

**ANSWERS OF TEST PAPER - 01****(Chapters Covered – Basic Costing, Cost Sheet, Material Cost and Employee Cost)****COST ACCOUNTING****SECTION-A****ANS. 1**

- (i) (b) Sales manager's salary
- (ii) (b) Conversion cost
- (iii) (b) 3.75%
- (iv) (b) Functions
- (v) (c) 1.943 minutes
- (vi) (c) Engineered cost
- (vii) (a) Cost allocation
- (viii) (b) ₹ 22,25,000
- (ix) (d) The ordering cost is equal to the carrying cost
- (x) (c) Engineering department
- (xi) (a) ₹10,200
- (xii) (d) Number of vehicle
- (xiii) (b) 2,500 units
- (xiv) (c) 500 units 20 orders
- (xv) (c) There is no idle time cost

**SECTION-B**

**ANS. 2 (a)**

**(i) Annual Demand = 1,00,000 units**

Carrying cost =  $10 \times 50\% = ₹5$

EOQ =  $(2 \times \text{Annual demand} \times \text{Ordering cost} / \text{Carrying cost})^{1/2}$

EOQ =  $(2 \times 1,00,000 \times 500 / 5)^{1/2}$

**EOQ = 4,472 units (Approx.)**

**(ii) Evaluation of Discount offer:**

If lot size is EOQ = 4,472 units

Carrying cost =  $4,472 \times 5 \times 50\% = ₹11,180$

Ordering cost =  $1,00,000 / 4,472 = 23 \text{ orders @ } ₹500 = ₹11,500$

Purchase price =  $1,00,000 \times 10 = ₹10,00,000$

**Total Cost = ₹10,22,680**

If lot size is 4,500 units

Purchase price =  $10 - 3\% = ₹9.70$

Carrying cost per unit =  $9.70 \times 50\% = ₹4.85$

Carrying cost =  $4,500 \times 4.85 \times 1/2 = ₹10,913$

Ordering cost =  $1,00,000 / 4,500 = 23 \text{ orders @ } ₹500 = ₹11,500$

Purchase price =  $1,00,000 \times 9.70 = ₹9,70,000$

**Total Cost = ₹9,92,413**

**If lot size is 6,000 units**

Purchase price =  $10 - 3.5\% = ₹9.65$

Carrying cost per unit =  $9.65 \times 50\% = ₹4.825$

Carrying cost  $6000 \times 4.825 \times 1/2 = ₹14,475$

Ordering cost =  $1,00,000 / 6,000 = 17 \text{ orders @ } ₹500 = ₹8,500$

Purchase price =  $1,00,000 \times 9.65 = ₹9,65,000$

**Total Cost = ₹9,87,975**

**Note: Comparison as above shows that at 6,000 order quantity, the total inventory cost is the least. Hence, ordering quantity should be 6,000 units.**

**ANS. 2 (b)**

**Let X be the Material Cost and Y be the Wage Rate.**

$$\text{Earnings of Mohan (Rowan)} = 600 \times Y + (1,000 - 600) \times 600/1,000 \times Y = 840Y$$

$$\text{Earnings of Sohan (Halsey)} = 800 \times Y + (1,000 - 800) \times 50\% \times Y = 900Y$$

**Total Factory cost = Material + Wages + Overheads**

**In case of Mohan:**

$$72,800 = X + 840Y + 600 \times 10$$

$$66,800 = X + 840Y \text{ -----(1)}$$

**In case of Sohan:**

$$76,000 = X + 900Y + 800 \times 10$$

$$68,000 = X + 900Y \text{ -----(2)}$$

**Solving Both the equations, we get**

$$1,200 = 60Y$$

$$Y = ₹20$$

Putting Y = 20 in equation (1), we get

$$66,800 = X + 840 \times 20$$

$$X = ₹50,000$$

**(i) Normal Wage Rate = ₹20 per hour**

**(ii) Material Cost = ₹50,000**

**(iii) Statement of Factory Cost**

Particulars	Mohan (₹)	Sohan (₹)
<b>Material Cost</b>	50,000	50,000
<b>+ Wages:</b>		
Mohan (840 × 20)	16,800	
Sohan (900 × 20)		18,000
<b>+ Factory Overheads:</b>		
Mohan (600 × 10)	6,000	
Sohan (800 × 10)		8,000
<b>Factory Cost</b>	<b>72,800</b>	<b>76,000</b>

**ANS. 3 (a)** Statement showing computation of total inventory cost at different order size

Particulars	200	250	800	2,000	4,000
<b>Purchasing cost (A)</b>	<b>24,000</b>	<b>23,600</b>	<b>23,200</b>	<b>22,800</b>	<b>22,400</b>
No. of orders (4,000/Ordering Quantity)	20	16	5	2	1
<b>Ordering cost (No. of order × ₹6) (B)</b>	<b>120</b>	<b>96</b>	<b>30</b>	<b>12</b>	<b>6</b>
Average inventory (Ordering Quantity × ½)	100	125	400	1,000	2,000
Carrying cost per unit (Price per ton × 25%)	1.50	1.475	1.45	1.425	1.40
<b>Total Carrying cost (Average inventory × CC per unit) (C)</b>	<b>150</b>	<b>184</b>	<b>580</b>	<b>1,425</b>	<b>2,800</b>
<b>Total Cost (A+B+C)</b>	<b>24,270</b>	<b>23,880</b>	<b>23,810</b>	<b>24,237</b>	<b>25,206</b>

For the above computations the best quantity to order is **800 units**.

**Note:** Minimum ordering quantity assumed to be 200 tons; it may be any quantity below 250 tons; but the decision will remain same.

**ANS. 3 (b)**

**STATEMENT OF COST**

Particulars		Amount (₹)
<b>Direct Material Local (20,00,000 × 110%)</b>		22,00,000
+ <b>Import of Raw Material</b>		2,00,000
+ <b>Direct Labour</b>		17,00,000
+ <b>Direct Expenses</b>		3,00,000
<b>Prime Cost</b>		<b>44,00,000</b>
+ <b>Factory Overheads:</b>		
Indirect labour	4,00,000	
Stores and spare parts	1,40,000	
Fuel	3,00,000	
Depreciation on plant	2,00,000	
Excise duty	4,00,000	
Salaries of work personnel	2,00,000	16,40,000
<b>Works Cost</b>		<b>60,40,000</b>
+ <b>Office Overheads:</b>		
Administrative office expenses	4,00,000	
Salary of managing director	2,00,000	
Fees of directors	40,000	6,40,000
<b>Cost of Production</b>		<b>66,80,000</b>
+ <b>Selling &amp; Distribution Overheads:</b>		
Expenses on advertisement	3,20,000	
Selling expenses	5,00,000	
Packaging and distribution expenses	3,40,000	11,60,000
<b>Cost of Sales</b>		<b>78,40,000</b>
+ <b>Profit (78,40,000 × 20/80)</b>		19,60,000
<b>Sales</b>		<b>98,00,000</b>
<b>Selling Price per unit (Before Subsidy)</b>	<b>98,00,000/50,000</b>	<b>196</b>
<b>- Subsidy</b>		<b>40</b>
<b>Tender Price (After Subsidy)</b>		<b>156</b>

**ANS. 4 (a)**

(i) Let ₹x per hour be the normal wage rate.

Wages at location A will be ₹36x and at location B - it will be ₹48x on the basis of actual time taken, as against 60 hours permitted.

For time saved, bonus will be payable as under:

**Location A:**

Bonus under Rowan system =  $(60 - 36) \times 36/60 \times x = 14.4x$

Total wages = ₹36x + ₹14.4x = 50.4x

Overheads @ ₹20 per hour worked = 36hrs. × ₹20 = ₹720

Therefore, Total Conversion Cost is  $(50.4x + ₹720) = ₹1,224$

$50.4x = ₹504x$

$x = ₹504/50.4 = ₹10$

So, Bonus =  $14.4x = 14.4 \times ₹10 = ₹144$

**Location B:**

Bonus under Halsey system =  $(60 - 48) \times 50\% \times x = 6x$

Total wages = ₹48x + 6x = 54x

Overheads @ ₹20 per hour worked = 48 hrs. × ₹20 = ₹960

Therefore, Total Conversion Cost is  $(54x + ₹960) = ₹1,500$

$54x = ₹540$

$x = ₹540/54 = ₹10$

So, Bonus =  $6x = 6 \times ₹10 = ₹60$

(ii) **COMPARATIVE CONVERSION COST**

Particulars	Location A (₹)	Location B (₹)
Wages @ 10 per hour	360	480
+ Bonus	144	60
+ Overheads	720	960
<b>Total</b>	<b>1,224</b>	<b>1,500</b>

**ANS. 4 (b) STATEMENT OF COST AND PROFIT FOR SUPER PEN**

Particulars	Amount (₹)	Per Unit (₹)
Direct material $(8,00,000 \times 2/5)$	3,20,000	8.00
+ Direct labour $(4,48,000 \times 5/14)$	1,60,000	4.00
<b>Prime Cost</b>	<b>4,80,000</b>	<b>12.00</b>
+ Production overheads $(1,92,000 \times 40,000/1,60,000)$	48,000	1.20
<b>Works Cost</b>	<b>5,28,000</b>	<b>13.20</b>
+ Administration overheads $(1,60,000 \times 200\%)$	3,20,000	8.00
<b>Cost of Production</b>	<b>8,48,000</b>	<b>21.20</b>
- Closing Stock $(8,48,000 \times 4,000/40,000)$	84,800	-
<b>Cost of Goods Sold</b>	<b>7,63,200</b>	<b>21.20</b>
+ Selling costs $(36,000 \times 1)$	36,000	1.00
<b>Cost of Sales</b>	<b>7,99,200</b>	<b>22.20</b>
+ Profit (Balancing figure)	2,80,800	7.80
<b>Sales <math>(36,000 \times 30)</math></b>	<b>10,80,000</b>	<b>30.00</b>

**Working Note:****(i) Direct Material:**

Normal Pen = X, Super Pen = 2X

Total Direct Material:

Normal Pen = 1,20,000X

Super Pen = 40,000 × 2X = 80,000X

Ratio = 3:2

**(ii) Direct Labour**

Super Pen = Y, Normal Pen = 0.60Y

Total Direct labour:

Normal Pen = 1,20,000 × 0.60Y = 72,000Y

Super Pen = 40,000 × Y = 40,000Y

Ratio = 9:5

**ANS. 5 (a)**

Quantity Sold = 1,25,000 + 1,50,000 + 1,00,000 - 1,30,000 = 2,45,000 liters.

**Calculations using FIFO Method:**

- (i) Closing stock = 30,000 × 7.10 + 1,00,000 × 7 = ₹9,13,000
- (ii) Cost of Goods sold = 1,25,000 × 6.50 + 1,20,000 × 7.10 + 45,000 (Expenses) = ₹17,09,500
- (iii) Profit/Loss = 19,25,000 - 17,09,500 = ₹2,15,500

**Calculations using LIFO Method:**

- (i) Closing stock = 1,25,000 × 6.50 + 5,000 × 7.10 = ₹8,48,000
- (ii) Cost of Goods sold = 1,00,000 × 7 + 1,45,000 × 7.10 + 45,000 (Expenses) = ₹17,74,500
- (iii) Profit/Loss = 19,25,000 - 17,74,500 = ₹1,50,500

**ANS. 5 (b)**

**Table Showing Labour Cost Per Article**

Method of Payment	Hours worked	Weekly Earnings (₹)	No. of Articles	Labour Cost Per Article (₹)
Existing time rate	49	8,425	120	70.21
Straight piece rate	40	8,640	135	64.00
Rowan premium plan	40	9,007	135	66.72
Halsey premium plan	40	8,600	135	63.70

**Working Notes**

- (i) **Existing Time Rate Weekly Wages**  
= 40 hours @ 160 per hr. + 9 hours @ ₹225 per hr. = ₹6,400 + ₹2,025 = ₹8,425
- (ii) **Piece Rate System Basic**  
Time 5 hours for 15 articles  
Cost of 15 articles at hourly rate of ₹160/hr. + 20% = ₹800 + ₹160 = ₹960  
∴ Rate per article = ₹960 ÷ 15 = ₹64.  
**Earning for the week = 135 articles x ₹64 = ₹8,640**
- (iii) **Rowan Premium System**  
Basic Time = 5 hours for 15 articles + 50% of Time  
= 7.5 hours for 15 articles or 30 minutes per article  
∴ Standard Time allowed for 135 articles = 67.50 hours  
Actual time taken for 135 articles = 40 hours  
**Earnings = 40x160 + (67.50-40) × 40/67.50 x 160 = ₹9,007**
- (iv) **Halsey Premium System**  
**Earnings = 40x160 + (67.50-40) × 50% × 160 = ₹8,600**

**ANS. 6 (a)**

**(i) Minimum stock of A:**

$$\text{Reorder level} - (\text{Average rate of consumption} \times \text{Average time required}) \\ = 8,000 \text{ kgs.} - (200 \times 10 \times 2) \text{ kgs.} = \mathbf{4,000 \text{ kgs.}}$$

**(ii) Maximum stock of B:**

$$\text{Reorder level} - (\text{Minimum consumption} \times \text{Minimum delivery period}) + \text{Reorder quantity} \\ = 4,750 \text{ kgs.} - (175 \times 4 \times 3) \text{ kgs.} + 5,000 \text{ kgs.} = 9,750 - 2,100 = \mathbf{7,650 \text{ kgs.}}$$

**(iii) Reorder level of C:**

$$\text{Maximum delivery period} \times \text{Maximum usage} = 4 \times 225 \times 6 = \mathbf{5,400 \text{ kgs.}}$$

**(iv) Average stock level of A:**

$$\text{Minimum stock level of A} + \frac{1}{2} \text{ Reorder quantity of A} \\ = 4,000 \text{ kgs.} + \frac{1}{2} \times 10,000 \text{ kgs.} = 4,000 \text{ kgs.} + 5,000 \text{ kgs.} = \mathbf{9,000 \text{ kgs.}}$$

**OR**

$$\frac{1}{2} \times (\text{Minimum Stock level of A} + \text{Maximum Stock Level of A}) \\ = \frac{1}{2} \times (4000 + 16,250) = \mathbf{10,125 \text{ Kgs.}}$$

**Working note:**

**Maximum stock level of A:**

$$= \text{ROL} + \text{ROQ} - (\text{Minimum consumption} \times \text{Minimum reorder period}) \\ 8,000 \text{ kgs.} + 10,000 \text{ kgs.} - [(175 \times 10) \times 1] \text{ kgs.} = \mathbf{16,250 \text{ kgs.}}$$

**ANS. 6 (b)**

**Statement of Cost of Sales and Profits for 2018 (300 Typewriters)**

Particulars	Working	Amount (₹)	Cost per unit (₹)
Direct Material	$1,20,000 \times 125\% \times 300/200$	2,25,000	750
+ Direct Wages	$1,80,000 \times 110\% \times 300/200$	2,97,000	990
<b>Prime Cost</b>		<b>5,22,000</b>	<b>1,740</b>
+ Factory Overheads	$75,000 \times 5,22,000/3,00,000$	1,30,500	435
<b>Factory Cost</b>		<b>6,52,500</b>	<b>2,175</b>
+ Office Overheads	$90,000 + 30,000 + 15,000$	1,35,000	450
<b>Cost of Production</b>		<b>7,87,500</b>	<b>2,625</b>
+ Selling Expenses	$45,000 \times 300/200$	67,500	225
<b>Total Cost</b>		<b>8,55,000</b>	<b>2,850</b>
+ Profit	$8,55,000 \times 10/90$	95,000	316.67
<b>Selling Price</b>		<b>9,50,000</b>	<b>3,166.67</b>



**ANS. 7 (a)**

**Statement Showing Relevant Calculations**

Particulars	K	L	M
No. of units produced	10,000	8,000	14,400
Standard Time (Hours)	$(10,000 \times 156) / (100 \times 60)$ = 260	$8,000 \times 3/100$ = 240	$14,400 \times 1.5/100$ = 216
Time Taken (Hours)	200	216	184
<b>(i) Bonus Hours = Time Saved (Hours)</b>	<b>60</b>	<b>24</b>	<b>32</b>
Rate of Bonus per hour (₹)	$25 \times 60\% = 15$	$40 \times 60\% = 24$	$30 \times 60\% = 18$
<b>(ii) Amount of Bonus (₹)</b>	<b><math>60 \times 15 = 900</math></b>	<b><math>24 \times 24 = 576</math></b>	<b><math>32 \times 18 = 576</math></b>
Overtime (Hours)	$200 - 176 = 24$	$216 - 176 = 40$	$184 - 176 = 8$
Overtime wages (₹)	$20 \times 25 \times 4/3 + 4 \times 25 \times 3/2$ = <b>816.67</b>	$20 \times 40 \times 4/3 + 20 \times 40 \times 3/2 = 2,266.67$	$8 \times 30 \times 4/3 = 320$
Basic Wages (₹)	$176 \times 25 = 4,400$	$176 \times 40 = 7,040$	$176 \times 30 = 5,280$
<b>(iii) Total Wages (₹)</b>	<b><math>4,400 + 900 + 816.67 = 6,116.67</math></b>	<b><math>7,040 + 576 + 2,266.67 = 9,882.67</math></b>	<b><math>5,280 + 576 + 320 = 6,176</math></b>
Saleable units	$10,000 - 400 = 9,600$	$8,000 - 160 = 7,840$	$14,400 - 1,600 = 12,800$
<b>(iv) Direct Wage Cost Per 100 saleable units</b>	<b><math>6,116.67 \times 100/9,600 = 63.71</math></b>	<b><math>9,882.67 \times 100/7,840 = 126.05</math></b>	<b><math>6,176 \times 100/12,800 = 48.25</math></b>

**ANS. 7 (b)**

**Statement of Cost of Sales and Profit for 2017-18 (30,000 Units)**

Particulars	Working	Amount (₹)	Cost per unit (₹)
Direct Material	$30,00,000 \times 125\% \times 88\% \times 30,000/20,000$	49,50,000	165
+ Direct Wages	$22,50,000 \times 120\% \times 30,000/20,000$	40,50,000	135
<b>Prime Cost</b>		<b>90,00,000</b>	<b>300</b>
+ Factory Overheads:			
• Variable	$(20,62,500 - 7,50,000) \times 90,00,000/52,50,000$	22,50,000	75
• Fixed		7,50,000	25
<b>Factory Cost</b>		<b>1,20,00,000</b>	<b>400</b>
+ Office and Adm. Overheads	$8,50,000 \times 120\%$	10,20,000	34
<b>Cost of Production</b>		<b>1,30,20,000</b>	<b>434</b>
+ Selling & Distribution overheads	$2,50,000 \times 80\% \times 30,000/20,000$	3,00,000	10
<b>Total Cost</b>		<b>1,33,20,000</b>	<b>444</b>
+ Profit	$1,33,20,000 \times 25\%$	33,30,000	111
<b>Sales</b>		<b>1,66,50,000</b>	<b>555</b>

**Working note:**

Profit percentage on cost for the year 2016-17 =  $(16,82,500/84,12,500) \times 100 = 20\%$

Desired Profit % for 2017-18 =  $20 + 5 = 25\%$  on Cost.

**ANS. 8 (a) Measures to Reduce Labour Turnover:**

Labour Turnover may be reduced by removing its avoidable causes and taking preventive remedial measures. The various measures may be as under:

- Efficient, sympathetic and impartial personnel administration.
- Effective communication system to keep the workers informed on matters that affect them.
- Improving working conditions and placing the right man on the right job.
- Job enrichment to reduce boredom and monotony and to provide job satisfaction.
- Introducing fair rates of pay and allowance/s and incentives, pension, gratuity, etc.
- Strengthening welfare measures.
- Augmenting recreational activities and schemes.

**ANS. 8 (b)**

**Difference between Scrap and Spoilage**

SCRAP	SPOILAGE
Incidental material residue in a process in small amounts	Damages due to defective working
It has low market value	Market value can range from zero to substantial portion of selling price
Normally involves material wastage	It involves wastage of Material, Labour, Direct Expenses and Overheads up to point of spoilage.
Scrap should always be physically available	The components/materials are damaged in such a way that they cannot be bought back to normal specifications by repairs or reconditioning

**ANS. 8 (c)**

**The role of the cost accountants in a manufacturing organisation can be enumerated as follows:**

- To analyze various elements of cost of production/services such as material, labour, overhead expenses etc.
- To introduce appropriate costing methods in the organisation so as to facilitate management with the knowledge of cost of production/services for managerial decision making.
- To determine the cost of the new product/service in order to facilitate management in arriving at the correct pricing decisions.
- To determine the feasibility and profitability of the various project proposals considered by the management.
- To analyze variances against standard by reason to enable concerned department to initiate corrective action.
- Collection, collation of extraneous information for management to compare the company's performance with that of peers and the industry for better appreciation and decision-making.