

**MOCK TEST PAPER – I**  
**INTERMEDIATE (NEW): GROUP – I**  
**PAPER – 3: COST AND MANAGEMENT ACCOUNTING**

Answers are to be given only in English except in the case of the candidates who have opted for Hindi medium. If a candidate has not opted for Hindi medium his/ her answer in Hindi will not be valued.

Question No. 1 is compulsory.

Attempt any **four** questions from the remaining **five** questions.

Working notes should form part of the answer.

**Time Allowed – 3 Hours**

**Maximum Marks – 100**

1. Answer the following:

- (a) A factory produces two products, 'Ghee' and 'Cream' from a single process. The joint processing costs during a particular month are:

Direct Material	₹ 60,000
Direct Labour	₹ 19,200
Variable Overheads	₹ 24,000
Fixed Overheads	₹ 64,000

Sales: Ghee - 200 litre @ ₹ 600 per litre; Cream – 240 litre @ ₹ 200 per litre.

REQUIRED:

- I. Apportion joints costs on the basis of:
- Physical Quantity of each product.
  - Contribution Margin method, and
- II. Determine Profit or Loss under both the methods.
- (b) Zee Ltd. manufactures pistons used in car engines. As per the study conducted by the Auto Parts Manufacturers Association, there will be a demand of 80 million pistons in the coming year. A Ltd. is expected to have a market share of 2.15% of the total market demand of the pistons in the coming year. It is estimated that it costs ₹ 2.50 as inventory holding cost per piston per month and that the set-up cost per run of piston manufacture is ₹ 4,500.
- COMPUTE the optimum run size for piston manufacturing?
  - Assuming that the company has a policy of manufacturing 20,000 pistons per run, CALCULATE how much extra costs the company would be incurring as compared to the optimum run suggested in (i) above?
- (c) A machine costing ₹ 10 lakhs, was purchased on 01-04-2021. The expected life of the machine is 10 years. At the end of this period its scrap value is likely to be ₹ 10,000. The total cost of all the machines including new one was ₹ 90 lakhs.
- The other information is given as follows:
- Working hours of the machine for the year was 4,200 including 200 non-productive hours.
  - Repairs and maintenance for the new machine during the year was ₹ 6,000.
  - Insurance Premium was paid for all the machine ₹ 9,000.
  - New machine consumes 8 units of electricity per hour, the rate per unit being ₹ 3.75

(v) The new machine occupies 1/10<sup>th</sup> area of the department. Rent of the department is ₹ 2,400 per month.

(vi) Depreciation is charged on straight line basis.

COMPUTE machine hour rate for the new machine.

- (d) From the following particulars, COMPUTE Notional profit and estimated profit on a contract (which has been 80% complete):

	(₹)
Total expenditure to date	4,00,000
Estimated further expenditure to complete the contract (including contingencies)	22,000
Contract price	5,44,000
Work certified	4,89,600
Work uncertified	30,200
Cash received	3,91,680

**(5 Marks × 4 = 20 Marks)**

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

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

You are REQUIRED to:

- (i) Calculate the re-order point considering 30 days in a month.
- (ii) Prepare a statement showing the total cost of procurement and storage of raw material after considering the discount of the company elects to place one, two, four or five orders in the year.
- (iii) State the number of orders which the company should place to minimize the costs after taking EOQ also into consideration. **(10 Marks)**

- (b) Breeze Ltd has decided to analyse the profitability of its five new customers. It buys soft drink bottles in cases at ₹ 54 per case and sells them to retail customers at a list price of ₹ 64.80 per case. The data pertaining to five customers are given below:

Particulars	Customers				
	Aey	Bee	Cee	Dee	Eey
Number of Cases Sold	9,360	14,200	62,000	38,000	9,800
List Selling Price (₹)	64.80	64.80	64.80	64.80	64.80
Actual Selling Price (₹)	64.80	64.08	58.80	60.24	58.32

Number of Purchase Orders	30	50	60	50	60
Number of Customers visits	4	6	12	4	6
Number of Deliveries	20	60	120	80	40
Kilometers travelled per delivery	40	12	10	20	60
Number of expediate Deliveries	0	0	0	0	2

Its five activities and their cost drivers are:

Activity	Cost Driver
Order taking	₹ 240 per purchase order
Customer visits	₹ 360 per each visit
Deliveries	₹ 4.80 per delivery km travelled
Product Handling	₹ 2.40 per case sold
Expedited deliveries	₹ 120 per such delivery

You are REQUIRED to :

- (i) Compute the customer level operating income of each of five retail customers by using the Cost Driver rates.
  - (ii) Examine the results to give your comments on Customer 'Dee' in comparison with Customer 'Cee' and on Customer 'Eey' in comparison with Customer 'Aey'. **(10 Marks)**
3. (a) Navyug Ltd. manufactures chemical solutions for the food processing industry. The manufacturing takes place in a number of processes and the company uses a FIFO process costing system to value work-in-process and finished goods. At the end of the last month, a fire occurred in the factory and destroyed some of the paper files containing records of the process operations for the month.

Navyug Ltd. needs your help to prepare the process accounts for the month during which the fire occurred. You have been able to gather some information about the month's operating activities but some of the information could not be retrieved due to the damage. The following information was salvaged:

- Opening work-in-process at the beginning of the month was 900 litres, 70% complete for labour and 60% complete for overheads. Opening work-in-process was valued at ₹ 29,970.
- Closing work-in-process at the end of the month was 160 litres, 30% complete for labour and 20% complete for overheads.
- Normal loss is 10% of input and total losses during the month were 1,800 litres partly due to the fire damage.
- Output sent to finished goods warehouse was 4,200 litres.
- Losses have a scrap value of ₹ 20 per litre.
- All raw materials are added at the commencement of the process.
- The cost per equivalent unit (litre) is ₹39 for the month made up as follows:

	(₹)
Raw Material	23
Labour	7
Overheads	9
	39

REQUIRED:

- (i) Calculate the quantity (in litres) of raw material inputs during the month.
  - (ii) Calculate the quantity (in litres) of normal loss expected from the process and the quantity (in litres) of abnormal loss / gain experienced in the month.
  - (iii) Calculate the values of raw material, labour and overheads added to the process during the month.
  - (iv) Prepare the process account for the month. **(10 Marks)**
- (b) Xim Ltd. manufactures two types of boxes 'Super' and 'Normal'. The cost data for the year ended 31<sup>st</sup> March, 2021 is as follows:

	(₹)
Direct Materials	12,00,000
Direct Wages	6,72,000
Production Overhead	2,88,000
<b>Total</b>	<b>21,60,000</b>

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

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

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

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

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

- (i) Cost per unit and Total Cost
  - (ii) Profit per unit and Total Profit **(10 Marks)**
4. (a) A hotel is being run in a Hill station with 200 single rooms. The hotel offers concessional rates during six off-season (winter) months in a year.

During this period, half of the full room rent is charged. The management's profit margin is targeted at 20% of the room rent. The following are the cost estimates and other details for the year ending 31<sup>st</sup> March, 2021:

- (i) Occupancy during the season is 80% while in the off-season it is 40%.

- (ii) Total investment in the hotel is ₹ 300 lakhs of which 80% relates to Buildings and the balance to Furniture and other Equipment.
- (iii) Room attendants are paid ₹ 15 per room per day on the basis of occupancy of rooms in a month.
- (iv) Expenses :
- Staff salary (excluding that of room attendants) ₹ 8,00,000
  - Repairs to Buildings ₹ 3,00,000
  - Laundry Charges ₹ 1,40,000
  - Interior Charges ₹ 2,50,000
  - Miscellaneous Expenses ₹ 2,00,200
- (v) Annual Depreciation is to be provided on Buildings @ 5% and 15% on Furniture and other Equipments on straight line method.
- (vi) Monthly lighting charges are ₹ 110 per room, except in four months in winter when it is ₹ 30 per room and this cost is on the basis of full occupancy for a month.

You are REQUIRED to workout the room rent chargeable per day both during the season and the off-season months using the foregoing information.

(Assume a month to be of 30 days and winter season to be considered as part of off-season).

**(10 Marks)**

- (b) ABC Ltd. has its factory at two locations viz Noida and Patparganj. Rowan plan is used at Noida factory and Halsey plan at Patparganj factory.

Standard time and basic rate of wages are same for a job which is similar and is carried out on similar machinery. Normal working hours is 9 hours per day in a 5 day week.

Job at Noida factory is completed in 36 hours while at Patparganj factory it has taken 33 hours 45 minutes. Conversion costs at Noida and Patparganj are ₹ 6,084 and ₹ 5,569 respectively. Overheads account for ₹ 25 per hour.

REQUIRED:

- (i) To find out the normal wage; and
- (ii) To compare the respective conversion costs.

**(10 Marks)**

5. (a) Amy Ltd. manufacture and sales its product RM. The following figures have been collected from cost records of last year for the product RM:

Elements of Cost	Variable Cost portion	Fixed Cost
Direct Material	30% of Cost of Goods Sold	--
Direct Labour	15% of Cost of Goods Sold	--
Factory Overhead	10% of Cost of Goods Sold	₹ 3,45,000
Administration Overhead	2% of Cost of Goods Sold	₹ 1,06,500
Selling & Distribution Overhead	4% of Cost of Sales	₹ 1,02,000

Last Year, 7,500 units were sold at ₹ 185 per unit. From the given information, DETERMINE the followings:

- (i) Break-even Sales (in rupees)
- (ii) Profit earned during last year

(iii) Margin of safety (in %)

(iv) Profit if the sales were 10% less than the actual sales.

(Assume that Administration Overhead is related with production activity)

**(10 Marks)**

(b) Following information has been provided by a company:

Number of units produced and sold	9,000
Standard labour rate per hour	₹ 12
Standard hours required for 9,000 units	-
Actual hours required	25,641 hours
Labour efficiency	105.3%
Labour rate variance	₹ 1,53,846 (A)

You are required to CALCULATE:

(i) Actual labour rate per hour

(ii) Standard hours required for 9,000 units

(iii) Labour Efficiency variance

(iv) Standard labour cost per unit

(v) Actual labour cost per unit.

**(10 Marks)**

6. (a) JOURNALISE the following transactions in cost books under Non-Integrated system of Accounting.

(i) Credit Purchase of Material	₹ 27,000
(ii) Manufacturing overhead charged to Production	₹ 6,000
(iii) Selling and Distribution overheads recovered from Sales	₹ 4,000
(iv) Indirect wages incurred for Manufacturing department	₹ 8,000
(v) Material returned from production to stores	₹ 9,000

(b) EXPLAIN the difference between Cost Accounting and Management Accounting

(c) DEFINE Zero Based Budgeting and mention its various stages.

(d) HOW do you deal with the following in cost accounts?

(i) Fringe benefits

(ii) Bad debts.

**(4 × 5 =20 Marks)**

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**SUGGESTED ANSWERS/HINTS**

## 1. (a) Total Joint Cost

Particulars	Amount (₹)
Direct Material	60,000
Direct Labour	19,200
Variable Overheads	24,000
Total Variable Cost	1,03,200
Fixed Overheads	64,000
Total joint cost	1,67,200

**Apportionment of Joint Costs:**

			Product-Ghee	Product-Cream
I.	(i)	Apportionment of Joint Cost on the basis of 'Physical Quantity'	<b>₹ 76,000</b> $\left(\frac{₹ 1,67,200}{200 + 240 \text{ litre}} \times 200\right)$	<b>₹ 91,200</b> $\left(\frac{₹ 1,67,200}{200 + 240 \text{ litre}} \times 240\right)$
	(ii)	Apportionment of Joint Cost on the basis of 'Contribution Margin Method':		
		- Variable Costs (on basis of physical units)	<b>₹ 46,909</b> $\left(\frac{₹ 1,03,200}{200 + 240 \text{ litre}} \times 200\right)$	<b>₹ 56,291</b> $\left(\frac{₹ 1,03,200}{200 + 240 \text{ litre}} \times 240\right)$
		Contribution Margin	<b>73,091</b> (₹600×200 – 46,909)	<b>- 8,291</b> (₹200×240 – 56,291)
		Fixed Costs*	₹ 64,000	
		Total apportioned cost	₹ 1,10,909	₹ 56,291
II.	(iii)	<b>Profit or Loss:</b>		
	<b>When Joint cost apportioned on basis of physical units</b>			
	A.	Sales Value	₹ 1,20,000	₹ 48,000
	B.	Apportioned joint cost on basis of 'Physical Quantity':	₹ 76,000	₹ 91,200
	A-B	<b>Profit or (Loss)</b>	<b>44,000</b>	<b>(43,200)</b>
	<b>When Joint cost apportioned on basis of 'Contribution Margin Method'</b>			

C	Apportioned joint cost on basis of 'Contribution Margin Method'	₹ 1,10,909	₹ 56,291
A-C	Profit or (Loss)	₹ 9,091	₹ (8,291)

\* The fixed cost of ₹ 64,000 is to be apportioned over the joint products- Ghee and Cream in the ratio of their contribution margin but contribution margin of Product- Cream is Negative so fixed cost will be charged to Product- Ghee only.

(b) (i) Optimum run size or Economic Batch Quantity (EBQ) =  $\sqrt{\frac{2 \times D \times S}{C}}$

Where, D = Annual demand i.e. 2.15% of 8,00,00,000 = 17,20,000 units

S = Set-up cost per run = ₹ 4,500

C = Inventory holding cost per unit per annum

= ₹ 2.5 × 12 months = ₹ 30

$$EBQ = \sqrt{\frac{2 \times 17,20,000 \text{ units} \times ₹ 4,500}{₹ 30}} = 22,716 \text{ units}$$

(ii) Calculation of Total Cost of set-up and inventory holding

	Batch size	No. of set-ups	Set-up Cost (₹)	Inventory holding cost (₹)	Total Cost (₹)
A	20,000 units	86 $\left(\frac{17,20,000}{20,000}\right)$	3,87,000 (86 × ₹ 4,500)	3,00,000 $\left(\frac{20,000 \times ₹ 30}{2}\right)$	6,87,000
B	22,716 units	76 $\left(\frac{17,20,000}{22,716}\right)$	3,42,000 (76 × ₹ 4,500)	3,40,740 $\left(\frac{22,716 \times ₹ 30}{2}\right)$	6,82,740
	Extra Cost (A – B)				4,260

(c) Computation of machine hour rate of new Machine

	Total (₹)	Per hour (₹)
A. <u>Standing Charges</u>		
I. Insurance Premium ₹ 9,000 × $\frac{1}{9}$	1,000	
II. Rent $\frac{1}{10} \times ₹ 2,400 \times 12$ months	2,880	
	3,880	0.97*
B. <u>Machine expenses</u>		
I. Repairs and Maintenance (₹ 6,000 ÷ 4,000 hours)		1.50
II. Depreciation $\left[ \frac{₹ 10,00,000 - ₹ 10,000}{10 \text{ years} \times 4,000 \text{ hours}} \right]$		24.75

III. Electricity (8 units x ₹ 3.75)		30.00
Machine hour rate		57.22

### Working Note

Calculation of productive Machine hour rate

Total hours	4,200
Less: Non-Productive hours	<u>200</u>
Effective machine hours	<u>4,000</u>

\* ₹ 3,880 ÷ 4,000 hours = ₹ 0.97

#### (d) Computation of Notional Profit (₹)

Value of work certified 4,89,600

Less: Cost of work certified

(₹ 4,00,000 – ₹ 30,200) 3,69,800

**Notional profit 1,19,800**

#### Computation of Estimated Profit (₹)

Contract price 5,44,000

Less: Estimated total cost

Cost of work to date 4,00,000

Estimated further expenditure to complete the contract 22,000 4,22,000

**Estimated profit 1,22,000**

### 2. (a) Working notes

1. Annual production = 40,000 units

2. Raw material required for 40,000 units (40,000 units × 1 kg.) = 40,000 kg.

3.  $EOQ = \sqrt{\frac{2 \times 40,000 \text{ kgs.} \times ₹ 1,000}{₹ 20}} = 2,000 \text{ kgs.}$

4. Total cost of procurement and storage when the order size is equal to EOQ or 2,000 kg.

No. of orders (40,000 kg. ÷ 2,000 kg.) = 20 times

Ordering cost (20 orders × ₹1,000) = ₹ 20,000

Carrying cost (₹) ( $\frac{1}{2} \times 2,000 \text{ kg.} \times ₹ 20$ ) = ₹ 20,000

Total cost ₹ 40,000

(i) **Re-order point** = Safety stock + Lead time consumption

= 1,000 kg. +  $\frac{40,000 \text{ kg.}}{360 \text{ days}} \times 36 \text{ days}$

= 1,000 kg. + 4,000 kg. = 5,000 kg.

(ii) **Statement showing the total cost of procurement and storage of raw materials**  
(after considering the discount)

Order size	No. of orders	Total cost of procurement	Average stock	Total cost of storage of raw materials	Discount	Total cost
Kg.		(₹)	Kg.	(₹)	(₹)	(₹)
(1)	(2)	(3)=(2)×₹1,000	(4)=½×(1)	(5)=(4)×₹20	(6)	(7)=[(3)+(5)– (6)]
40,000	1	1,000	20,000	4,00,000	40,000	3,61,000
20,000	2	2,000	10,000	2,00,000	32,000	1,70,000
10,000	4	4,000	5,000	1,00,000	20,000	84,000
8,000	5	5,000	4,000	80,000	4,000	81,000

(iii) Number of orders which the company should place to minimize the costs after taking EOQ also into consideration is 20 orders each of size 2,000 kg. The total cost of procurement and storage in this case comes to ₹ 40,000, which is minimum. (Refer to working notes 3 and 4)

(b) **Working note:**

Computation of revenues (at listed price), discount, cost of goods sold and customer level operating activities costs:

Particulars	Customers				
	Aey	Bee	Cee	Dee	Eey
Cases sold: (a)	9,360	14,200	62,000	38,000	9,800
Revenues (at listed price) (₹): (b) {(a) × ₹ 64.80}	6,06,528	9,20,160	40,17,600	24,62,400	6,35,040
Discount (₹): (c) {(a) × Discount per case}	-	10,224 (14,200 cases × ₹ 0.72)	3,72,000 (62,000 cases × ₹ 6)	1,73,280 (38,000 cases × ₹ 4.56)	63,504 (9,800 cases × ₹ 6.48)
Cost of goods sold (₹): (d) {(a) × ₹ 54}	5,05,440	7,66,800	33,48,000	20,52,000	5,29,200
<b>Customer level operating activities costs</b>					
Order taking costs (₹): (No. of purchase × ₹ 240)	7,200	12,000	14,400	12,000	14,400
Customer visits costs (₹) (No. of customer visits × ₹ 360)	1,440	2,160	4,320	1,440	2,160
Delivery vehicles travel costs (₹) (Kms travelled by delivery vehicles × ₹ 4.80 per km.)	3,840	3,456	5,760	7,680	11,520
Product handling costs (₹) {(a) × ₹ 2.40}	22,464	34,080	1,48,800	91,200	23,520
Cost of expediting deliveries (₹) {No. of expedited deliveries × ₹ 120}	-	-	-	-	240
Total cost of customer level operating activities (₹)	34,944	51,696	1,73,280	1,12,320	51,840

(i) **Computation of Customer level operating income**

Particulars	Customers				
	Aey (₹)	Bee (₹)	Cee (₹)	Dee (₹)	Eey (₹)
Revenues (At list price) (Refer to working note)	6,06,528	9,20,160	40,17,600	24,62,400	6,35,040
Less: Discount (Refer to working note)	-	10,224	3,72,000	1,73,280	63,504
Revenue (At actual price)	6,06,528	9,09,936	36,45,600	22,89,120	5,71,536
Less: Cost of goods sold (Refer to working note)	5,05,440	7,66,800	33,48,000	20,52,000	5,29,200
Gross margin	1,01,088	1,43,136	2,97,600	2,37,120	42,336
Less: Customer level operating activities costs (Refer to working note)	34,944	51,696	1,73,280	1,12,320	51,840
Customer level operating income	66,144	91,440	1,24,320	1,24,800	(9,504)

(ii) **Comments**

**Customer Dee in comparison with Customer Cee:** Operating income of Customer Dee is more than that of Customer Cee, despite having only 61.29% (38,000 units) of the units volume sold in comparison to Customer Cee (62,000 units). Customer Cee receives a higher percent of discount i.e. 9.26% (₹ 6) while Customer Dee receive a discount of 7.04% (₹ 4.56). Though the gross margin of customer Cee (₹ 2,97,600) is more than that of Customer Dee (₹ 2,37,120) but total cost of customer level operating activities of Cee (₹ 1,73,280) is more in comparison to Customer Dee (₹ 1,12,320). As a result, operating income is more in case of Customer Dee.

**Customer Eey in comparison with Customer Aey:** Customer Eey is not profitable while Customer Aey is profitable. Customer Eey receives a discount of 10% (₹ 6.48) while Customer Aey doesn't receive any discount. Sales Volume of Customer Aey and Eey is almost same. However, total cost of customer level operating activities of Eey is far more (₹ 51,840) in comparison to Customer Aey (₹ 34,944). This has resulted in occurrence of loss in case of Customer Eey.

3. (a) (i) **Calculation of Raw Material inputs during the month:**

Quantities Entering Process	Litres	Quantities Leaving Process	Litres
Opening WIP	900	Transfer to Finished Goods	4,200
Raw material input (balancing figure)	5,260	Process Losses	1,800
		Closing WIP	160
	6,160		6,160

(ii) **Calculation of Normal Loss and Abnormal Loss/Gain**

Particulars	Litres
Total process losses for month	1,800
Normal Loss (10% input)	526
Abnormal Loss (balancing figure)	1,274

## (iii) Calculation of values of Raw Material, Labour and Overheads added to the process:

	Material	Labour	Overheads
Cost per equivalent unit	₹ 23.00	₹ 7.00	₹ 9.00
Equivalent units (litre) (refer the working note)	4,734	4,892	4,966
Cost of equivalent units	₹ 1,08,882	₹ 34,244	₹ 44,694
Add: Scrap value of normal loss (526 units × ₹ 20)	₹ 10,520	--	--
Total value added	₹ 1,19,402	₹ 34,244	₹ 44,694

## Workings:

## Statement of Equivalent Units (litre):

Input Details	Units	Output details	Units	Equivalent Production					
				Material		Labour		Overheads	
				Units	(%)	Units	(%)	Units	(%)
Opening WIP	900	Units completed:							
Units introduced	5,260	- Opening WIP	900	--	--	270	30	360	40
		- Fresh inputs	3,300	3,300	100	3,300	100	3,300	100
		Normal loss	526	--	--	--	--	--	--
		Abnormal loss	1,274	1,274	100	1,274	100	1,274	100
		Closing WIP	160	160	100	48	30	32	20
	6,160		6,160	4,734		4,892		4,966	

## (iv) Process Account for Month

	Litres	Amount (₹)		Litres	Amount (₹)
To Opening WIP	900	29,970	By Finished goods	4,200	1,63,800
To Raw Materials	5,260	1,19,402	By Normal loss	526	10,520
To Wages	--	34,244	By Abnormal loss	1,274	49,686
To Overheads	--	44,694	By Closing WIP	160	4,304
	6,160	2,28,310		6,160	2,28,310

## (b) Cost Sheet of 'Super'

Particulars	Per unit (₹)	Total (₹)
Direct materials (Working note- (i))	8.00	4,80,000
Direct wages (Working note- (ii))	4.00	2,40,000
<b>Prime cost</b>	12.00	7,20,000
Production overhead (Working note- (iii))	1.20	72,000
<b>Factory Cost</b>	13.20	7,92,000
Administration Overhead (200% of direct wages)	8.00	4,80,000
<b>Cost of production</b>	21.20	12,72,000
Less: Closing stock (60,000 units – 54,000 units)	-	1,27,200
<b>Cost of goods sold i.e. 54,000 units</b>	21.20	11,44,800
Selling cost	1.00	54,000
<b>Cost of sales/ Total cost</b>	22.20	11,98,800

<b>Profit</b>	7.80	4,21,200
Sales value (₹ 30 × 54,000 units)	30.00	16,20,000

**Working Notes:**

(i) Direct material cost per unit of 'Normal' = M

Direct material cost per unit of 'Super' = 2M

Total Direct Material cost = 2M × 60,000 units + M × 1,80,000 units

Or, ₹ 12,00,000 = 1,20,000 M + 1,80,000 M

Or, M =  $\frac{₹ 12,00,000}{3,00,000} = ₹ 4$

Therefore, Direct material Cost per unit of 'Super' = 2 × ₹ 4 = ₹ 8

(ii) Direct wages per unit for 'Super' = W

Direct wages per unit for 'Normal' = 0.6W

So, (W × 60,000) + (0.6W × 1,80,000) = ₹ 6,72,000

W = ₹ 4 per unit

(iii) Production overhead per unit =  $\frac{₹ 2,88,000}{(60,000 + 1,80,000)} = ₹ 1.20$

Production overhead for 'Super' = ₹ 1.20 × 60,000 units = ₹ 72,000

**Notes:**

- Administration overhead is specific to the product as it is directly related to direct labour as mentioned in the question and hence to be considered in cost of production only.
- Cash discount is treated as interest and finance charges; hence, it is ignored.
- Penalty paid against the copyright infringement case is an abnormal cost; hence, not included.

**4. (a) Working Notes:**

(i) **Total Room days in a year**

Season	Occupancy (Room-days)	Equivalent Full Room charge days
Season – 80% Occupancy	200 Rooms × 80% × 6 months × 30 days in a month = <b>28,800</b> Room Days	28,800 Room Days × 100% = 28,800
Off-season – 40% Occupancy	200 Rooms × 40% × 6 months × 30 days in a month = <b>14,400</b> Room Days	14,400 Room Days × 50% = 7,200
Total Room Days	28,800 + 14,400 = 43,200 Room Days	36,000 Full Room days

(ii) **Lighting Charges:**

It is given in the question that lighting charges for 8 months is ₹110 per month and during winter season of 4 months it is ₹30 per month. Further it is also given that peak season is 6 months and off season is 6 months.

It should be noted that – being Hill station, winter season is to be considered as part of Off season. Hence, the non-winter season of 8 months include – Peak season of 6 months and Off season of 2 months.

Accordingly, the lighting charges are calculated as follows:

Season	Occupancy (Room-days)
Season & Non-winter – 80% Occupancy	200 Rooms × 80% × 6 months × ₹ 110 per month = ₹ 1,05,600
Off- season & Non-winter – 40% Occupancy (8 – 6 months)	200 Rooms × 40% × 2 months × ₹110 per month = ₹ 17,600
Off- season & -winter – 40% Occupancy months)	200 Rooms × 40% × 4 months × ₹ 30 per month = ₹ 9,600
Total Lighting charges	₹ 1,05,600+ ₹ 17,600 + ₹ 9,600 = ₹ 132,800

**Statement of total cost:**

	(₹)
Staff salary	8,00,000
Repairs to building	3,00,000
Laundry	1,40,000
Interior	2,50,000
Miscellaneous Expenses	2,00,200
Depreciation on Building (₹ 300 Lakhs × 80% × 5%)	12,00,000
Depreciation on Furniture & Equipment (₹ 300 Lakhs × 20% × 15%)	9,00,000
Room attendant's wages (₹ 15 per Room Day for 43,200 Room Days)	6,48,000
Lighting charges	1,32,800
Total cost	45,71,000
Add: Profit Margin (20% on Room rent or 25% on Cost)	11,42,750
Total Rent to be charged	57,13,750

**Calculation of Room Rent per day:**

Total Rent / Equivalent Full Room days = ₹ 57,13,750/ 36,000 = ₹ 158.72

Room Rent during Season – ₹ 158.72

Room Rent during Off season = ₹ 158.72 × 50% = ₹ 79.36

(b)

Particulars	Noida	Patparganj
Hours worked	36 hr.	33.75 hr.
Conversion Costs	₹ 6,084	₹ 5,569
Less: Overheads	₹ 900 (₹25 × 36 hr.)	₹ 844 (₹ 25 × 33.75 hr.)
Labour Cost	₹ 5,184	₹ 4,725

(i) **Finding of Normal wage rate:**

Let Wage rate be ₹ R per hour, this is same for both the Noida and Patparganj factory.

Normal wage rate can be found out taking total cost of either factory.

**Noida: Rowan Plan**

Total Labour Cost = Wages for hours worked + Bonus as per Rowan plan

$$₹ 5,184 = \text{Hours worked} \times \text{Rate per hour} + \left( \frac{\text{Time saved}}{\text{Time allowed}} \times \text{Hours worked} \times \text{Rate per hour} \right)$$

$$\text{Or, } ₹ 5,184 = 36 \text{ hr.} \times R + \left( \frac{45 - 36}{45} \times 36 \times R \right)$$

$$\text{Or, } ₹ 5,184 = 36R + 7.2R$$

$$R = ₹ 120$$

$$\text{Normal wage} = 36 \text{ hrs} \times ₹ 120 = ₹ 4,320$$

**OR**

**Patparganj: Halsey Plan**

Total Labour Cost = Wages for hours worked + Bonus as per Halsey plan

$$₹ 4,725 = \text{Hours worked} \times \text{Rate per hour} + (50\% \times \text{Hours saved} \times \text{Rate per hour})$$

$$₹ 4,725 = 33.75 \text{ hr.} \times R + 50\% \times (45 \text{ hr.} - 33.75 \text{ hr.}) \times R$$

$$₹ 4,725 = 39.375 R$$

$$R = ₹ 120$$

$$\text{Normal Wage} = 33.75 \text{ hrs} \times ₹ 120 = ₹ 4,050$$

**(ii) Comparison of conversion costs:**

Particulars	Noida (₹)	Patparganj (₹)
Normal Wages (36 x 120)	4,320	
(33.75 x 120)		4,050
Bonus (7.2 x 120)	864	
(5.625 x 120)		675
Overhead	900	844
	6,084	5,569

**5. (a) Working Notes:**

**(1) Calculation of Cost of Goods Sold (COGS):**

$$\text{COGS} = \text{DM} + \text{DL} + \text{FOH} + \text{AOH}$$

$$\text{COGS} = \{0.3 \text{ COGS} + 0.15 \text{ COGS} + (0.10 \text{ COGS} + ₹ 3,45,000) + (0.02 \text{ COGS} + ₹ 1,06,500)\}$$

$$\text{Or, COGS} = 0.57 \text{ COGS} + ₹ 4,51,500$$

$$\text{Or COGS} = \frac{₹ 4,51,500}{0.43} = ₹ 10,50,000$$

**(2) Calculation of Cost of Sales (COS):**

$$\text{COS} = \text{COGS} + \text{S\&DOH}$$

$$\text{COS} = \text{COGS} + (0.04 \text{ COS} + ₹ 1,02,000)$$

$$\text{Or COS} = ₹ 10,50,000 + (0.04 \text{ COS} + ₹ 1,02,000)$$

$$\text{Or, COS} = \frac{\text{₹ } 11,52,000}{0.96} = \text{₹ } 12,00,000$$

**(3) Calculation of Variable Costs:**

Direct Material-	(0.30 × ₹ 10,50,000)	₹ 3,15,000
Direct Labour-	(0.15 × ₹ 10,50,000)	₹ 1,57,500
Factory Overhead-	(0.10 × ₹ 10,50,000)	₹ 1,05,000
Administration OH-	(0.02 × ₹ 10,50,000)	₹ 21,000
Selling & Distribution OH	(0.04 × ₹ 12,00,000)	₹ 48,000
		₹ 6,46,500

**(4) Calculation of total Fixed Costs:**

Factory Overhead	₹ 3,45,000
Administration OH	₹ 1,06,500
Selling & Distribution OH	₹ 1,02,000
	₹ 5,53,500

**(5) Calculation of P/V Ratio:**

$$\begin{aligned} \text{P/V Ratio} &= \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{\text{Sales} - \text{Variable Costs}}{\text{Sales}} \times 100 \\ &= \frac{(\text{₹ } 185 \times 7,500 \text{ units}) - \text{₹ } 6,46,500}{\text{₹ } 185 \times 7,500 \text{ units}} \times 100 \\ &= \frac{\text{₹ } 13,87,500 - \text{₹ } 6,46,500}{\text{₹ } 13,87,500} \times 100 = 53.41\% \end{aligned}$$

(i) Break-Even Sales =  $\frac{\text{Fixed Costs}}{\text{P/V Ratio}} = \frac{\text{₹ } 5,53,500}{53.41\%} = \text{₹ } 10,36,323$

(ii) Profit earned during the last year  
 = (Sales – Total Variable Costs) – Total Fixed Costs  
 = (₹ 13,87,500 - ₹ 6,46,500) - ₹ 5,53,500  
 = ₹ 1,87,500

(iii) Margin of Safety (%) =  $\frac{\text{Sales} - \text{Breakeven sales}}{\text{Sales}} \times 100$   
 =  $\frac{\text{₹ } 13,87,500 - \text{₹ } 10,36,323}{\text{₹ } 13,87,500} \times 100 = 25.31\%$

(iv) Profit if the sales were 10% less than the actual sales:  
 Profit = 90% (₹ 13,87,500 - ₹ 6,46,500) - ₹ 5,53,500  
 = ₹ 1,13,400

**(b) SR – Standard labour Rate per Hour**

AR – Actual labour rate per hour

SH – Standard Hours

AH – Actual hours

(i) Labour rate Variance = AH (SR – AR)

$$\begin{aligned}
 - 1,53,846 &= 25,641 (12 - AR) \\
 - 6 &= 12 - AR \\
 AR &= ₹ 18 \\
 \text{(ii) Labour Efficiency} &= \frac{SH}{AH} \times 100 = 105.3 \\
 SH &= \frac{AH \times 105.3}{100} = \frac{25,641 \times 105.3}{100} \\
 SH &= 26,999.973 \\
 SH &= 27,000 \text{ hours} \\
 \text{(iii) Labour Efficiency Variance} &= SR (SH - AH) \\
 &= 12 (27,000 - 25,641) \\
 &= ₹ 16,308 (F) \\
 \text{(iv) Standard Labour Cost per Unit} &= \frac{27,000 \times 12}{9,000} = ₹ 36 \\
 \text{(v) Actual Labour Cost Per Unit} &= \frac{25,641 \times 18}{9,000} = ₹ 51.282
 \end{aligned}$$

**6. (a) Journal entries are as follows:**

		Dr. (₹)	Cr. (₹)
(i)	Stores Ledger Control A/c..... To Cost Ledger Control A/c	Dr. 27,000	27,000
(ii)	Work-in-Process Control A/c..... To Manufacturing Overhead Control A/c	Dr. 6,000	6,000
(iii)	Cost of Sales A/c..... To Selling & Dist. Overhead Control A/c	Dr. 4,000	4,000
(iv)	(1) Wage Control A/c..... To Cost Ledger Control A/c	Dr. 8,000	8,000
	(2) Manufacturing Overhead Control A/c..... To Wages Control A/c	Dr. 8,000	8,000
<b>OR</b>			
	Manufacturing Overhead Control A/c..... To Cost Ledger Control A/c	Dr. 8,000	8,000
(v)	Stores Ledger Control A/c ..... To Work-in-Process Control A/c	Dr. 9,000	9,000

\*Cost Ledger Control A/c is also known as General Ledger Control A/c

**(b) Difference between Cost Accounting and Management Accounting**

	Basis	Cost Accounting	Management Accounting
(i)	Nature	It records the quantitative aspect only.	It records both qualitative and quantitative aspect.
(ii)	Objective	It records the cost of producing a product and providing a service.	It Provides information to management for planning and co-ordination.

(iii)	Area	It only deals with cost Ascertainment.	It is wider in scope as it includes financial accounting, budgeting, taxation, planning etc.
(iv)	Recording of data	It uses both past and present figures.	It is focused with the projection of figures for future.
(v)	Development	Its development is related to industrial revolution.	It develops in accordance to the need of modern business world.
(vi)	Rules and Regulation	It follows certain principles and procedures for recording costs of different products.	It does not follow any specific rules and regulations.

- (c) **Zero-based Budgeting:** (ZBB) is an emergent form of budgeting which arises to overcome the limitations of incremental (traditional) budgeting system. Zero- based Budgeting (ZBB) is **defined** as ‘a method of budgeting which requires each cost element to be specifically justified, although the activities to which the budget relates are being undertaken for the first time, without approval, the budget allowance is zero’.

**ZBB is an activity based budgeting system where budgets are prepared for each activities rather than functional department.** Justification in the form of cost benefits for the activity is required to be given. The activities are then evaluated and prioritized by the management on the basis of factors like synchronisation with organisational objectives, availability of funds, regulatory requirement etc.

ZBB is suitable for both corporate and non-corporate entities. In case of non-corporate entities like Government department, local bodies, not for profit organisations, where these entities need to justify the benefits of expenditures on social programmes like mid-day meal, installation of street lights, provision of drinking water etc.

**ZBB involves the following stages:**

- (i) Identification and description of Decision packages
  - (ii) Evaluation of Decision packages
  - (iii) Ranking (Prioritisation) of the Decision packages
  - (iv) Allocation of resources
- (d) (i) **Fringe benefits:** These are the additional payments or facilities provided to the workers apart from their salary and direct cost-allowances like house rent, dearness and city compensatory allowances. These benefits are given in the form of overtime, extra shift duty allowance, holiday pay, pension facilities etc.

These indirect benefits stand to improve the morale, loyalty and stability of employees towards the organisation. If the amount of fringe benefit is considerably large, it may be recovered as direct charge by means of a supplementary wage or labour rate; otherwise, these may be collected as part of production overheads.

- (ii) **Bad debts:** There is no unanimity among different authors of Cost Accounting about the treatment of bad debts. One view is that ‘bad debts’ should be excluded from cost. According to this view bad debts are financial losses and therefore, they should not be included in the cost of a particular job or product.

According to another view it should form part of selling and distribution overheads, especially when they arise in the normal course of trading. Therefore, bad debts should be treated in cost accounting in the same way as any other selling and distribution cost. However extra ordinarily large bad debts should not be included in cost accounts.