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SUGGESTED SOLUTION

CA INTERMEDIATE

SUBJECT- COSTING

Test Code – CIM 8557

BRANCH - () (Date :)

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ANSWER – 1

Process I Account

	Total	Cost	Profit		Total	Cost	Profit
Opening Stock	3,000	3,000	-	Transfer to Process II A/c	21,600	16,200	5,400
Direct material	6,000	6,000	-				
Direct wages	4,480	4,480	-				
Total	13,480	13,480	-				
Less : Closing Stock	1,480	1,480	-				
Prime Cost	12,000	12,000	-				
Fy. Overheads	4,200	4,200	-				
Process cost	16,200	16,200	-				
Profit 33.1/3 on cost	5,400	-	5,400				
(Working Note I)	21,600	16,200	5,400		21,600	16,200	5,400

(3 MARKS)

Process II Account

	Total	Cost	Profit		Total	Cost	Profit
Opening Stock	3,600	3,600	600	Trfd. to finished stock A/c	45,000	30,300	14,700
Trnfr. from Process I	21,600	16,200	5,400				
Direct materials	6,300	6,300	-				
Direct wages	4,500	4,500	-				
	36,000	30,000	6,000				
Less : Closing Stock	1,800	1,500	300*				
Prime Cost	34,200	28,500	5,700				
Fy. overhead	1,800	1,800	-				
Process cost	36,000	30,300	5,700				
Profit (25% on cost)	9,000	-	9,000				
(Working Note 2)	45,000	30,300	14,700		45,000	30,300	14,700

$$\frac{\text{Profit}}{\text{Total cost}} \text{ x Closing Stock} = \frac{\text{Rs.6,000}}{\text{Rs.36,000}} \text{ x Rs.1,800} = \text{Rs.300}$$

(3 MARKS)

Finished Stock Account

	Total	Cost	Profit		Total	Cost	Profit
Opening Stock	9,000	5,700	3,300	Sales	56,000	32,970	23,030
Trnfr. from Process II	45,000	30,300	14,700				
	54,000	36,000	18,000				
Less : Closing Stock	4,500	3,030	1,470**				

Cost of F.Stock	49,500	32,970	16,530				
Profit	6,500	-	6,500				
	56,000	**32,970**	**23,030**		**56,000**	**32,970**	**23,030**

** $\frac{14,700}{45,000} \times 4,500 = 1,470$

Working Notes. 1. 25% profit on transfer price is equal to 334/3% on cost. Suppose transfer price is Rs, 100 and profits Rs, 25, Thus cost will be Rs, 75, Rs, 25 as a ratio of Rs. 75 is one-third = Rs. 16,200 + 3 = Rs. 5,400.

2. 20% profit on transfer price is equal to 25% on cost. Suppose transfer price is Rs. 100 and profit is Rs. 20. Thus cost will be Rs. 80. Rs, 20 as a ratio of Rs. 80 is one fourth = Rs.36,000 ÷ 4 = Rs. 9,000.

(4 MARKS)

ANSWER – 2

(a) (i) Statement showing the apportionment of joint costs to A, B and X based on sales value at the point of split-off

Products	**A**	**B**	**X**	**Total Rs.**
Output (Kg.)	18,000	10,000	54,000	-
Sales value at the point of split-off (Rs.)	(50 x 18,000) = Rs.9,00,000	(40 x 10,000) Rs.4,00,000	10 x 54,000 Rs.5,40,000	18,40,000
Joint cost apportioned on the basis of sales value at the point of split off	Rs.6,30,000*	Rs.2,80,000@	Rs.3,78,000$	12,88,000
	$\left(\frac{\text{Rs.}12,88,000}{Rs.18,40,000}\text{x}9,00,000\right)$	$@\left(\frac{\text{Rs.}12,88,000}{Rs.18,40,000}\text{x}4,00,000\right)$	$\left(\frac{\text{Rs.}12,88,000}{Rs.18,40,000}\text{x}5,40,000\right)$	

(3 MARKS)

(ii) Statement showing the cost per kg. of each product (including joint costs processing cost and total costs separately)

Products	**A**	**B**	**X**
Joint costs (as per (a) (i)	Rs.6,30,000	Rs.2,80,000	Rs.3,78,000
Production	18,00 kg.	10,000 kg.	54,000 kg.
Joint cost per kg. (i)	Rs.35	Rs.28	Rs.7

Further processing cost per kg (ii)	Rs.10	Rs.15	Rs.2
	(1,80,000+18,000)	(1,50,000+10,000)	(1,08,000+54,000)
Total cost per kg. (i) + (ii)	Rs.45	Rs.43	Rs.9

(2 MARKS)

(iii) Statement showing product-wise total profit for the period

Products	**A**	**B**	**X**	**Total**
Sales value (Rs.)	12,24,000	2,50,000	7,92,000	
Add : Closing stock (Please refer to notes)	45,000	2,15,000	90,000	
Total	12,69,000	4,65,000	8,82,000	26,16,000
Less : (i) Apportioned joint cost	6,30,000	2,80,000	3,78,000	12,88,000
(ii) Further processing cost	1,80,000	1,50,000	1,08,000	4,38,000
Profit	4,59,000	35,000	3,96,000	8,90,000

(2 MARKS)

(iv) Calculation for processing decision :

1. Products	**A**	**B**	**X**
Selling price per kg. at the point of split-off	Rs.50	Rs.40	Rs.10
Selling price per kg. after processing	72	50	18
Incremental selling price	22	10	8
Less : Further processing cost	10	15	2
Incremental profit (loss)	12	(-5)	6

Since product B does not give any further processing profit, it should not be further processed.

Working Notes :

1. Products	**A**	**B**	**X**
(i) Sales Value	Rs.12,24,000	Rs.2,50,000	Rs.7,92,000
(ii) Quantity sold	17,000 kg.	5,000 kg.	44,000 kg.
(iii) Selling price Rs./kg. (i) ÷ (ii)	72	50	18

2. Valuation of closing stocks

Products	**A**	**B**	**X**	**Total**
Closing Stock	1,000 kg.	5,000 kg.	10,000 kg	
Cost per kg.	Rs.45	Rs.43	Rs.9	

Closing Stock Value (Rs.)	45,000	2,15,000	90,000	Rs.3,50,000

Closing stock is valued at lower of cost or market value. Here cost is lower of the two and therefore closing stock is to be valued at cost. Working note 1 determines selling price per kg. for its comparison with cost per kg.

(3 MARKS)

ANSWER – 3

ANSWER -A

The Cost of labour under the bonus schemes are tabulated as below:

Time Allowed	Time taken	Wages (Rs.)	Bonus (Rs.)		Total Wages (Rs.)		Earning per hour (Rs.)	
			Halsey*	Rowan**	Halsey	Rowan	Halsey	Rowan
(1)	(2)	(3) = (2) ×Rs. 80	(4)	(5)	(6) = (3) + (4)	(7) = (3) + (5)	(8) = (6)/(2	(9) = (7)/(2)
24,960	24,960 (24,960 X 100%)	19,96,800	-	-	19,96,800	19,96,800	80.00	80.00
24,960	18,720 (24,960 X 75%)	14,97,600	2,49,600	3,74,400	17,47,200	18,72,000	93.33	100.00
24,960	12,480 (24,960 X 50%)	9,98,400	4,99,200	4,99,200	14,97,600	14,97,600	120.00	120.00
24,960	6,240 (24,960 X 25%)	4,99,200	7,48,800	3,74,400	12,48,000	8,73,600	200.00	140.00

* Bonus under Halsey Plan = 50% of (Time Allowed – Time Taken) × Rate per hour

** Bonus under Rowan Plan = $\frac{\text{Time taken}}{\text{Time allowed}} \times \text{Time saved} \times \text{Rate per hour}$

Rowan scheme of bonus keeps checks on speed of work as the rate of incentive increases only upto 50% of time taken to time allowed but the rate decreases as the time taken to time allowed comes below 50%. It provides incentives for efficient workers for saving in time but also puts check on careless speed. On implementation of Rowan scheme, the management of ADV Pvt. Ltd. would resolve issue of the slow speed work while maintaining the skill and precision required maintaining the quality of product.

(5 MARKS)

ANSWER –B

Output by experienced workers in 50,000 hours = $\frac{50,000}{10} = 5,000$ units

∴ Output by new recruits = 60% of 5,000 = 3,000 units

Less of output = 5,000 – 3,000 = 2,000 units

Total loss of output = 10,000 + 2,000 = 12,000 units

Contribution per unit = 20% of 180 = Rs. 36

Total contribution cost = 36 × 12,000 = Rs. 4,32,000

Cost of repairing defective units = 3,000 × 0.2 × 25 = Rs. 15,000

Profit forgone due to labour turnover

	(Rs.)
Loss of Contribution	4,32,000
Cost of repairing defective units	15,000
Recruitment cost	1,56,340
Training cost	1,13,180
Settlement cost of workers leaving	1,83,480
Profit forgone in 20X9 – X9	9,00,000

(5 MARKS)

ANSWER – 4

1. Working Notes :

(i) Computation of Annual consumption & Annual Demand for raw material 'Dee' :

Sales forecast of the product 'Exe'	10,000 units
Less : Opening stock of 'Exe'	900 units
Fresh units of 'Exe' to be produced	9,100 units
Raw material required to produce 9,100 units of 'Exe' (9,100 units × 2 kg.)	18,200 kg.
Less : Opening Stock of 'Dee'	1,000 kg.
Annual demand for raw material 'Dee'	17,200 kg.

(ii) **Computation of Economic Order Quantity (EOQ) :**

$$EOQ = \sqrt{\frac{2 \times \text{Annual } demand\ of\ 'Dee' \times Ordering\ cost}{Carrying\ cost\ per\ unit\ per\ annum}}$$

$$= \sqrt{\frac{2 \times 17{,}200\ kg. \times Rs.720}{Rs.125 \times 13.76\%}} = \sqrt{\frac{2 \times 17{,}200\ kg. \times Rs.720}{Rs.17.2}} = 1{,}200 \text{ kg.}$$

(iii) Re – Order level :

= (Maximum consumption per day × Maximum lead time)

$$= \left\{\left(\frac{Annual\ Consumption\ of\ 'Dee'}{364\ days} + 20\ kg.\right) \times 8\ days\right\}$$

$$= \left\{\left(\frac{18{,}200\ kg.}{364\ days} + 20\ kg.\right) \times 8\ days\right\} = 560 \text{ kg.}$$

(iv) Minimum consumption per day of raw material 'Dee' :

Average Consumption per day = 50 kg.

Hence, Maximum Consumption per day = 50 kg. + 20 kg. = 70 kg.

So Minimum consumption per day will be

Average Consumption = $\frac{Min.consumption+Max.consumption}{2}$

Or, 50 kg. = $\frac{Min.consumption+70\ kg.}{2}$

Or, Min. consumption = 100 kg – 70 kg. = 30 kg.

(4 MARKS FOR WORKING NOTES)

(a) Re – order Quantity :

EOQ – 200 kg. = 1,200 kg. – 200 kg. = 1,000 kg.

(1 MARK)

(b) Maximum Stock level :

= Re- order level + Re – order Quantity – (Min. consumption per day × Min. lead time)

= 560 kg. + 1,000 kg. – (30 kg. × 4 days)

= 1,560 kg. – 120 kg. = 1,440 kg.

(1 MARK)

(c) Minimum Stock level :

= Reorder level – (Average consumption per day × Average lead time)

= 560 kg. – (50 kg. × 6 days) = 260 kg.

(1 MARK)

(d) Impact on the profitability of the company by not ordering the EOQ.

		When purchasing the ROQ	**When purchasing the EOQ**
I	Order quantity	1,000 kg.	1,200 kg.
II	No. of orders a year	$\frac{17,200\ kg.}{1,000 kg.}$ = 17.2 or 18 orders	$\frac{17,200\ kg.}{1,200\ kg.}$ = 14.33 or 15 orders
III	Ordering Cost	18 orders × Rs. 720 = Rs. 12,960	15 orders × Rs. 720 = Rs. 10,800
IV	Average	$\frac{1,000\ kg.}{2}$ = 500 kg.	$\frac{1,200\ kg.}{2}$ = 600 kg.
V	Carrying Cost	500 kg. × Rs. 17.2 = Rs. 8,600	600 kg. × Rs. 17.2 = Rs. 10,320
VI	Total cost	Rs. 21,560	Rs. 21,120

Extra cost incurred due to not ordering EOQ = Rs. 21,560 – Rs. 21,120 = Rs. 440

(3 MARKS)

ANSWER – 5

ANSWER – A

(i) Calculation of Economic Order Quantity

EOQ = $\sqrt{\frac{2AO}{C}} = \sqrt{\frac{2 \times 12{,}000\ units \times Rs.1{,}800}{Rs.640 \times 18.75/100}}$ = 600 units

(1 MARK)

(ii) Evaluation of Profitability of Different Options of Order Quantity

When EOQ is ordered

	(Rs.)
Purchase Cost (12,000 units × Rs. 640)	76,80,000
Ordering Cost $\left[\frac{A}{Q} \times O - (12{,}000\ units/600\ units) \times Rs.1{,}800\right]$	36,000
Carrying Cost $\left(\frac{Q}{2} \times C \times i - 600\ units \times Rs.640 \times {}^{1}/_{2} \times 18.75/100\right)$	36,000
Total Cost	77,52,000

(2 MARKS)

(b) When Quantity Discount is accepted

	(Rs.)
Purchase Cost (12,000 units × Rs. 608)	72,96,000
Ordering Cost $\left[\frac{A}{Q} \times O\ (12{,}000units/\ 3000\ units) \times Rs.1{,}800\right]$	7,200
Carrying Cost $\left[\frac{Q}{2} \times C \times i\left(3{,}000\ units \times Rs.608 \times {}^{1}/_{2} \times 18.75/100\right)\right]$	1,71,000
Total Cost	74,74,200

Advise - The total cost of inventory is higher if EOQ is adopted. If M/s. X Private Limited gets a discount of 5% on the purchases of "SKY BLUE" (if order size is 3,000 components at a time), there will be financial benefit of Rs. 2,77,800 (77,52,000 – 74,74,200). However, order size of big quantity will increase volume of average inventory to 5 times. There may be risk of shrinkage, pilferage and obsolescence etc., of inventory due to increase in the average volume of inventory holding. This aspect also has to be taken into consideration before opting the discount offer and taking final decision.

(2 MARKS)

ANSWER – B

Average number of workers on roll (for the quarter) :

Employee Turnover rate using Replacement method

$$= \frac{No.of\ replacements}{Average\ number\ of\ workers\ on\ roll} \times 100$$

Or, $\frac{5}{10} =$ $= \frac{30}{Average\ number\ of\ workers\ on\ roll}$

Or, Average number of workers on roll = $\frac{30 \times 100}{5}$ = 600

(i) Number of workers recruited and joined :

Employee turnover rate (Flux method)

$= \frac{No.of\ Separations*(S)+No.of\ Accessions(A)}{Average\ number\ of\ workers\ on\ roll}$

Or, $\frac{10}{100} = \frac{18*+A}{600}$ Or, A = $\left[\frac{6000}{100} - 80\right]$ = 42

(2 MARKS)

No. of workers recruited and jointed 42.

(ii) Number of workers left and discharged :

Employee turnover rate (Separation method)

$= \frac{No.of\ Separations(S)}{Average\ number\ of\ workers\ on\ roll} \times 100 = \frac{3}{100} = \frac{S}{600}$ Or, S* = 18

(1 MARK)

(iii) Calculation of Equivalent employee turnover rates :

$= \frac{Employee\ Turnover\ rate\ for\ the\ quarter(s)}{Number\ of\ quarter(s)} \times 4\ quarters$

Using Flux method $= \frac{10\%}{1} \times 4$ = 40%

Using Replacement method = $\frac{5\%}{1} \times 4$ = 20%

Using Separation method = $\frac{3\%}{1} \times 4$ = 12%

(2 MARKS)