

(CA INTERMEDIATE MOCK TEST MAY 2021)

DATE: 11.04.2021

MAXIMUM MARKS: 100

TIMING: 3¼ Hours

PAPER : COSTING

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

Question No. 1 is compulsory.

Candidates are also required to answer any Four questions from the remaining Five Questions.

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

Wherever necessary, suitable assumptions may be made and disclosed by way of note.

Answer 1:**(a) Working Notes:**

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.	{1/2 M}
Less: Opening Stock of 'Dee'	1,000 kg.	
Annual demand for raw material 'Dee'	17,200 kg.	{1/2 M}

(i) Computation of Economic Order Quantity (EOQ):

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

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

(ii) Re- Order level:

= (Maximum consumption per day × Maximum lead time)

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

$$= \left\{ \left(\frac{18,200 \text{ kg.}}{364 \text{ days}} + 20 \text{ kg.} \right) \times 8 \text{ days} \right\} = 560 \text{ kg. } \{1/2 M\}$$

(iii) 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

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

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

Or, Min. consumption = 100 kg – 70 kg. = 30 kg.
(a) Re-order Quantity :
 EOQ – 200 kg. = 1,200 kg. – 200 kg. = 1,000 kg. **{1/2 M}**

(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. **{1/2 M}**

(c) Minimum Stock level:
 = Re-order level – (Average consumption per day × Average lead time)
 = 560 kg. – (50 kg. × 6 days) = 260 kg. **{1/2 M}**

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

		When purchasing the ROQ	When purchasing the EOQ
{1/4 M Each}	I Order quantity	1,000 kg.	1,200 kg.
	II No. of orders a year	$\frac{17,200\text{kg.}}{1,000\text{kg.}} = 17.2$ or 18 orders	$\frac{17,200\text{kg.}}{1,200\text{kg.}} = 14.33$ or 15 orders
	III Ordering Cost	18 orders × Rs. 720 = Rs. 12,960	15 orders × Rs. 720 = Rs. 10,800
{1/4 M Each}	IV Average Inventory	$\frac{1,000\text{kg.}}{2} = 500\text{kg.}$	$\frac{1,200\text{kg.}}{2} = 600\text{kg.}$
	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 **{1/2 M}**

Answer:

(b)

Budgeted Production 30,000 hours ÷ 6 hours per unit = 5,000 units **{1/2 M}**

Budgeted Fixed Overhead Rate = Rs. 45,00,000 ÷ 5,000 units = Rs. 900 per unit Or
 = Rs. 45,00,000 ÷ 30,000 hours = Rs. 150 per hour. **{1/2 M}**

(i) Material Cost Variance = (Std. Qty. × Std. Price) – (Actual Qty. × Actual Price)
 = (4,800 units × 10 kg. × Rs.100) - Rs. 52,50,000
 = Rs. 48,00,000 – Rs. 52,50,000
 = Rs. 4,50,000 (A) **{1 M}**

(ii) Labour Cost Variance = (Std. Hours × Std. Rate) – (Actual Hours × Actual rate)
 = (4,800 units × 6 hours × Rs. 55) – Rs. 15,50,000
 = Rs. 15,84,000 – Rs. 15,50,000
 = Rs. 34,000 (F) **{1 M}**

(iii) Fixed Overhead Cost Variance = (Budgeted Rate × Actual Qty) – Actual Overhead
 = (Rs. 900 × 4,800 units) – Rs.47,00,000
 = Rs. 3,80,000 (A) **{1 M}**

OR

= (Budgeted Rate × Std. Hours) – Actual Overhead
 = (Rs. 150 × 4,800 units × 6 hours) – Rs. 47,00,000
 = Rs. 3,80,000 (A)

(iv) Variable Overhead Cost Variance = (Std. Rate × Std. Hours) – Actual Overhead
 = (4,800 units × 6 hours × Rs. 100) - Rs. 29,30,000
 = Rs. 28,80,000 - Rs. 29,30,000 = Rs. 50,000 (A) **{1 M}**

Answer:
(c)

$$(i) \text{ Break-even sales} = \frac{\text{Fixed Cost}}{P/V \text{ Ratio}}$$

$$P/V \text{ Ratio} = \frac{\text{Change in Profit}}{\text{Change in Sales}} \times 100 \text{ or, } \frac{\text{Rs. } 37,50,000}{\text{Rs. } 7,80,60,000 - \text{Rs. } 5,93,10,000} \times 100$$

$$\text{Or, } \frac{\text{Rs. } 37,50,000}{\text{Rs. } 1,87,50,000} \times 100 \text{ or, } 20\%$$

$$\text{Break-even sales} = \frac{\text{Rs. } 98,50,000}{20\%} = \text{Rs. } 4,92,50,000 \quad \{1^{1/2} \text{ M}\}$$

$$(ii) \text{ Profit/ loss} = \text{Contribution} - \text{Fixed Cost} \\ = \text{Rs. } 8,20,00,000 \times 20\% - \text{Rs. } 98,50,000 \\ = \text{Rs. } 1,64,00,000 - \text{Rs. } 98,50,000 = \text{Rs. } 65,50,000 \quad \{1^{1/2} \text{ M}\}$$

(iii) To earn same amount of profit in 20X8-X9 as was in 20X7-X8, it has to earn the same amount of contribution as in 20X7-X8.

Sales – Variable cost = Contribution equal to 20X7-X8 contribution

$$\text{Contribution in 20X7-X8} = \text{Sales in 20X7-X8} \times P/V \text{ Ratio in 20X7-X8} \\ = \text{Rs. } 5,93,10,000 \times 20\% = \text{Rs. } 1,18,62,000$$

Let the number of units to be sold in 20X8-X9 = X

Sales in 20X8-X9 – Variable cost in 20X8-X9 = Desired Contribution

$$90 X - 80 X = \text{Rs. } 1,18,62,000$$

$$\text{Or, } 10 X = 1,18,62,000$$

$$\text{Or, } X = 11,86,200 \text{ units}$$

Therefore, Sales amount required to earn a profit equals to 20X7-X8 profit

$$= \text{Rs. } 90 \times 11,86,200 \text{ units} = \text{Rs. } 10,67,58,000 \quad \{2 \text{ M}\}$$

Answer:
(d)

$$(1) \text{ Contribution per unit} = \text{Selling price per unit} - \text{Variable cost per unit} \\ = \text{Rs. } 50 - \{ \text{Rs. } (16,00,000 + 4,00,000 + 8,00,000) \div 80,000 \text{ units} \} \\ = \text{Rs. } 50 - \text{Rs. } 35 = \text{Rs. } 15$$

$$(2) \text{ Profit - Volume (P/V) Ratio} = \frac{\text{Contribution per unit}}{\text{Selling price per unit}} \times \frac{100}{\text{Rs. } 50} = 15 \times 100 = 30\%$$

Calculations:

(i) The number of units to be sold for neither loss nor gain i.e. Break-even units:

$$= \frac{\text{Fixed Overheads}}{\text{Contribution per unit}} = \frac{\text{Rs. } 7,20,000}{\text{Rs. } 15} = 48,000 \text{ units} \quad \{1 \text{ M}\}$$

(ii) **The sales needed to earn a profit of 20% on sales:**

As we know

$$S = V + F + P$$

(S = Sales; V = Variable Cost; F = Fixed Cost; P = Profit)

Suppose Sales units are x then

$$\text{Rs. } 50 x = \text{Rs. } 35 x + \text{Rs. } 7,20,000 + \text{Rs. } 10 x$$

$$\text{Rs. } 50 x - \text{Rs. } 45 x = \text{Rs. } 7,20,000$$

$$\text{Or, } x = \frac{\text{Rs. } 7,20,000}{\text{Rs. } 5} = 1,44,000 \text{ units} \quad \{1 \text{ M}\}$$

Therefore, Sales needed = 1,44,000 units × Rs. 50 = Rs. 72,00,000 to earn a profit of 20% on sales.

(iii) Calculation of extra units to be sold to earn present profit of Rs. 4,80,000 under the following proposed selling price:

		When selling price is reduced by	
		20% (Rs.)	25% (Rs.)
(a)	Selling price per unit	40.00 (Rs. 50 × 80%)	37.50 (Rs. 50 × 75%)
	Less: Variable Cost per unit	35.00	35.00
	Contribution per unit Desired	5.00	2.50
	Contribution:		
	Fixed Overheads Desired Profit	7,20,000	7,20,000
		4,80,000	4,80,000
		12,00,000	12,00,000
	Sales unit for desired contribution	2,40,000 units	4,80,000 units
	$\frac{\text{Desired Contribution}}{\text{Contribution per unit}}$	$\frac{\text{Rs. 12,00,000}}{\text{Rs. 5}}$	$\frac{\text{Rs. 12,00,000}}{\text{Rs. 2.5}}$
	(b)	Units presently sold	80,000 units
(c)	Extra units to be sold {(a) – (b)}	1,60,000 units	4,00,000 units

(iv) Sales price to bring down BEP to 10,000 units:

$$\text{BEP (Units)} = \frac{\text{Fixed cost}}{\text{Contribution per unit}}$$

$$\text{Or Contribution per unit} = \frac{\text{Rs. 7,20,000}}{10,000 \text{ units}} = \text{Rs. 72}$$

$$\text{So, Sales Price (per unit)} = \text{Variable Cost} + \text{Contribution} = \text{Rs. 35} + \text{Rs. 72} = \text{Rs. 107}$$

Answer 2:

(a) Computation of Machine Hour Rate

(A)	Standing Charges	Basis of apportionment	Total (Rs.)	Machines		
				A (Rs.)	B (Rs.)	C (Rs.)
	Insurance	Depreciation Basis (3:3:2)	80,000	30,000	30,000	20,000
	Indirect Labour	Direct Labour (2:3:3)	2,40,000	60,000	90,000	90,000
	Building maintenance expenses	Floor Space (2:2:1)	2,00,000	80,000	80,000	40,000
	Rent and Rates	Floor Space (2:2:1)	2,40,000	96,000	96,000	48,000
	Salary of foreman	Equal	5,04,000	1,68,000	1,68,000	1,68,000
	Salary of attendant	Equal	1,44,000	48,000	48,000	48,000
	Total standing charges		14,08,000	4,82,000	5,12,000	4,14,000

{1/8 M Each}

	Hourly rate for standing charges		247.43	262.83	212.53	} {1/8 M Each}
(B) Machine Expenses:						
	Depreciation	Direct	2,00,000	75,000	50,000	
	Spare parts	Final estimates	1,32,250	46,000	28,750	
	Power	K.W. rating (3:2:3)	4,00,000	1,50,000	1,50,000	
	Consumable Stores	Direct	80,000	30,000	25,000	
	Total Machine expenses		8,12,250	3,01,000	2,53,750	} {1/4 M Each}
	Hourly Rate for Machine expenses			154.52	132.19	
Total (A + B)			22,20,250	7,83,000	6,67,750	
Machine Hour rate			401.95	395.02	342.79	

Working Notes:

(i) Calculation of effective working hours:

No. of full off-days = No. of Sunday + No. of holidays
 = 52 + 12 = 64 days
 No. of half working days = 52 days – 2 holidays = 50 days
 No. of full working days = 365 days – 64 days – 50 days = 251 days
 Total working Hours = {(251 days × 8 hours) + (50 days × 4 hours)}
 = 2,008 hours + 200 = 2,208 hours.
 Total effective hours = Total working hours × 90% - 2% for break-down
 = 2,208 hours × 90% - 2% (2,208 hours × 90%)
 = 1,987.2 hours – 39.74 hours
 = 1947.46 or Rounded up to 1948 hours. }{2M}

(ii) Amount of spare parts is calculated as under:

	A (Rs.)	B (Rs.)	C (Rs.)
Preliminary estimates	40,000	40,000	20,000
Add: Increase in price @ 15%	6,000	6,000	3,000
	46,000	46,000	23,000
Add: Increase in consumption @ 25%	–	11,500	5,750
Estimated cost	46,000	57,500	28,750

(iii) Amount of Indirect Labour is calculated as under:

	(Rs.)
Preliminary estimates	2,00,000
Add: Increase in wages @ 20%	40,000
	2,40,000

(iv) Interest on capital outlay is a finance cost, therefore it has been excluded from the cost accounts. }{1/4 M}

Answer:

(b) Calculation of Total Cost for the Job:

Particulars	Amount (Rs.)	Amount (Rs.)
Direct Material Cost:		
- 15mm GI Pipe (Working Note- 1)	11,051.28	
- 20mm GI Pipe (Working Note- 2)	2,588.28	
- Other fitting materials (Working Note- 3)	3,866.07	
- Stainless steel faucet	3,113.57	
15 Units x $\left(\frac{6 \times \text{Rs. } 204 + 15 \times \text{Rs. } 209}{21 \text{ units}} \right)$		
- Valve		
	2,472.75	23,091.95

6 Units x $\left(\frac{8 \times \text{Rs. } 404 + 10 \times \text{Rs. } 402 + 14 \times \text{Rs. } 424}{32 \text{ units}} \right)$		
Direct Labour:		
- Plumber [(180 hours × Rs.100) + (12 hours × Rs.50)]	18,600.00	
- Helper [(192 hours × Rs.70) + (24 hours × Rs.35)]	14,280.00	32,880.00
- Overheads [Rs.26 × (180 + 192) hours]		9,672.00
Total Cost		65,643.95

Price to be charged for the job work:

	Amount (Rs.)	
Total Cost incurred on the job	65,643.95	}{1/2 M}
Add: 25% Profit on Job Price $\left(\frac{65,643}{75\%} \times 25\% \right)$	21,881.32	}{1/2 M}
	87,525.27	}{1/2 M}

Working Note:

1. Cost of 15mm GI Pipe

Date		Amount (Rs.)
17-08-2020	8 units × Rs. 600	4,800.00
28-08-2020	10 Units $\left(\frac{4 \times \text{Rs. } 600 + 35 \times \text{Rs. } 628}{39 \text{ units}} \right)$	6,251.28
		11,051.28

2. Cost of 20mm GI Pipe

Date		Amount (Rs.)
12-08-2020	2 units × Rs. 660	1,320.00
28-08-2020	2 Units $\left(\frac{8 \times \text{Rs. } 660 + 30 \times \text{Rs. } 610 + 20 \times \text{Rs. } 660}{58 \text{ units}} \right)$	1,268.28
		2,588.28

(3) Cost of Other fitting materials

Date		Amount (Rs.)
12-08-2020	18 units × Rs. 26	468.00
17-08-2020	30 units × Rs. 26	780.00
28-08-2020	34 units $\left(\frac{12 \times \text{Rs. } 26 + 150 \times \text{Rs. } 28}{162 \text{ units}} \right)$	946.96
30-08-2020	60 units $\left(\frac{12 \times \text{Rs. } 26 + 150 \times \text{Rs. } 28}{162 \text{ units}} \right)$	1,671.11
		3,866.07

Answer 3:

(a) (i)

Process-I A/c					
Particulars	Units	Amt.(Rs.)	Particulars	Units	Amt.(Rs.)
To Materials	7,000	1,40,000	By Normal loss (5% of 7,000)	350	3,500
To Other materials	-	62,000	By Process-II*	6,600	3,35,955
To Direct wages	-	42,000	By Abnormal loss*	50	2,545

To Direct expenses	-	14,000			
To Production OH (200% of Rs.42,000)	-	84,000			
	7,000	3,42,000		7,000	3,42,000

$$\frac{(\text{Rs. } 3,42,000 - 3,500)}{(7,000 - 350) \text{ units}} = \text{Rs. } 50.9022 \text{ \{1/4 M\}}$$

Process-II A/c

Particulars	Units	Amt.(Rs.)	Particulars	Units	Amt.(Rs.)
To Process-I A/c	6,600	3,35,955	By Normal loss (10% of 6,600)	660	6,600
To Other materials	-	1,36,000	By Process-III**	5,200	5,63,206
To Direct wages	-	54,000	By Abnormal loss**	740	80,149
To Direct expenses	-	16,000			
To Production OH (200% of Rs.54,000)	-	1,08,000			
	6,600	6,49,955		6,600	6,49,955

$$\frac{(\text{Rs. } 6,49,955 - 6,600)}{(6,600 - 660) \text{ units}} = \text{Rs. } 108.3089 \text{ \{1/8 M\}}$$

Process-III A/c

Particulars	Units	Amt.(Rs.)	Particulars	Units	Amt.(Rs.)
To Process-I A/c	5,200	5,63,206	By Normal loss (5% of 5,200)	260	2,600
To Other materials	-	84,200	By Product-X***	4,800	8,64,670
To Direct wages	-	48,000			
To Direct expenses	-	14,000	By Product-Z# (Rs.35×600)	600	21,000
To Production OH (200% of Rs.48,000)	-	96,000			
To Abnormal gain***	460	82,864			
	5,660	8,88,270		5,660	8,88,270

$$\frac{(\text{Rs. } 8,05,406 - 2,600 - 21,000)}{(5,200 - 260 - 600) \text{ unit}} = \text{Rs. } 180.1396 \text{ \{1/8 M\}}$$

Realisable value = Rs. 135 – (85+15) = Rs. 35

Answer:

(b) (i) Statement of Profit as per Financial records (for the year ended March 31, 20X8)

	(Rs.)		(Rs.)
To Opening stock of Finished Goods	53,125	By Sales	22,80,000
To Work-in-process	46,000	By Closing stock of finished Goods	45,650

To Raw materials consumed	8,40,000	By Work-in-Process	41,200
To Direct labour	6,10,000	By Rent received	46,000
To Factory overheads	4,22,000	By Interest received	38,000
To Administration overheads	1,98,000		
To Selling & distribution overheads	72,000		
To Dividend paid	1,22,000		
To Bad debts	18,000		
To Profit	69,725		
	24,50,850		24,50,850

Statement of Profit as per Costing records
(for the year ended March 31,20X8)

	(Rs.)
Sales revenue (A) (12,615 units)	22,80,000
Cost of sales:	
Opening stock (625 units × Rs. 120)	75,000
Add: Cost of production of 12,405 units (Refer to working note 2)	21,63,350
Less: Closing stock (Rs.174.39 × 415 units)	(72,372)
Cost of goods sold (12,615 units)	21,65,978
Selling & distribution overheads (12,615 units × Rs. 3)	37,845
Cost of sales: (B)	22,03,823
Profit: {(A) – (B)}	76,177

{1/4 M Each}

(ii) Statement of Reconciliation

(Reconciling the profit as per costing records with the profit as per financial records)

	(Rs.)	(Rs.)
Profit as per Cost Accounts		76,177
Add: Administration overheads over absorbed (Rs. 2,81,550 – Rs. 1,98,000)	83,550	
Opening stock overvalued (Rs. 75,000 – Rs. 53,125)	21,875	
Interest received	38,000	
Rent received	46,000	
Factory overheads over recovered (Rs. 4,27,000 – Rs. 4,22,000)	5,000	1,94,425
		2,70,602
Less: Selling & distribution overheads under recovery (Rs. 72,000 – Rs. 37,845)	34,155	
Closing stock overvalued (Rs. 72,372 – Rs. 45,650)	26,722	
Dividend	1,22,000	
Bad debts	18,000	(2,00,877)
Profit as per financial accounts		69,725

{1/4 M Each}

Working notes:

1. Number of units produced

	Units
Sales	12,615
Add: Closing stock	415
Total	13,030
Less: Opening stock	(625)
Number of units produced	12,405

2. Cost Sheet

	(Rs.)
Raw materials consumed	8,40,000
Direct labour	6,10,000
Prime cost	14,50,000
Factory overheads (70% of direct wages)	4,27,000
Factory cost	18,77,000
Add: Opening work-in-process	46,000
Less: Closing work-in-process	41,200
Factory cost of goods produced	18,81,800
Administration overheads (15% of factory cost)	2,81,550
Cost of production of 12,405 units (Refer to working note 1)	21,63,350

{1/8 M Each}

Cost of production per unit:

$$= \frac{\text{Total cost of Production}}{\text{No. of units produced}} = \frac{\text{Rs. } 21,63,350}{12,405 \text{ units}} = \text{Rs. } 174.39 \quad \{1/4 \text{ M}\}$$

Answer 4:

(a) (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 (Rs.)	Fresh Produce (Rs.)	Packaged Foods (Rs.)	Total (Rs.)
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% of COGS): (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: (E/A) × 100	1.70%	7.17%	3.30%	4.97%

{1/8 M Each}

Working notes:

1. Total support cost:

	(Rs.)
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

{1/8 M Each}

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

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

$$= \frac{\text{Rs. } 45,00,000}{\text{Rs. } 1,50,00,000} \times 100 = 30\% \quad \{1/4 \text{ M}\}$$

3. Cost for each activity cost driver:

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

{1/4 M Each}

(ii) 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 (Rs.)	Fresh Produce (Rs.)	Packaged Food (Rs.)	Total (Rs.)
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* (300:2190:660)	1,20,000	8,76,000	2,64,000	12,60,000
Shelf stocking cost* (540:5400:2700)	54,000	5,40,000	2,70,000	8,64,000
Customer Support cost* (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	10.78%	0.60%	8.75%	4.97%

{1/8 M Each}

* Refer to working note 3

Answer:

(b)

Material Variances:

Material	SQ (WN-1)	SP (Rs.)	SQ × SP (Rs.)	RSQ (WN-2)	RSQ × SP (Rs.)	AQ	AQ × SP (Rs.)	AP (Rs.)	AQ × AP (Rs.)
A	940 kg.	45.00	42,300	886 kg.	39,870	900 kg.	40,500	43.00	38,700
B	705 kg.	30.00	21,150	664 kg.	19,920	650 kg.	19,500	32.50	21,125
	1645 kg.		63,450	1550 kg.	59,790	1550 kg.	60,000		59,825

{1 M}

WN-1: Standard Quantity (SQ):

Material A- $\left(\frac{800 \text{ kg.}}{0.9 \times 1,400 \text{ kg.}} \times 1,480 \text{ kg.} \right) = 939.68 \text{ or } 940 \text{ kg. } \{1/8 \text{ M}\}$

Material B- $\left(\frac{600 \text{ kg.}}{0.9 \times 1,400 \text{ kg.}} \times 1,480 \text{ kg.} \right) = 704.76 \text{ or } 705 \text{ kg. } \{1/8 \text{ M}\}$

WN- 2: Revised Standard Quantity (RSQ):

Material A- $\left(\frac{800 \text{ kg.}}{1,400 \text{ kg.}} \times 1,550 \text{ kg.} \right) = 885.71 \text{ or } 886 \text{ kg. } \{1/8 \text{ M}\}$

Material B- $\left(\frac{600 \text{ kg.}}{1,400 \text{ kg.}} \times 1,550 \text{ kg.} \right) = 664.28 \text{ or } 664 \text{ kg. } \{1/8 \text{ M}\}$

- | | | |
|-------------------------------------|--|--------------|
| (a) Material Cost Variance (A + B) | $= \{(SQ \times SP) - (AQ \times AP)\}$ | } {1 M Each} |
| | $= \{63,450 - 59,825\} = 3,625 (F)$ | |
| (b) Material Price Variance (A + B) | $= \{(AQ \times SP) - (AQ \times AP)\}$ | |
| | $= \{60,000 - 59,825\} = 175 (F)$ | |
| (c) Material Mix Variance (A + B) | $= \{(RSQ \times SP) - (AQ \times SP)\}$ | |
| | $= \{59,790 - 60,000\} = 210 (A)$ | |
| (d) Material Yield Variance (A + B) | $= \{(SQ \times SP) - (RSQ \times SP)\}$ | |
| | $= \{63,450 - 59,790\} = 3,660 (F)$ | |

Labour Variances:

Labour	SH (WN-3)	SR (Rs.)	SH × SR (Rs.)	RSH (WN-4)	RSH × SR (Rs.)	AH	AH × SR (Rs.)	AR (Rs.)	AH × AR (Rs.)
Skilled	1,116 hrs	37.50	41,850	1144	42,900	1,200	45,000	35.50	42,600
Unskilled	893 hrs	22.00	19,646	916	20,152	860	18,920	23.00	19,780
	2,009 hrs		61,496	2,060	63,052	2,060	63,920		62,380

WN- 3: Standard Hours (SH):

Skilled labour- $\left(\frac{0.95 \times 1,000 \text{ hr.}}{0.90 \times 1,400 \text{ kg.}} \times 1,480 \text{ kg.} \right) = 1,115.87$ or 1,116 hrs. {1/8 M}

Unskilled labour- $\left(\frac{0.95 \times 800 \text{ hr.}}{0.90 \times 1,400 \text{ kg.}} \times 1,480 \text{ kg.} \right) = 892.69$ or 893 hrs. {1/8 M}

WN- 4: Revised Standard Hours (RSH):

Skilled labour- $\left(\frac{1,000 \text{ hr.}}{1,800 \text{ hr.}} \times 2,060 \text{ hr.} \right) = 1,144.44$ or 1,144 hrs. {1/8 M}

Unskilled labour- $\left(\frac{800 \text{ hr.}}{1,800 \text{ hr.}} \times 2,060 \text{ hr.} \right) = 915.56$ or 916 hrs. {1/8 M}

- | | | |
|--|--|---------|
| (e) Labour Cost Variance (Skilled + Unskilled) | $= \{(SH \times SR) - (AH \times AR)\}$ | } {1 M} |
| | $= \{61,496 - 62,380\} = 884 (A)$ | |
| (f) Labour Efficiency Variance (Skilled + Unskilled) | $= \{(SH \times SR) - (AH \times SR)\}$ | } {1 M} |
| | $= \{61,496 - 63,920\} = 2,424 (A)$ | |
| (g) Labour Yield Variance (Skilled + Unskilled) | $= \{(SH \times SR) - (RSH \times SR)\}$ | } {1 M} |
| | $= \{61,496 - 63,052\} = 1,556 (A)$ | |

Answer 5:

(a) Calculation of Cost per annum

Particulars	Arts (Rs.)	Commerce (Rs.)	Science (Rs.)	Total (Rs.)
Teachers' salary (W.N-1)	16,80,000	21,00,000	25,20,000	63,00,000
R-apportionment of Economics & Mathematics teachers' salary (W.N- 2)	(84,000)	1,45,091	(61,091)	-
Principal's salary (W.N-3)	1,24,800	1,87,200	2,88,000	6,00,000
Lab assistants' salary (W.N-4)	-	-	1,72,800	1,72,800
Salary to library staff (W.N-5)	43,200	28,800	57,600	1,29,600
Salary to peons (W.N-6)	31,636	94,909	47,455	1,74,000
Salary to other staffs (W.N-7)	38,400	1,15,200	57,600	2,11,200

Examination expenses (W.N- 8)	86,400	2,59,200	1,29,600	4,75,200
Office & Administration expenses (W.N- 7)	1,21,600	3,64,800	1,82,400	6,68,800
Annual Day expenses (W.N-7)	36,000	1,08,000	54,000	1,98,000
Sports expenses (W.N- 7)	9,600	28,800	14,400	52,800
Total Cost per annum	20,87,636	34,32,000	34,62,764	89,82,400

(i) Calculation of cost per student per annum

Particulars	Arts (Rs.)	Commerce (Rs.)	Science (Rs.)	Total (Rs.)
Total Cost per annum	20,87,636	34,32,000	34,62,764	89,82,400
No. of students	120	360	180	660
Cost per student per annum	17,397	9,533	19,238	13,610

(ii) Calculation of profitability

Particulars	Arts (Rs.)	Commerce (Rs.)	Science (Rs.)	Total (Rs.)
Total Fees per annum	12,000	12,000	12,000	
Cost per student per annum	17,397	9,533	19,238	
Profit/ (Loss) per student per annum	(5,397)	2,467	(7,238)	
No. of students	120	360	180	
Total Profit/ (Loss)	(6,47,640)	8,88,120	(13,02,840)	(10,62,360)

(iii) Computation of fees to be charged to earn a 10% profit on cost

Particulars	Arts (Rs.)	Commerce (Rs.)	Science (Rs.)
Cost per student per annum	17,397	9,533	19,238
Add: Profit @10%	1,740	953	1,924
Fees per annum	19,137	10,486	21,162
Fees per month	1,595	874	1,764

Working Notes:

(1) Teachers' salary

Particulars	Arts	Commerce	Science
No. of teachers	4	5	6
Salary per annum (Rs.)	4,20,000	4,20,000	4,20,000
Total salary	16,80,000	21,00,000	25,20,000

(2) Re-apportionment of Economics and Mathematics teachers' salary

Particulars	Economics		Mathematics	
	Arts	Commerce	Science	Commerce
No. of classes	832	208	940	160
Salary re-apportionment (Rs.)	(84,000)	84,000	(61,091)	61,091
	$\left(\frac{\text{Rs. } 4,20,000}{1,040} \times 208 \right)$		$\left(\frac{\text{Rs. } 4,20,000}{1,100} \times 160 \right)$	

(3) Principal's salary has been apportioned on the basis of time spent by him for administration of classes.

(4) Lab attendants' salary has been apportioned on the basis of lab classes attended by the students.

(5) Salary of library staffs are apportioned on the basis of time spent by the students in library.

(6) Salary of Peons are apportioned on the basis of number of students. The peons' salary allocable to higher secondary classes is calculated as below:

	Amount (Rs.)
Peon dedicated for higher secondary (1 peon × Rs. 10,000 × 12 months)	1,20,000
Add: 15% of other peons' salary {15% of (3 peons × Rs. 10,000 × 12 months)}	54,000
	1,74,000

} 1/8 M

- (7) Salary to other staffs, office & administration cost, Annual day expenses and sports expenses are apportioned on the basis of number of students.
- (8) Examination Expenses has been apportion taking number of students and number examinations into account.

Answer:

(b)

Cost Sheet
(for the quarter ending 30 September 2018)

	Amount (Rs.)
(i) Raw materials consumed	
Opening stock of raw materials	2,45,600
Add: Purchase of materials	12,22,650*
Less: Closing stock of raw materials	(2,08,000)
Raw materials consumed	12,60,250
Add: Direct wages (1,47,000×175%)	2,57,250
Direct Expenses	1,80,000
(ii) Prime cost	16,97,500
Add: Factory overheads (2,57,250/175%)	1,47,000
Gross Factory cost	18,44,500
Add: Opening work-in-process	1,70,800
Less: Closing work-in-process	(1,90,000)
(iii) Factory cost	18,25,300
Add: Administration overheads (10% of factory overheads)	14,700
Add: Opening stock of finished goods	3,10,000
Less: Closing stock of finished goods	(2,75,000)
(iv) Cost of goods sold	18,75,000
Add: Selling & distribution overheads	60,000
Cost of sales	19,35,000
(v) Net Profit	2,75,000
Sales	22,10,000

} 1/2 Each

* $(18,75,000 + 2,75,000 - 3,10,000 - (1,47,000 \times 10\%) + 1,90,000 - 1,70,800 - (2,57,250 \times 100/175\%) - 1,80,000 - 2,57,250 + 2,08,000 - 2,45,600) = 12,22,650$

Working notes

Purchase of raw materials = Raw material consumed + Closing stock - opening stock of raw material

Raw material consumed = Prime cost - Direct wages - Direct expenses

Factory Overheads = $2,57,250 \times 100/175$

Prime cost = Factory cost + Closing WIP – Opening WIP – Factory overheads

Factory Cost = Cost of Production goods sold + Closing stock of Finished goods – Opening stock of finished goods – Administrative overheads

Net Profit = Sales - Cost of sales

OR

Alternative solution

Cost Sheet
(for the quarter ending 30 September 2018)

	Amount (Rs.)
(i) Raw materials consumed	
Opening stock of raw materials	2,45,600
Add: Purchase of materials	12,37,350*
Less: Closing stock of raw materials	(2,08,000)
Raw Material consumed	12,74,950
Add: Direct wages (1,47,000×175%)	2,57,250
Direct Expenses	1,80,000
(ii) Prime cost	17,12,200
Add: Factory overheads (2,57,250/175%)	1,47,000
Gross Factory cost	18,59,200
Add: Opening work-in-process	1,70,800
Less: Closing work-in-process	(1,90,000)
(iii) Factory cost/works cost/cost of production	18,40,000
Add: Opening stock of finished goods	3,10,000
Less: Closing stock of finished goods	(2,75,000)
(iv) Cost of goods sold	18,75,000
Add: Administration overheads (10% of factory overheads)	14,700
Add: Selling & distribution overheads	60,000
Cost of sales	19,49,700
(v) Net Profit	2,60,300
Sales	22,10,000

1/2 Each

* $(18,75,000 + 2,75,000 - 3,10,000 + 1,90,000 - 1,70,800 - 1,47,500 - 1,80,000 - 2,57,250 + 2,08,000 - 2,45,600) = 12,37,350$.

Working notes

- Purchase of raw materials = Raw material consumed + Closing stock - opening stock of raw material
- Raw material consumed = Prime cost - Direct wages - Direct expenses
- Factory Overheads = $257250 \times 100 / 175$
- Prime cost = Factory cost + Closing WIP – Opening WIP – Factory overheads
- Factory Cost = Cost of Production goods sold + Closing stock of Finished goods – Opening stock of finished goods
- Net Profit = Sales - Cost of sales

Answer 6:

(a) **Difference between Cost Control and Cost Reduction**

Cost Control	Cost Reduction
1. Cost control aims at maintaining the costs in accordance with the established standards.	1. Cost reduction is concerned with reducing costs. It challenges all standards and endeavours to better them continuously
2. Cost control seeks to attain lowest possible cost under existing conditions.	2. Cost reduction recognises no condition as permanent, since a change will result in lower cost.
3. In case of cost control, emphasis is on past and present	3. In case of cost reduction, it is on present and future.
4. Cost control is a preventive function	4. Cost reduction is a corrective function. It operates even when an efficient cost control system exists.
5. Cost control ends when targets are achieved.	5. Cost reduction has no visible end.

1 M Each

Answer:

- (b) **Accounting treatment of idle time wages & overtime wages in cost accounts:** Normal idle time is treated as a part of the cost of production. Thus, in the case of direct workers, an allowance for normal idle time is built into the labour cost rates. In the case of indirect workers, normal idle time is spread over all the products or jobs through the process of absorption of factory overheads. } 1 M
- Under Cost Accounting, the overtime premium is treated as follows:**
- If overtime is resorted to at the desire of the customer, then the overtime premium may be charged to the job directly.
 - If overtime is required to cope with general production program or for meeting urgent orders, the overtime premium should be treated as overhead cost of particular department or cost center which works overtime.
 - Overtime worked on account of abnormal conditions should be charged to costing Profit & Loss Account.
 - If overtime is worked in a department due to the fault of another department the overtime premium should be charged to the latter department.
- } 1 M Each

Answer:

- (c) **Cost classification based on variability**
- (a) **Fixed Costs** – These are the costs which are incurred for a period, and which, within certain output and turnover limits, tend to be unaffected by fluctuations in the levels of activity (output or turnover). They do not tend to increase or decrease with the changes in output. For example, rent, insurance of factory building etc., remain the same for different levels of production.
- (b) **Variable Costs** – These costs tend to vary with the volume of activity. Any increase in the activity results in an increase in the variable cost and vice-versa. For example, cost of direct labour, etc.
- (c) **Semi-variable Costs** – These costs contain both fixed and variable components and are thus partly affected by fluctuations in the level of activity. Examples of semi variable costs are telephone bills, gas and electricity etc.
- Cost classification based on controllability**
- (a) **Controllable Costs** - Cost that can be controlled, typically by a cost, profit or investment centre manager is called controllable cost. Controllable costs incurred in a particular responsibility centre can be influenced by the action of the executive heading that responsibility centre. For example, direct costs comprising direct labour, direct material, direct expenses and some of the overheads are generally controllable by the shop level management.
- (b) **Uncontrollable Costs** - Costs which cannot be influenced by the action of a specified member of an undertaking are known as uncontrollable costs. For example, expenditure incurred by, say, the tool room is controllable by the foreman in-charge of that section but the share of the tool-room expenditure which is apportioned to a machine shop is not to be controlled by the machine shop foreman.
- } 1 M Each

Answer:

- (d) (i) **Conversion cost:** It is the cost incurred to convert raw materials into finished goods. It is the sum of direct wages, direct expenses and manufacturing overheads. } 1 M
- (ii) **Sunk cost:** Historical costs or the costs incurred in the past are known as sunk cost. They play no role in the current decision making process and are termed as irrelevant costs. For example, in the case of a decision relating to the } 2 M

replacement of a machine, the written down value of the existing machine is a }
sunk cost, and therefore, not considered.

- (iii) **Opportunity cost:** It refers to the value of sacrifice made or benefit of }
opportunity foregone in accepting an alternative course of action. For example, }
a firm financing its expansion plan by withdrawing money from its bank deposits. } 2 M
In such a case the loss of interest on the bank deposit is the opportunity cost for }
carrying out the expansion plan.

— ** —

Mittal Commerce Classes