2) Total Overhead = Repairs & maintenance + Administration overheads
= ₹ 3,00,000 + ₹12,00,000 = ₹15,00,000

(3) Calculation of Overhead absorption rate
= Total Overhead / Total Salary = ₹15,00,000 / ₹30,00,000 = 50%

Project Cost Sheet

		(₹)
Salary Cost:		
Salary of Software Engineers	(3 × ₹ 25,000 × 6 months)	4,50,000
Salary of Project Leader	(₹ 37,500 × 6 months)	2,25,000
Salary of Project Manager	(₹ 50,000 × 2 months)	1,00,000
Total Salary		7,75,000
Overheads	(50% of Salary)	3,87,500
Travel Expenses		1,87,500
Depreciation on Laptops	(₹1,00,000 / 2 years × 6 months)	25,000
Total Project Cost		13,75,000

Question 4

Mr. PS owns a bus which runs according to the following schedule:

(i) Delhi to Hisar and back, the same day

Distance covered: 160 km. one way
Number of days run each month: 9
Seating capacity occupied 90%.

(ii) Delhi to Aligarh and back, the same day

Distance covered: 160 km. one way
Number of days run each month: 12
Seating capacity occupied 95%

(iii) Delhi to Alwar and back, the same day

Distance covered: 170 km. one way
Number of days run each month: 6
Seating capacity occupied 100%

(iv) Following are the other details:

Cost of the bus	₹ 15,00,000
Salary of the Driver	₹ 30,000 p.m.
Salary of the Conductor	₹ 26,000 p.m.
Salary of the part-time Accountant	₹ 7,000 p.m.
Insurance of the bus	₹ 6,000 p.a.
Diesel consumption 5 km. per litre at	₹ 90 per litre
Road tax	₹ 21,912 p.a.
Lubricant oil	₹ 30 per 100 km.
Permit fee	₹ 500 p.m.
Repairs and maintenance	₹ 5,000 p.m.
Depreciation of the bus	@ 30% 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:

(i) Delhi to Hisar (ii) Delhi to Aligarh and (iii) Delhi to Alwar (14 Marks)

Solution :-

Working Notes:

Total Distance (in km.) covered per month

Bus route	Km. per trip	Trips per day	Days per month	Km. per month
Delhi to Hisar	160	2	9	2,880

Delhi to Aligarh	160	2	12	3,840
Delhi to Alwar	170	2	6	2,040
Total				8,760

Passenger- km. per month

	Total seats available per month (at 100% capacity)	Capacity utilised		Km. per trip	Passenger- Km. per month
		(%)	Seats		
Delhi to Hisar & Back	900 (50 seats * 2 trips * 9 days)	90	810	160	1,29,600 (810 seats × 160 km.)
Delhi to Aligarh & Back	1,200 (50 seats * 2 trips * 12 days)	95	1,140	160	1,82,400 (1,140 seats × 160 km.)

Delhi to Alwar &Back	600 (50 seats * 2 trips * 6 days)	100	600	170	1,02,000 (600 seats × 170 km.)
Total					4,14,000

Monthly Operating Cost Statement

Particulars	(₹)	(₹)
(i) Running Costs		
Diesel {(8,760 km * 5 km) * ₹ 90}	1,57,680.00	
Lubricant oil {(8,760 km * 100) * ₹ 30}	2,628.00	1,60,308.00
(ii) Maintenance Costs		
Repairs & Maintenance		5,000.00
(iii) Standing charges		
Salary to driver	30,000.00	
Salary to conductor	26,000.00	
Salary of part-time accountantInsurance (₹ 6,000 ÷12)	7,000.00	
Road tax (₹ 21,912 ÷12)	500.00	
Permit fee	1,826.00	
Depreciation {(₹ 15,00,000 * 30%) * 12}	500.00	
Depreciation {(₹ 15,00,000 * 30%) * 12}	37,500.00	1,03,326.00
Total costs per month before Passenger Tax (i)+(ii)+(iii)		2,68,634.00
Passenger Tax		1,07,453.60
Total Cost		3,76,087.60
Add: Profit		1,61,180.40
Total takings per month		5,37,268.00

*Let total takings be X then,

$$X = \text{Total costs per month before passenger tax} + 0.2 X (\text{passenger tax}) + 0.3 X (\text{profit})$$

$$X = ₹ 2,68,634 + 0.2 X + 0.3 X$$

$$0.5 X = ₹ 2,68,634 \text{ or, } X = ₹ 5,37,268$$

$$\text{Passenger Tax} = 20\% \text{ of } ₹ 5,37,268 = ₹$$

$$1,07,453.60 \text{ Profit} = 30\% \text{ of } ₹ 5,37,268$$

$$= ₹ 1,61,180.40$$

Calculation of Rate per passenger km. and fares to be charged for different routes

$$\begin{aligned} \text{Rate per Passenger-Km.} &= \frac{\text{Total takings per month}}{\text{Total Passenger -Km. per month}} \\ &= \frac{₹ 5,37,268}{4,14,000 \text{ Passenger-Km.}} = ₹ 1.30 \end{aligned}$$

(approx.) Bus fare to be charged per passenger:

Delhi to Hisar	=	₹ 1.30 * 160 km	=	₹ 208.00
Delhi to Aligarh	=	₹ 1.30 * 160 km	=	₹ 208.00
Delhi to Alwar	=	₹ 1.30 * 170 km	=	₹ 221.00



Chapter 13 Standard Costing

Multiple Choice Questions:

(10 Marks)

1. Under standard cost system the cost of the product determined at the beginning of production is its:
 - (a) Direct cost
 - (b) Pre-determined cost
 - (c) Historical cost
 - (d) Actual cost

2. The deviations between actual and standard cost is known as:
 - (a) Multiple analysis
 - (b) Variable cost analysis
 - (c) Variance analysis
 - (d) Linear trend analysis

3. The standard which is attainable under favourable conditions is:
 - (a) Theoretical standard
 - (b) Expected standard
 - (c) Normal standard
 - (d) Basic standard

4. The standard most suitable from cost control point of view is:
 - (a) Normal standard
 - (b) Theoretical standard
 - (c) Expected standard
 - (d) Basic standard

5. Overhead cost variances is:
 - (a) The difference between overheads recovered on actual output - actual overhead incurred.
 - (b) The difference between budgeted overhead cost and actual overhead cost.
 - (c) Obtained by multiplying standard overhead absorption rate with the difference between standard hours for actual output and actual hours worked.

- (d) None of the above
6. Which of the following variance arises when more than one material is used in the manufacture of a product:
- (a) Material price variance
 - (b) Material usage variance
 - (c) Material yield variance
 - (d) Material mix variance
7. If standard hours for 100 units of output are 400 @ ₹ 2 per hour and actual hours take are 380 @ ₹ 2.25 per, then the labour rate variance is:
- (a) ₹ 95 (adverse)
 - (b) ₹ 100 (adverse)
 - (c) ₹ 25 (favourable)
 - (d) ₹ 120 (adverse)
8. Controllable variances are best disposed-off by transferring to:
- (a) Cost of goods sold
 - (b) Cost of goods sold and inventories
 - (c) Inventories of work-in-progress and finished goods
 - (d) Costing profit and loss account
9. Idle time variance is obtained by multiplying:
- (a) The difference between standard and actual hours by the actual rate of labour per hour
 - (b) The difference between actual labour hours paid and actual labour hours worked by the standard rate
 - (c) The difference between standard and actual hours by the standard rate of labour per hour
 - (d) None of the above.
10. Basic standards are:
- (a) Those standards, which require high degree of efficiency and performance.
 - (b) Average standards and are useful in long term planning.
 - (c) Standards, which can be attained or achieved

(d) Assuming to remain unchanged for a long time.

Answers to the MCQs

1.	(b)	2.	(c)	3.	(a)	4.	(c)	5.	(a)	6.	(d)
7.	(a)	8.	(d)	9.	(b)	10.	(d)				



Question 1

The standard material cost for 100 kg of Product 'Delta' is made up:

Alpha: 30 kg @ ₹ 4 per kg

Beta: 40 kg @ ₹ 5 per kg

Gamma: 80 kg @ ₹ 6 per kg

In a batch of 500 kg of Delta were produced from a mix of:

Alpha: 140 kg for ₹ 588

Beta: 220 kg for ₹ 1,056

Gamma: 440 kg for ₹ 2,860

How do yield, mix and price of factors contribute to the variance in the actual cost per 100 kg of Delta over the standard cost? (12 Marks)

Solution:

Analysis of the Given Data

Raw Material	Standard		Actual	
	Quantity (kg)	Price per kg (₹)	Quantity (kg)	Price per kg (₹)
Alpha	30	4	$\frac{140}{500} \times 100 = 28$	$\frac{588}{140}$
Beta	40	5	$\frac{220}{500} \times 100 = 44$	$\frac{1,056}{200}$
Gamma	80	6	$\frac{440}{500} \times 100 = 88$	$\frac{2,860}{440}$
Input	150		160	
Less : Loss	50		60	
Output (Delta)	100		100	

SQ – Standard Quantity for Actual Output

$$\text{Alpha} = \frac{30}{100 \text{ (Standard output)}} \times 100 \text{ (Actual output)} = 30 \text{ kg}$$

$$\text{Beta} = \frac{40}{100} \times 100 = 40 \text{ kg}$$

$$\text{Gamma} = \frac{80}{100} \times 100 = 80 \text{ kg}$$

SP – Standard Price per unit

$$\text{Alpha} = ₹ 4 \text{ per kg}$$

$$\text{Beta} = ₹ 5 \text{ per kg}$$

$$\text{Gamma} = ₹ 6 \text{ per kg}$$

AQ – Actual Quantity used

$$\text{Alpha} = 28 \text{ kg}$$

$$\text{Beta} = 44 \text{ kg}$$

$$\text{Gamma} = 88 \text{ kg}$$

AP – Actual Price per unit

$$\text{Alpha} = ₹ \frac{588}{140} \text{ per kg}$$

$$\text{Beta} = ₹ \frac{1,056}{200} \text{ per kg}$$

$$\text{Gamma} = ₹ \frac{2,860}{440} \text{ per kg}$$

RSQ – Revised Standard Quantity for Actual Input

$$\text{Alpha} = \frac{30}{150} \times 100 = 32 \text{ kg}$$

$$\text{Beta} = \frac{40}{150} \times 160 = 42.67 \text{ kg}$$

$$\text{Gamma} = \frac{80}{150} \times 160 = 85.33 \text{ kg}$$

Material Cost Variance = SQ × SP – AQ × AP

$$\text{Alpha} = (30 \times 4) - (28 \times 588/140) = ₹ 2.40 \text{ (F)}$$

$$\text{Beta} = (40 \times 5) - (44 \times 1,056/220) = ₹ 11.20 \text{ (A)}$$

$$\text{Gamma} = (80 \times 6) - (88 \times 2,860/440) = ₹ 92 \text{ (A)}$$

$$\underline{\underline{= ₹ 100.80 \text{ (A)}}}$$



ii. Material Price Variance = $(SP - AP) \times AQ = SP \times AQ - AQ \times AP$

$$\text{Alpha} = ₹ (4 \times 28) - (28 \times \frac{588}{140}) = ₹ 5.60 \quad (\text{A})$$

$$\text{Beta} = ₹ (5 \times 44) - (44 \times \frac{1,056}{220}) = ₹ 8.80 \quad (\text{F})$$

$$\text{Gamma} = ₹ (6 \times 88) - (88 \times \frac{2,860}{440}) = ₹ 44 \quad (\text{A})$$

$$\underline{\underline{= ₹ 40.80 \quad (\text{A})}}$$

iii. Material Usage Variance = $(SQ - AQ) \times SP$

$$\text{Alpha} = (30 - 28) \times 4 = ₹ 8 \quad (\text{F})$$

$$\text{Beta} = (40 - 44) \times 5 = ₹ 20 \quad (\text{A})$$

$$\text{Gamma} = (80 - 88) \times 6 = ₹ 48 \quad (\text{A})$$

$$\underline{\underline{= ₹ 60 \quad (\text{A})}}$$

iv. Material Mix Variance = $(RSQ - AQ) \times SP$

$$\text{Alpha} = (32 - 28) \times 4 = ₹ 16 \quad (\text{F})$$

$$\text{Beta} = (42.67 - 44) \times 5 = ₹ 6.65 \quad (\text{A})$$

$$\text{Gamma} = (85.33 - 88) \times 6 = ₹ 16.02 \quad (\text{A})$$

$$\underline{\underline{= ₹ 6.67 \quad (\text{A})}}$$

v. Material Yield Variance = $(SQ - RSQ) \times SP$

$$\text{Alpha} = (30 - 32) \times 4 = ₹ 8 \quad (\text{A})$$

$$\text{Beta} = (40 - 42.67) \times 5 = ₹ 13.35 \quad (\text{A})$$

$$\text{Gamma} = (80 - 85.33) \times 6 = ₹ 31.98 \quad (\text{A})$$

$$\underline{\underline{= ₹ 53.33 \quad (\text{A})}}$$

Question 2

The standard labour component and the actual labour component engaged in a week for a job are as under:

	Skilled workers	Semi-skilled workers	Unskilled workers
Standard no. of workers in the gang	32	12	6
Standard wage rate per hour (₹)	3	2	1
Actual no. of workers employed in the gang during the week	28	18	4
Actual wage rate per hour (₹)	4	3	2

During the 40 hour working week the gang produced 1,800 standard labour hours of work. Calculate labour variances.

(12 Marks)

Solution:

Analysis of the Given data

Workers	Standard		Actuals	
Skilled	$32 \times 40 = 1,280$ hours	@ ₹ 3 per hour	$28 \times 40 = 1,120$ hours	@ ₹ 4 per hour
Semi-Skilled	$12 \times 40 = 480$ hours	@ ₹ 2 per hour	$18 \times 40 = 720$ hours	@ ₹ 3 per hour
Unskilled	$6 \times 40 = 240$ hours	@ ₹ 1 per hour	$4 \times 40 = 160$ hours	@ ₹ 2 per hour

Workers	Standard		Actuals	
Input	2,000 hours		2,000 hours	
Output	2,000 hours		1,800 hours	

SH – Standard Labour Hours for Actual output

$$\text{Skilled} = \frac{1,280}{2,000} \times 1,800 = 1,152 \text{ hours}$$

$$\text{Semi-Skilled} = \frac{480}{2,000} \times 1,800 = 432 \text{ hours}$$

$$\text{Unskilled} = \frac{240}{2,000} \times 1,800 = 216 \text{ hours}$$

SR – Standard Rate per hour

$$\text{Skilled} = ₹ 3 \text{ per hour}$$

$$\text{Semi-Skilled} = ₹ 2 \text{ per hour}$$

$$\text{Unskilled} = ₹ 1 \text{ per hour}$$

AH – Actual Hours Paid

$$\text{Skilled} = 1,120 \text{ hours}$$

$$\text{Semi-Skilled} = ₹ 720 \text{ hours}$$

$$\text{Unskilled} = ₹ 160 \text{ hours}$$

AR – Actual Rate

$$\text{Skilled} = ₹ 4 \text{ per hour}$$

$$\text{Semi-Skilled} = ₹ 3 \text{ per hour}$$

$$\text{Unskilled} = ₹ 2 \text{ per hour}$$

RSH – Revised Standard Hours for Actual Input

$$\text{Skilled} = \frac{1,280}{2,000} \times 2,000 = 1,280 \text{ hours}$$

$$\text{Semi-Skilled} = \frac{480}{2,000} \times 2,000 = 480 \text{ hours}$$

$$\text{Unskilled} = \frac{240}{2,000} \times 2,000 = 240 \text{ hours}$$

i. Labour Cost Variance = SH × SR – AH × AR

$$\text{Skilled} = (1,152 \times 3) - (1,120 \times 4) = ₹ 1,024 \text{ (A)}$$

$$\text{Semi-Skilled} = (432 \times 2) - (720 \times 3) = ₹ 1,296 \text{ (A)}$$

$$\text{Unskilled} = (216 \times 1) - (160 \times 2) = ₹ 104 \text{ (A)}$$

$$\underline{\underline{= ₹ 2,424 \text{ (A)}}}$$

ii. Labour Rate Variance = (SR – AR) × AH

$$\text{Skilled} = (3 - 4) \times 1,120 = ₹ 1,120 \text{ (A)}$$

Semi-Skilled	$= (2 - 3) \times 720$	$= ₹ 720$	(A)
Unskilled	$= (1 - 2) \times 160$	$= ₹ 160$	(A)
		<u>$= ₹ 2,000$</u>	(A)
iii. Labour Efficiency Variance = $(SH - AH) \times SR$			
Skilled	$= (1,152 - 1,120) \times 3$	$= ₹ 96$	(F)
Semi-Skilled	$= (432 - 720) \times 2$	$= ₹ 576$	(A)
Unskilled	$= (216 - 160) \times 1$	$= ₹ 56$	(F)
		<u>$= ₹ 424$</u>	(A)
iv. Labour Mix Variance = $(RSH - AH) \times SR$			
Skilled	$= (1,280 - 1,120) \times 3$	$= ₹ 480$	(F)
Semi-Skilled	$= (480 - 720) \times 2$	$= ₹ 480$	(A)
Unskilled	$= (240 - 160) \times 1$	$= ₹ 80$	(F)
		<u>$= ₹ 80$</u>	(F)
v. Labour Yield Variance = $(SH - RSH) \times SR$			
Skilled	$= (1,152 - 1,280) \times 3$	$= ₹ 384$	(A)
Semi-Skilled	$= (432 - 480) \times 2$	$= ₹ 96$	(A)
Unskilled	$= (216 - 240) \times 1$	$= ₹ 24$	(A)
		<u>$= ₹ 504$</u>	(A)

Question 3 :-

BabyMoon Ltd. uses standard costing system in manufacturing one of its product 'Baby Cap'. The details are as follows:

Direct Material	1 Meter @ ₹ 60 per meter	₹ 60
Direct Labour	2 hour @ ₹ 20 per hour	₹ 40
Variable overhead	2 hour @ ₹ 10 per hour	₹ 20
Total		₹ 120

During the month of August, 10,000 units of 'Baby Cap' were manufactured. Details are as follows: Direct material consumed 11,400 meters @ ₹ 58 per meter

Direct labour Hours	?	@	?	₹
4,48,800 Variable overhead incurred				₹ 2,24,400

Variable overhead efficiency variance is ₹ 4,000 A. Variable overheads are based on Direct Labour Hours. You are required to CALCULATE the

following Variances:

1. Material Variances- Material Cost Variance, Material Price Variance and Material Usage Variance.
2. Variable Overheads variances- Variable overhead Cost Variance, Variable overhead Efficiency Variance and Variable overhead Expenditure Variance.
3. Labour variances- Labour Cost Variance, Labour Rate Variance and Labour Efficiency

(18 Marks)

Material Variances

Budget			Std. for actual			Actual		
Quantity (Meter)	Price (₹)	Amount(₹)	Quantity (Meter)	Price (₹)	Amount(₹)	Quantity (Meter)	Price (₹)	Amount (₹)
1	60	60	10,000	60	6,00,000	11,400	58	6,61,200

$$\begin{aligned} \text{Material Cost Variance} &= (\text{SQ} \times \text{SP} - \text{AQ} \times \text{AP}) \\ &= 6,00,000 - 6,61,200 = ₹ 61,200 \text{ (A)} \end{aligned}$$

$$\begin{aligned} \text{Material Price Variance} &= (\text{SP} - \text{AP}) \text{AQ} \\ &= (60 - 58) 11,400 = ₹ 22,800 \text{ (F)} \end{aligned}$$

$$\begin{aligned} \text{Material Usage Variance} &= (\text{SQ} - \text{AQ}) \text{SP} \\ &= (10,000 - 11,400) 60 = ₹ 84,000 \text{ (A)} \end{aligned}$$

Variable Overheads variances

Variable overhead cost Variance

$$\begin{aligned} &= \text{Standard variable overhead} - \text{Actual Variable Overhead} \\ &= (10,000 \text{ units} \times 2 \text{ hours} \times ₹ 10) - 2,24,400 = ₹ 24,400 \text{ (A)} \end{aligned}$$

Variable overhead Efficiency Variance

$$= (\text{Standard Hours} - \text{Actual Hours}) \times \text{Standard Rate}$$

per Hour Let Actual Hours be 'X', then:

$$(20,000 - X) \times 10 = 4,000 \text{ (A)}$$

$$2,00,000 - 10X = - 4,000$$

$$X = 2,04,000 \div 10$$

Therefore, Actual Hours (X)

=

20,400 Variable overhead

Expenditure Variance

= Variable Overhead at Actual Hours - Actual Variable Overheads

= $20,400 \times ₹ 10 - 2,24,400 = ₹ 20,400 (A)$

Labour variances

Budget			Std. for actual			Actual		
Hours	Rate(₹)	Amount (₹)	Hours	Rate(₹)	Amount (₹)	Hours	Rate(₹)	Amount (₹)
2	20	40	20,000	20	4,00,000	20,400	22*	4,48,800

*Actual Rate = $₹ 4,48,800 \div 20,400 \text{ hours} = ₹$

22 Labour Cost Variance = $(SH \times SR) -$

$(AH \times AR)$

= $4,00,000 - 4,48,800 = ₹ 48,800 (A)$

Labour Rate Variance = $(SR - AR) \times AH$

= $(20 - 22) \times 20,400 = ₹ 40,800 (A)$

Labour Efficiency Variance = $(SH - AH) \times SR$

= $(20,000 - 20,400) \times 20 = ₹ 8,000 (A)$

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Chapter 14 Marginal Costing

Multiple Choice Questions:

(10 Marks)

1. Under marginal costing the cost of product includes:
 - (a) Prime costs only.
 - (b) Prime costs and variable overheads.
 - (c) Prime costs and fixed overheads.
 - (d) Prime costs and factory overheads.

2. Reporting under marginal costing is accomplished by:
 - (a) Treating all costs as period costs.
 - (b) Eliminating the work-in-progress inventory account.
 - (c) Matching variable costs against revenue and treating fixed costs as period costs.
 - (d) Including only variable costs in income statement.

3. Period costs are:
 - (a) Variable costs.
 - (b) Fixed costs.
 - (c) Prime costs.
 - (d) Overheads costs.

4. When sales and production (in units) are same then profit under:
 - (a) Marginal costing is higher than that of absorption costing.
 - (b) Marginal costing is lower than that of absorption costing.
 - (c) Marginal costing is equal to that of absorption costing.
 - (d) None of the above.

5. When sales exceed production (in units) then profit under:
 - (a) Marginal costing is higher than that of absorption costing.
 - (b) Marginal costing is lower than that of absorption costing.
 - (c) Marginal costing is equal than that of absorption costing.
 - (d) None of above.

6. The main difference between marginal costing and absorption costing is regarding the treatment of:
- Prime cost.
 - Fixed overheads.
 - Direct materials.
 - Variable overheads.
7. Under profit volume ratio, the term profit:
- Means the sales proceeds in excess of total costs.
 - Means the same thing as is generally understood.
 - Is a misnomer, it in fact refers to contribution i.e. (sales revenue-variable costs).
 - None of the above.
8. Factors which can change the break-even point:
- Change in fixed costs.
 - Change in variable costs.
 - Change in the selling price.
 - All of the above.
9. If P/V ratio is 40% of sales then what about the remaining 60% of sales:
- Profit.
 - Fixed cost.
 - Variable cost.
 - Margin of safety.
10. The P/V ratio of a product is 0.6 and profit is ₹ 9,000. The margin of safety is:
- ₹ 5,400
 - ₹ 15,000
 - ₹ 22,500
 - ₹ 3,600

Answers to the MCQs

1.	(b)	2.	(c)	3.	(b)	4.	(c)	5.	(a)	6.	(b)
7.	(c)	8.	(d)	9.	(c)	10.	(b)				

Question 1

Two businesses AB Ltd and CD Ltd sell the same type of product in the same market. Their budgeted profits and loss accounts for the year ending 30th June, 2021 are as follows: Amount (₹)

	AB Ltd		CD Ltd	
Sales		1,50,000		1,50,000
Less: Variable costs	1,20,000		1,00,000	
Fixed Cost	15,000	1,35,000	35,000	1,35,000
Profit		15,000		15,000

You are required to calculate the BEP of each business and state which business is likely to earn greater profits in the following conditions:

- (a) Heavy demand for the product
 (b) Low demand for the product

(8 Marks)**Solution:**

Statement showing computation of P/V Ratio, BEP and determination of Profitability in different conditions:

- (a) When there is heavy demand for the product – Product produced by CD Ltd is profitable because the P/V Ratio is higher than AB Ltd.
 (b) When there is low demand for the product – Product produced by AB Ltd is profitable because

Particulars	AB Ltd (₹)	CD Ltd (₹)
Sales	1,50,000	1,50,000
Less: Variable Cost	1,20,000	1,00,000
Contribution	30,000	50,000
Less: Fixed Cost	15,000	35,000
Profit	15,000	15,000
P/V Ratio = $\frac{\text{Contribution}}{\text{Sale}} \times 100$	$\frac{30,000}{1,50,000} \times 100 = 20\%$	$\frac{50,000}{1,50,000} \times 100 = 33\frac{1}{2}\%$
BE Sales = $\frac{\text{Fixed Cost}}{\text{P/V Ratio}}$	$= \frac{15,000}{20\%} = ₹ 75,000$	$= \frac{35,000}{33\frac{1}{2}\%} = ₹ 1,05,000$

fixed cost is less than CD Ltd. This is also revealed from the break even sales. The break even sales for AB Ltd is less than CD Ltd because the fixed cost of AB Ltd is less in comparison to CD Ltd.

Question 2

The following results of a company for the last years are as follows:

Year	Sales (₹)	Profit (₹)
2020	1,50,000	20,000
2021	1,70,000	25,000

You are required to calculate:

- P/V Ratio
- BEP
- The sales required to earn a profit of ₹ 40,000
- Profit when sales are ₹ 2,50,000
- Margin of safety at a profit of ₹ 50,000, and
- Variable Costs of the two periods

(12 Marks)

Solution:

$$(i) \quad P/V \text{ Ratio} = \frac{\text{Change in Profit}}{\text{Change in Sales}} \times 100$$

$$= \frac{25,000 - 20,000}{1,70,000 - 1,50,000} \times 100 = \frac{5,000}{20,000} \times 100 = 25\%$$

$$(ii) \quad \text{BEP (i.e. Break Even Sales)} = \frac{\text{Fixed Cost}}{P/V \text{ Ratio}} = \frac{\text{Sales} \times P/V \text{ Ratio} - \text{Profit}}{P/V \text{ Ratio}}$$

$$= \frac{1,50,000 \times 25\% - 20,000}{25\%} = \frac{17,500}{25\%} = ₹ 70,000$$

$$\text{Alternatively,} \quad = \frac{1,70,000 \times 25\% - 25,000}{25\%} = \frac{17,500}{25\%} = ₹ 70,000$$

$$(iii) \quad \text{Desired Sales} = \frac{\text{Fixed Cost} + \text{Desired Profit}}{P/V \text{ Ratio}}$$

$$= \frac{17,500 + 40,000}{25\%} = \frac{57,500}{25\%} = ₹ 2,30,000$$

$$(iv) \quad \text{Profit} = \text{Sales} \times P/V \text{ Ratio} - \text{Fixed Cost} = 2,50,000 \times 25\% - 17,500 = ₹ 45,000$$

$$(v) \quad \text{Margin of Safety} = \frac{\text{Profit}}{P/V \text{ Ratio}} = \frac{50,000}{25\%} = ₹ 2,00,000$$

$$(vi) \quad \text{Variable Cost Ratio} = 1 - P/V \text{ Ratio} = 1 - 25\% = 75\%$$

Variable Cost = Sales × Variable Cost Ratio

$$\text{Variable Cost for 2020} = 1,50,000 \times 75\% = ₹ 1,12,500$$

$$\text{Variable Cost for 2021} = 1,70,000 \times 75\% = ₹ 1,27,500$$

Question 3

S Ltd furnishes you the following information relating to the half year ended

30th June, 2021 Fixed Expenses ₹ 45,000

Sales Value ₹ 1, 50,000

Profit ₹ 30,000

During the second half of the year the company has projected a loss of ₹

10,000. Calculate:

- (i) The Break Even Sales and Margin of Safety for the six months ending 30th June, 2021.
- (ii) Expected sales volume for the second half of the year assuming that the P/V Ratio and Fixed expenses re-main constant in the second half year also.
- (iii) The Break Even Sales and Margin of Safety for the whole year 2021.

(9 Marks)

Solution:-

$$(i) \text{ P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{\text{Fixed Cost} + \text{Profit}}{\text{Sales}} \times 100 = \frac{45,000 + 30,000}{1,50,000} \times 100 = 50\%$$

$$\text{Break Even Sales for the six months ending 30th June, 2021} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}} = \frac{45,000}{50\%} = ₹ 90,000$$

$$\begin{aligned} \text{Margin of Safety for the six months ending 30th June, 2021} &= \text{Sales} - \text{Break Even Sales} \\ &= 1,50,000 - 90,000 = ₹ 60,000 \end{aligned}$$

- (ii) Income Statement for the second half of the year 2021

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Particulars	Workings	(₹)
Sales	$\text{Sales} = \frac{\text{Contribution}}{\text{P/V Ratio}} = \frac{35,000}{50\%}$	70,000
Less: Variable Cost	Bal. fig. or Sales \times (1 - P/V Ratio)	35,000
Contribution	Fixed Cost - Loss = 45,000 - 10,000	35,000
Less: Fixed Cost		45,000
Loss		10,000

Step 1 - Calculation of Contribution = Fixed Cost - Loss = 45,000 - 10,000 = ₹ 35,000

Step 2 - Calculation of Sales

Step 3 - Calculation of Variable Cost

$$(iii) \text{ Break Even Sales for the year 2021} = \frac{\text{Fixed Cost for the year}}{\text{P/V Ratio}} = \frac{45,000 + 45,000}{50\%} = ₹ 1,80,000$$

$$\begin{aligned} \text{Margin of Safety for the year 2021} &= \text{Sales for year} - \text{Break Even Sales} \\ &= (1,50,000 + 70,000) - 1,80,000 \\ &= ₹ 40,000 \end{aligned}$$

Question 4

Present the following information to show to management:

- The marginal product cost and the contribution per unit
- The total contribution and profits resulting from each of the following sales mix results:

Particulars	Product	Per unit
Direct Materials	A	10
Direct Materials	B	9
Direct Wages	A	3
Direct Wages	B	2

Fixed Expenses - ₹ 800

Variable expenses are allotted to products at 100% of

Direct Wages Sales Price A ₹ 20

Sales Price B ₹ 15

Sales Mixtures:

- 100 units of Product A and 200 units of Product B
- 150 units of Product A and 150 units of Product B
- 200 units of Product A and 100 units of Product B

(14 Marks)

Solution:

Statement showing Marginal Product Cost and Contribution per unit

Sl. No.	Particulars	Product A (₹)	Product B (₹)
i.	Selling Price per unit	20.00	15.00
ii.	Variable Cost		
	Direct Material cost per unit	10.00	9.00
	Direct Wages cost per unit	3.00	2.00
	Variable Expenses (100% of Direct Wages)	3.00	2.00
	Marginal Product Cost	16.00	13.00
iii.	Contribution per unit (i. – ii.)	4.00	2.00

Computation of Profit under Sales Mix (a)

Sl. No.	Particulars	Product A (₹)	Product B (₹)	Total (₹)
i.	No. of units	100	200	
ii.	Contribution per unit	4.00	2.00	
iii.	Total Contribution (i. × ii.)	400	400	800
iv.	Fixed Cost			800
v.	Profit (iii. – iv.)			Nil

Computation of Profit under Sales Mix (b)

Sl. No.	Particulars	Product A (₹)	Product B (₹)	Total (₹)
i.	No. of units	150	150	
ii.	Contribution per unit	4.00	2.00	
iii.	Total Contribution (i. × ii.)	600	300	900
iv.	Fixed Cost			800
v.	Profit (iii. – iv.)			100

Computation of Profit under Sales Mix (c)

Sl. No.	Particulars	Product A (₹)	Product B (₹)	Total (₹)
i.	No. of units	200	100	
ii.	Contribution per unit	4.00	2.00	
iii.	Total Contribution (i. × ii.)	800	200	1,000
iv.	Fixed Cost			800
v.	Profit (iii. – iv.)			200

Question 5

A company has a capacity of producing 1 lakh units of a certain product in a month. The sales department reports that the following schedule of sales price is possible:

Volume of Production	Selling Price per unit
%	(₹)
60	0.90
70	0.80
80	0.75
90	0.67
100	0.61

The variable cost of manufacture between these levels is 15 paise per unit and fixed cost ₹ 40,000. Prepare a statement showing incremental revenue and differential cost at each stage. At which volume of production will the profit be maximum? (6 Marks)

Solution:

Statement showing computation of differential cost, incremental revenue and determination of capacity at which profit is maximum:

Capacity %	Units	Sales (₹)	Variable Cost @ ₹ 0.15 per unit (₹)	Fixed cost (₹)	Total Cost (₹)	Profit (₹)	Differential Cost (₹)*	Incremental Revenue (₹)#
i.	ii.	iii.	iv.	v.	vi. = iv. + v.	vii. = iii. - vi.	viii.	ix.
60	60,000	54,000	9,000	40,000	49,000	5,000	- 1,500	- 2,000
70	70,000	56,000	10,500	40,000	50,500	5,500	1,500	4,000
80	80,000	60,000	12,000	40,000	52,000	8,000	1,500	300
90	90,000	60,300	13,500	40,000	53,500	6,800	1,500	700
100	1,00,000	61,000	15,000	40,000	55,000	6,000		

*Differential Cost is the change in total cost with respect to previous year.

#Incremental Revenue is the change in the value of sales over previous year.

The incremental revenue is more than incremental cost up to 80% capacity, the profit is maximum at that capacity

Question 6

The manager of a Co. provides you with the following information:

	Amount (₹)
Sales	4,00,000
Costs: Variable (60% of Sales)	?
Fixed Cost	80,000
Profit before tax	80,000
Income tax (60%)	?
Net Profit	32,000

The company is thinking of expanding the plant. The increased fixed cost with plant expansion will be ₹ 40,000. It is estimated that the maximum production in new plant will be worth ₹ 2,40,000. The company also wants to earn additional income ₹ 3,200 on investment. On the basis of computations give your opinion on plant expansion.

(6 Marks)

Solution:

Statement showing computation of profit before and after plant expansion

Sl. No.	Particulars	Present Situation (Before Expansion)	Additional Revenue and Cost (On Plant Expansion)	Total (After Expansion)
i.	Sales	4,00,000	2,40,000	6,40,000
ii.	Variable Cost (60% of i.)	2,40,000	1,44,000	3,84,000
iii.	Contribution (i. – ii.)	1,60,000	96,000	2,56,000
iv.	Fixed Cost	80,000	40,000	1,20,000
v.	Profit before tax (iii. – iv.)	80,000	56,000	1,36,000
vi.	Tax (60% of v.)	48,000	33,600	81,600
vii.	Profit after tax (v. – vi.)	32,000	22,400	54,400

There is an increase of overall profit by ₹ 22,400 after plant expansion, so the plant expansion should be carried out.



Chapter 15
Budgets and Budgetary Control

Multiple Choice Questions:

(10 Marks)

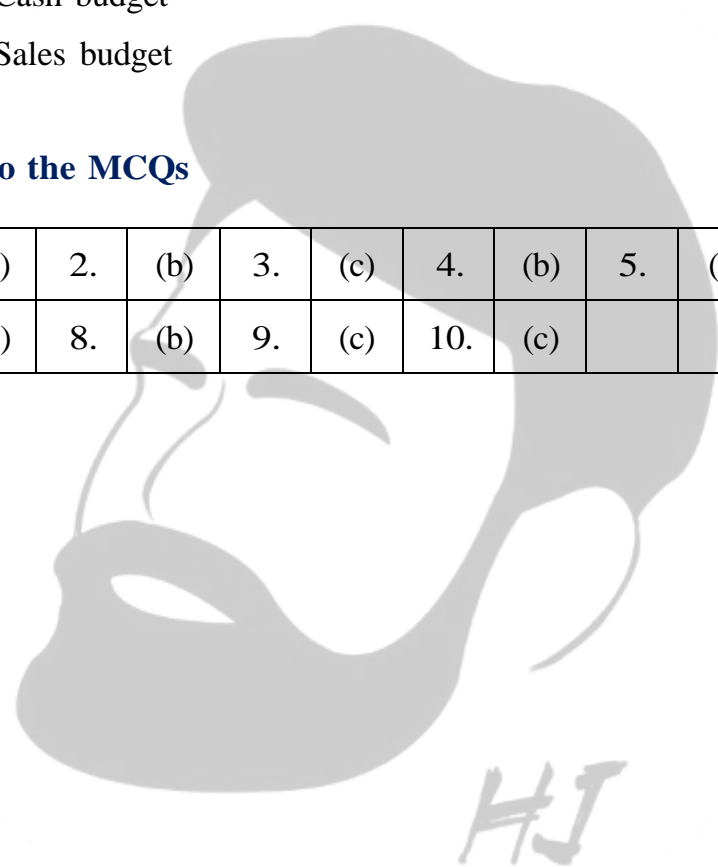
1. If a company wishes to establish a factory overhead budget system in which estimated costs can be derived directly from estimates of activity levels, it should prepare a:
 - (a) Master budget
 - (b) Cash budget
 - (c) Flexible budget
 - (d) Fixed budget
2. The classification of fixed and variable cost is useful for the preparation of:
 - (a) Master budget
 - (b) Flexible budget
 - (c) Cash budget
 - (d) Capital budget
3. Budget manual is a document:
 - (a) Which contains different type of budgets to be formulated only.
 - (b) Which contains the details about standard cost of the products to be made.
 - (c) Setting out the budget organization and procedures for preparing a budget including fixation of responsibilities, formats and records required for the purpose of preparing a budget and for exercising budgetary control system.
 - (d) None of the above
4. The budget control organization is usually headed by a top executive who is known as:
 - (a) General manager
 - (b) Budget director/budget controller
 - (c) Accountant of the organization
 - (d) None of the above

5. “A favourable budget variance is always an indication of efficient performance”. Do you agree, give reason?
- (a) A favourable variance indicates, saving on the part of the organization hence it indicates efficient performance of the organization.
 - (b) Under all situations, a favourable variance of an organization speaks about its efficient performance.
 - (c) A favourable variance does not necessarily indicate efficient performance, because such a variance might have been arrived at by not carrying out the expenses mentioned in the budget.
 - (d) None of the above.
6. A budget report is prepared on the principle of exception and thus-
- (a) Only unfavourable variances should be shown
 - (b) Only favourable variance should be shown
 - (c) Both favourable and unfavourable variances should be shown
 - (d) None of the above
7. Purchases budget and materials budget are same:
- (a) Purchases budget is a budget which includes only the details of all materials purchased
 - (b) Purchases budget is a wider concept and thus includes not only purchases of materials but also other items as well
 - (c) Purchases budget is different from materials budget; it includes purchases of other items only
 - (d) None of the above
8. Efficiency ratio is:
- (a) The extent of actual working days avoided during the budget period
 - (b) Activity ratio/ capacity ratio
 - (c) Whether the actual activity is more or less than budgeted activity
 - (d) None of the above

9. Activity Ratio depicts:
- Whether actual capacity utilized exceeds or falls short of the budgeted capacity
 - Whether the actual hours used for actual production were more or less than the standard hours
 - Whether actual activity was more or less than the budgeted capacity
 - None of the above
10. Which of the following is usually a short-term budget:
- Capital expenditure budget
 - Research and development budget
 - Cash budget
 - Sales budget

Answers to the MCQs

1.	(c)	2.	(b)	3.	(c)	4.	(b)	5.	(c)	6.	(c)
7.	(b)	8.	(b)	9.	(c)	10.	(c)				



Question 1

Budgeted production and production costs for the year ending 31st December are as follows:

	Product X	Product Y
Production (units)	2,20,000	2,40,000
Direct material / unit	₹12.50	₹ 19.00
Direct wages / unit	₹ 4.50	₹ 7.00
Total factory overheads for each type of product (variable)	₹ 6,60,000	₹ 9,60,000

A company is manufacturing two products X and Y. A forecast about the number of units to be sold in the first seven months is given below :

Month	January	February	March	April	May	June	July
Product X	10,000	12,000	16,000	20,000	24,000	24,000	20,000
Product Y	28,000	28,000	24,000	20,000	16,000	16,000	18,000

It is anticipated that:

There will be no work-in-progress at the end of any month.

Finished units equal to half the sales for the next month will be in stock at the end of each month (including December of previous year).

Prepare for 6 months ending 30th June, a Production Budget and a summarized cost of production budget

Marks)

(14

Solution:

Production Budget for 6 months ending 30th June - Product X

Particulars	January	February	March	April	May	June
Sales	10,000	12,000	16,000	20,000	24,000	24,000
Add: Closing Stock	6,000	8,000	10,000	12,000	12,000	10,000
	16,000	20,000	26,000	32,000	36,000	34,000
Less: Opening Stock	5,000	6,000	8,000	10,000	12,000	12,000
Product (units)	11,000	14,000	18,000	22,000	24,000	22,000

$$\text{Closing Stock of December} = \text{Opening Stock of January} = \frac{50}{100} \times \text{Sales of February}$$

$$\text{and Closing Stock of January} = \frac{50}{100} \times \text{Sales of February}$$

$$\begin{aligned} \text{Total Production of Product X for 6 months} &= 11,000 + 14,000 + 18,000 + 22,000 + 24,000 + 22,000 \\ &= 1,11,000 \text{ units} \end{aligned}$$

Production Budget for 6 months ending 30th June - Product Y

Particulars	January	February	March	April	May	June
Sales	28,000	28,000	24,000	20,000	16,000	16,000
Add: Closing Stock	14,000	12,000	10,000	8,000	8,000	9,000
	42,000	40,000	34,000	28,000	24,000	25,000
Less: Opening Stock	14,000	14,000	12,000	10,000	8,000	8,000
Product (units)	28,000	26,000	22,000	18,000	16,000	17,000

$$\begin{aligned} \text{Total Production of Product Y for 6 months} &= 28,000 + 26,000 + 22,000 + 18,000 + 16,000 + 17,000 \\ &= 1,27,000 \text{ units} \end{aligned}$$

Summarized Cost of Production Budget for 6 month ending 30th June

Particulars	Product X (1,11,000 units) (₹)	Product Y (1,27,000 units) (₹)	Total (₹)
Materials	@ ₹ 12.50 = 13,87,500	@ ₹ 19 = 24,13,000	38,00,500
Direct Wages	@ ₹ 4.50 = 4,99,500	@ ₹ 7 = 8,89,000	13,88,500
Variable Overhead [WN]	@ ₹ 3 = 3,33,000	@ ₹ 4 = 5,08,000	8,41,000
Cost of Production	22,20,000	38,10,000	60,30,000

Working Notes:

Computation of Variable Factory Overhead Rate per unit

$$\text{Product X} = \frac{\text{₹ 6,60,000}}{2,20,000 \text{ units}} = \text{₹ 3}$$

$$\text{Product Y} = \frac{\text{₹ 9,60,000}}{2,40,000 \text{ units}} = \text{₹ 4}$$

Question 2

You are required to prepare a Selling Overhead Budget from the estimates given below:

	Amount (₹)
Advertisement (Fixed)	1,000
Salaries of the Sales Department (Fixed)	1,000
Expenses of the Sales Department (Fixed)	750
Salesmen's Remuneration (Fixed)	3,000

Salesmen's Commission @ 1% on sales excluding
Agent's Sales Carriage Outwards: Estimated @ 5%
on

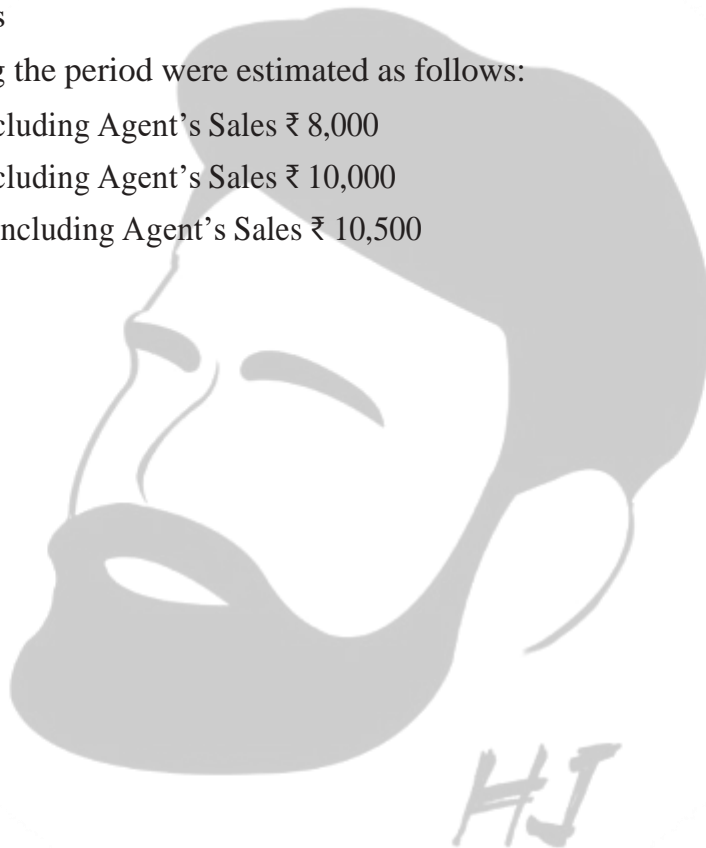
sales Agent's Commission: $7\frac{1}{2}$ %

on Agent's sales

The sales during the period were estimated as follows:

- ₹ 80,000 including Agent's Sales ₹ 8,000
- ₹ 90,000 including Agent's Sales ₹ 10,000
- ₹ 1,00,000 including Agent's Sales ₹ 10,500

(9 Marks)



Solution :

Selling Overhead Budget

Particulars	₹	₹	₹
Sales	80,000	90,000	1,00,000
A. Fixed Overhead	1,000	1,000	1,000
Advertisement	1,000	1,000	1,000
Salaries of Sales Dept.	750	750	750
Expenses of Sales Dept.	3,000	3,000	3,000
Salesmen Remuneration			
Total (A)	5,750	5,750	5,750
B. Variable Overhead	720	800	895
Salesmen Commission	$[(80,000 - 8,000) \times 1\%]$	$[(90,000 - 10,000) \times 1\%]$	$[(1,00,000 - 10,500) \times 1\%]$
Carriage Outward	$4,000$ $[80,000 \times 5\%]$	$4,500$ $[90,000 \times 5\%]$	$5,000$ $[1,00,000 \times 5\%]$
Agent's Commission	600 $[8,000 \times 7.5\%]$	750 $[10,000 \times 7.5\%]$	788 $[10,500 \times 7.5\%]$
Total (B)	5,320	6,050	6,683
Grand Total (A + B)	11,070	11,800	12,433

Question 3

ABC Ltd a newly started company wishes to prepare Cash Budget from January. Prepare a cash budget for the first six months from the following estimated revenue and expenses.

Month	Total Sales (₹)	Materials (₹)	Wages (₹)	Overheads	
				Production (₹)	Selling & Distribution (₹)
January	20,000	20,000	4,000	3,200	800
February	22,000	14,000	4,400	3,300	900
March	28,000	14,000	4,600	3,400	900

April	36,000	22,000	4,600	3,500	1,000
May	30,000	20,000	4,000	3,200	900
June	40,000	25,000	5,000	3,600	1,200

Cash balance on 1st January was ₹ 10,000. A new machinery is to be installed at ₹ 20,000 on credit, to be repaid by two equal installments in March and April, sales commission @ 5% on total sales is to be paid within a month following actual sales.

₹ 10,000 being the amount of 2nd call may be received in March. Share premium amounting to ₹ 2,000 is also obtained with the 2nd call may be received in March. Period of credit allowed by suppliers – 2 months; period of credit allowed to customers – 1 month, delay in payment of overheads 1 month. Delay in payment of wages ½ month. Assume cash sales to be 50% of total sales.

(10 Marks)

Solution :

Cash Budget for the period January to June (for first 6 month) (in ₹)

Particulars	January	February	March	April	May	June
Opening Balance (A)	10,000	18,000	29,800	27,000	24,700	33,100
Add: Receipts (B)						
Cash Sales [WN 1]	10,000	11,000	14,000	18,000	15,000	20,000
Collection from Debtors [WN 1]	-	10,000	11,000	14,000	18,000	15,000
Share Call Money	-	-	10,000	-	-	-
Share Premium	-	-	2,000	-	-	-
Total (A + B)	20,000	39,000	66,800	59,000	57,700	68,100
Payments (C)						
Creditors for						
Materials	-	-	20,000	14,000	14,000	22,000
Wages [WN 2]	2,000	4,200	4,500	4,600	4,300	4,500
Production O/H	-	3,200	3,300	3,400	3,500	3,200
Selling & Distribution	-	800	900	900	1,000	900
Sales Commission	-	1,000	1,100	1,400	1,800	1,500
Installment of Machinery	-	-	10,000	10,000	-	-
Total (C)	2,000	9,200	39,800	34,300	24,600	32,100
Closing Balance (A + B – C)	18,000	29,800	27,000	24,700	33,100	36,000

Working Notes :

1. Calculation of Cash Sales and Collection from Debtors

Month	Total Sales (₹)	Cash Sales (50%) (₹)	Credit Sales (50%) (₹)	Collection Month
January	20,000	10,000	10,000	February
February	22,000	11,000	11,000	March
March	28,000	14,000	14,000	April
April	36,000	18,000	18,000	May
May	30,000	15,000	15,000	June
June	40,000	20,000	20,000	July

2. Calculation of Payment of Wages (in ₹)

Month	Wages	Payment Month					
		January	February	March	April	May	June
January	4,000	2,000	2,000	-	-	-	-
February	4,400	-	2,200	2,200	-	-	-
March	4,600	-	-	2,300	2,300	-	-
April	4,600	-	-	-	2,300	2,300	-
May	4,000	-	-	-	-	2,000	2,000
June	5,000	-	-	-	-	-	2,500
		2,000	4,200	4,500	4,600	4,300	4,500

Question 4

For production of 10,000 units the following are budgeted expenses:

	Cost Per unit (₹)
Direct Materials	48
Direct Labour	24
Variable Overheads	20
Fixed Overheads (₹ 1,20,000)	12
Variable Expenses (Direct)	4
Selling Expenses (10% Fixed)	12
Administration Expenses (₹ 40,000 Fixed)	4
Distribution Expenses (20% Fixed)	4
	128

Prepare a budget for production of 7,000 units and 9,000 units (9 Marks)

Solution:

Flexible Budget at Different Capacities and Determination of Overhead Rates

Particulars	10,000 units		7,000 units		9,000 units	
	Cost p.u. (₹)	Total (₹)	Cost p.u. (₹)	Total (₹)	Cost p.u. (₹)	Total (₹)
Variable Cost						
Direct Materials	48	4,80,000	48	3,36,000	48	4,32,000
Direct Labour	24	2,40,000	24	1,68,000	24	2,16,000
Variable Overheads	20	2,00,000	20	1,40,000	20	1,80,000
Variable Expenses	4	40,000	4	28,000	4	36,000
Selling Expenses (90% × 12)	10.80	1,08,000	10.80	75,600	10.80	97,200
Distribution Expenses (80% × 4)	3.20	32,000	3.20	22,400	3.20	28,800
Total Variable Cost (A)	110	11,00,000	110	7,70,000	110	9,90,000
Fixed Cost						
Fixed Overheads	12	1,20,000		1,20,000		1,20,000
Selling Expenses (10% × 12)	1.20	12,000		12,000		12,000
Administration Expenses	4	40,000		40,000		40,000
Distribution Expenses (20% × 4)	0.80	8,000		8,000		8,000
Total Fixed Cost (B)	18	1,80,000		1,80,000		1,80,000
Total Cost (A + B)	128	12,80,000		9,50,000		11,70,000

HJ