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**IPCC MAY 2017 EXAM**

**COSTING**

**Test Code - I M J 7 1 4 4**

**BRANCH - (MULTIPLE) (Date : 19.02.2017)**

**Head Office : Shraddha, 3<sup>rd</sup> Floor, Near Chinai College, Andheri (E), Mumbai – 69.**

**Tel : (022) 26836666**

Answer-1-a :

(a) (i)

**EPS Public School**  
**Statement showing the expenses of operating a single bus and**  
**the fleet of 25 buses for a year**

Particulars	Per bus per annum(Rs.)	Fleet of 25buses per annum(Rs.)
Running costs : (A)		
Diesel (Refer to working note 1)	<u>56,832</u>	<u>14,20,800</u>
Repairs & maintenance costs: (B)	<u>16,400</u>	<u>4,10,000</u>
Fixed charges:		
Driver's salary (Rs. 5,000 × 12 months)	60,000	15,00,000
Cleaners salary (Rs.3,000 × 1/5th × 12 months)	7,200	1,80,000
Licence fee, taxes etc.	2,300	57,500
Insurance	15,600	3,90,000
Depreciation	<u>93,750</u>	<u>23,43,750</u>
Total fixed charges: (C)	<u>1,78,850</u>	<u>44,71,250</u>
Total expenses: (A+B+C)	2,52,082	63,02,050

(4 Marks)

**(ii) Average cost per student per month in respect of students coming from a distance of:**

(a) 4 km. from the school {Rs. 2,52,082 / (354 students × 12 months)}{Refer to Working Note 2}	Rs. 59.34
(b) 8 km. from the school (Rs. 59.34 × 2)	Rs. 118.68
(c) 16 km. from the school (Rs. 59.34 × 4)	Rs. 237.36

**Working Notes:**

**1. Calculation of diesel cost per bus:**

No. of trips made by a bus each day	4
Distance travelled in one trip both ways (16 km. × 2 trips)	32 km.
Distance traveled per day by a bus (32 km. × 4 shifts)	128 km.
Distance traveled during a month (128 km. × 24 days)	3,072 km.
Distance traveled per year (3,072 km. × 10 months)	30,720 km.
No. of litres of diesel required per bus per year(30,720 km. ÷ 10 km.)	3,072 litres
Cost of diesel per bus per year (3,072 litres × Rs. 18.50)	Rs. 56,832

**2. Calculation of number of students per bus:**

Bus capacity of 2 trips (60 students × 2 trips)	120 students
1/4th fare students (15% × 120 students)	18 students
½ fare 30% students (equivalent to 1/4th fare students)	72 students
Full fare 55% students (equivalent to 1/4th fare students)	264 students
Total 1/4th fare students	354 students

(4 Marks)

Answer-1-b :

**Contract Account**

Particulars	Amount Rs.	Amount Rs.	Particulars	Amount Rs.	Amount Rs.
To Materials		25,26,000	By material at site		50,000
To Direct wages	13,28,000		By Work in progress:		
Add: outstanding	<u>2,24,000</u>	15,52,000	- Work certified	1,00,00,000	

To Site expenses	9,60,000	- Work uncertified	<u>12,00,000</u>	1,12,00,000
To Office expenses	6,26,000			
To Postage and Stationery	29,600			
To Rates and taxes	25,600			
Less: Advance	<u>(1,400)</u>	24,200		
To Fuel and power	8,46,000			
To Depreciation*	9,80,300			
To Notional profit c/d	37,05,900			
	<b>1,12,50,000</b>			<b>1,12,50,000</b>

\* Depreciation

(5 Marks)

- (i) On Machinery = {10% on (Rs.36,00,000 × 0.8)} = Rs.2,88,000  
(ii) On Vehicles = 20% on Rs.32,20,000 = Rs.6,44,000  
(iii) On Furniture = 15% on Rs.3,22,000 = Rs.48,300  
= Rs.9,80,300

(1 Mark)

Answer-2-a :

(a) Flexible Budget before marketing efforts:

	Product A (Rs.)		Product B (Rs.)	
	6,000 units		9,000 units	
	Per unit	Total	Per unit	Total
Sales	120.00	7,20,000	78.00	7,02,000
Raw material cost	60.00	3,60,000	42.00	3,78,000
Direct labour cost per unit	30.00	1,80,000	18.00	1,62,000
Variable overhead per unit	12.00	72,000	6.00	54,000
Fixed overhead per unit	8.00	48,000	4.00	36,000
<b>Total cost</b>	<b>110.00</b>	<b>6,60,000</b>	<b>70.00</b>	<b>6,30,000</b>
<b>Profit</b>	<b>10.00</b>	<b>60,000</b>	<b>8.00</b>	<b>72,000</b>

(3 Marks)

(b) Flexible Budget after marketing efforts:

	Product A (Rs.)		Product B (Rs.)	
	7,500 units		9,500 units	
	Per unit	Total	Per unit	Total
Sales	120.00	9,00,000	78.00	7,41,000
Raw material cost	60.00	4,50,000	42.00	3,99,000
Direct labour cost per unit	30.00	2,25,000	18.00	1,71,000
Variable overhead per unit	13.20	99,000	6.60	62,700
Fixed overhead per unit	6.72	50,400	3.98	37,800
<b>Total cost</b>	<b>109.92</b>	<b>8,24,400</b>	<b>70.58</b>	<b>6,70,500</b>
<b>Profit</b>	<b>10.08</b>	<b>75,600</b>	<b>7.42</b>	<b>70,500</b>

(3 Marks)

Answer-2-b :

**Statement of Equivalent Units (Process- I)**

Input (Units)	Particulars	Output (Units)	Equivalent Production			
			Materials		Labour and Overheads	
			Units	(%)	Units	(%)
40,000	Introduced and completed	36,000	36,000	100	36,000	100
	Normal loss	2,000	-	-	-	-
	Closing stock	2,000	2,000	100	1,000	50
40,000		40,000	38,000		37,000	

(2 Marks)

**Computation of cost per Equivalent Unit for each element of cost (Process- I)**

Elements of Cost	Total Cost (₹)	Equivalent units	Cost per Equivalent units (₹)
Direct Materials	6,00,000	38,000	15.7895
Labour	1,20,000	37,000	3.2432
Factory Overheads	2,40,000	37,000	6.4865

(1 Mark)

**Statement of Apportionment of Cost**

Items	Elements	Equivalent units	Cost per unit (₹)	Cost (₹)	Total (₹)
Units introduced and completed	Materials	36,000	15.7895	5,68,422.00	
	Labour	36,000	3.2432	1,16,755.20	
	Overheads	36,000	6.4865	2,33,514.00	9,18,691.20

Closing stock	Materials	2,000	15.7895	31,579.00	
	Labour	1,000	3.2432	3,243.20	
	Overheads	1,000	6.4865	6,486.50	41,308.70

(1 Mark)

**Process- I Account**

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Materials	40,000	6,00,000	By Normal loss	2,000	-
To Labour		1,20,000	By Process II	36,000	9,18,691
To Overheads		2,40,000	By Closing stock	2,000	41,309
	40,000	9,60,000		40,000	9,60,000

(1 Mark)

**Statement of Equivalent Units (Process- II)**

Input (Units)	Particulars	Output (Units)	Equivalent Production			
			Materials		Labour and Overheads	
			Units	(%)	Units	(%)
36,000	Units transferred from Process- I					
	Normal loss	1,500	-	-	-	-
	Completed	32,000	32,000	100	32,000	100
	Closing stock (balancing figure)	2,500	2,500	100	1,250	50
36,000		36,000	34,500		33,250	

(2 Marks)

**Computation of cost per Equivalent Unit for each element of cost (Process- I)**

Elements of Cost	Total Cost (₹)	Equivalent units	Cost per Equivalent units (₹)
Cost of 36,000 units transferred from Process- I	9,18,691	34,500	26.6287
Labour	1,60,000	33,250	4.8120
Factory Overheads	2,00,000	33,250	6.0150

(1 Mark)

**Statement of Apportionment of Cost**

Items	Elements	Equivalent units	Cost per unit (₹)	Cost (₹)	Total (₹)
Units introduced and completed	Materials	32,000	26.6287	8,52,118.40	
	Labour	32,000	4.8120	1,53,984.00	
	Overheads	32,000	6.0150	1,92,480.00	11,98,582.40
Closing stock	Materials	2,500	26.6287	66,571.75	
	Labour	1,250	4.8120	6,015.00	
	Overheads	1,250	6.0150	7,518.75	80,105.50

(1 Mark)

**Process- II Account**

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Units introduced	36,000	9,18,691	By Normal loss	1,500	-
To Labour		1,60,000	By Finished stock	32,000	11,98,582
To Overheads		2,00,000	By Closing stock	2,500	80,109*
	36,000	12,78,691		36,000	12,78,691

\*Difference arose due to rounding-off has been adjusted.

(1 Mark)

Answer-3-a :

(i) Statement showing the apportionment of joint costs to joint products

	Products			Total
	A	B	C	
Output sold Kg.: (I)	44,000	40,000	20,000	
Selling price per kg. at split off (₹): (II)	20	22	10	
Sales value at split off (₹): (I) x (II)	8,80,000	8,80,000	2,00,000	19,60,000
Joint costs (costs incurred in department P (₹) (apportioned on the basis of sales value at the point of split off) i.e. (22:22:5) (Working Note 1)	8,80,000	8,80,000	2,00,000	19,60,000

(2 Marks)

(ii) Statement showing product-wise and total profit for the month under reference  
(as per the company's current processing policy)

	Products			Total
	A	B	C	
Output (kg.) : (a)	44,000	40,000	20,000	
Selling price per kg. after further processing (₹): (b)	32	24	16	
Sales value after further processing (₹): (c) = {(a) x (b)}	14,08,000	9,60,000	3,20,000	26,88,000
Joint costs (₹): (d)	8,80,000	8,80,000	2,00,000	19,60,000
Further processing costs (₹): (e) (Working Note 2)	1,72,800	1,15,200	64,800	3,52,800
Total costs (₹): (f) = [(d) + (e)]	10,52,800	9,95,200	2,64,800	23,12,800
Profit/ (Loss) (₹): [(c)– (f)]	3,55,200	(35,200)	55,200	3,75,200

(2 Marks)

Alternatively:

Incremental sales revenue (₹)	5,28,000 (44,000 units x ₹ 12)	80,000 (40,000 units x ₹ 2)	1,20,000 (20,000 units x ₹ 6)
Less: Further processing costs (₹) [Refer to Working Note 2 (ii)]	1,72,800	1,15,200	64,800
Incremental net profit / (loss)	3,55,200	(35,200)	55,200

(iii) Processing decision to improve the profitability of the company.

44,000 units of product A and 20,000 units of product C should be further processed because the incremental sales revenue generated after further processing is more than the further processing costs incurred. 40,000 units of product B should be sold at the point of-split off because the incremental revenue generated after further processing is less than the further processing costs.

(iv) The product wise and total profit arising from the recommendation in (iii) above is as follows:

Product	A	B	C	Total
Profit (Rs.)	3,55,200	-	55,200	4,10,400

**Working Notes:**

1.

**Statement of department-wise costs**

	P	Q	R	S
	(₹)	(₹)	(₹)	(₹)
Raw materials	12,68,800			
Wages	3,84,000	96,000	64,000	36,000
Overheads (Apportioned on the basis of departmental direct wages i.e. 96:24:16:9)	3,07,200	76,800	51,200	28,800
<b>Total Cost</b>	<b>19,60,000</b>	<b>1,72,800</b>	<b>1,15,200</b>	<b>64,800</b>

2. **Joint costs and further processing costs**

- (i) Costs incurred in the department P are joint costs of products A, B and C and are equal to Rs.19,60,000.
- (ii) Costs incurred in the departments Q, R and S are further processing costs of products A, B and C respectively. Further processing costs of products A, B and C thus are Rs. 1,72,800; Rs. 1,15,200 and Rs. 64,800 respectively.

**(2 Marks)****Answer-3-b :**1. **Computation of Overall PVR and BES**

Product	A		B		C		Total Rs.
	%	Rs.	%	Rs.	%	Rs.	
Sales	100%	2,00,000	100%	5,00,000	100%	3,00,000	10,00,000
Less : Variable costs : COGS	55%	1,10,000	56%	2,80,000	45%	1,35,000	5,25,000
SOH	10%	20,000	18%	90,000	15%	45,000	1,55,000
Contribution	35%	70,000	26%	1,30,000	40%	1,20,000	3,20,000
Less : Fixed Costs : OH		30,000		75,000		45,000	1,50,000
Administration OH		12,000		30,000		18,000	60,000
<b>Profit</b>		<b>28,000</b>		<b>25,000</b>		<b>57,000</b>	<b>1,10,000</b>
Overall PVR	$= \frac{\text{Total Contribution}}{\text{Total Sales Value}} \times 100 = \frac{\text{Rs.3,20,000}}{\text{Rs.10,00,000}} = 32\%$						
Overall BES	$= \frac{\text{Total Fixed Costs}}{\text{Overall PV Ratio}} = \frac{\text{Rs.2,10,000}}{32\%} = 6,56,250$						

**(2 Marks)****Note :**

- (a) Variable Costs percentages are calculated, based on the amounts given in the question.
- (b) Technically, Fixed Costs are not product-related, and should not be apportioned to products. However, for calculating product-wise profits, Fixed Costs are apportioned as per Company's policy.

**2. Revised Income Statement.**

(if half of the Budgeted Sales Value of Product B were shifted to Products A and C in equal Rupee Amount)

Product	A	B	C	Total
(a) Revised Budgeted Sales	(2,00,000 + 1,25,000) = 3,25,000	(5,00,000 – 50%) = 2,50,000	(3,00,000 + 1,25,000) = 4,25,000	10,00,000
(b) Variable Costs as % of Sales COGS at 55%, 56% and 45%	1,78,750	1,40,000	1,91,250	5,10,000
SOH at 10%, 18% and 15%	32,500	45,000	63,750	1,41,250

(c) Contribution (a-b)	1,13,750	65,000	1,70,000	3,48,750
(d) Fixed Costs : OH (see Note)	48,750	37,500	63,750	1,50,000
Admin OH	19,500	15,000	25,500	60,000
(e) Profit before Tax (c-d)	45,500	12,500	80,750	1,38,750
(f) Tax at 40% on (e)	18,200	5,000	32,300	55,500
(g) Profit after Tax (e- f)	27,300	7,500	48,450	83,250
Overall PVR	$= \frac{\text{Total Contribution}}{\text{Total Sales Value}} \times 100 = \frac{\text{Rs.3,48,750}}{\text{Rs.10,00,000}} =$			38.875%
Overall BES	$= \frac{\text{Total Fixed Costs}}{\text{Overall PV Ratio}} = \frac{\text{Rs.2,10,000}}{34.875\%} =$			6,02,150

(4 Marks)

**Note :** Fixed OH and Administration Expenses Rs.1,50,000 and Rs.60,000 respectively are re-apportioned based on the revised Budgeted Sales Value (as per Company's Policy) i.e. 325 : 250 : 425.

### 3. Effect of Sales Mix Change :

- Due to change in Sales Mix from least PV Ratio Product B (26%), to higher PV Ratio Products A and C (35% and 4%), Overall PVR has increased from 32% to 34.875%. Overall BEP is reduced from Rs.6,56,250 to Rs.6,02,150.
- Also, the Net Income (i.e. PAT) will increase by Rs.17,250 (Rs.83,250 – Rs.66,000) over the Budgeted Income as a result of the proposed change in product mix.

(2 Marks)

#### Answer-3-c :

##### 1. Prime Cost at 100% capacity utilization (let Prime Cost = Rs.X)

$$\begin{aligned} \text{Prime Cost} + \text{Factory Overhead} &= \text{Factory Cost} \\ X + [\text{Rs.90,000 (Variable)} + 90,000 \text{ (Fixed)}] &= 60\% \times \text{Rs.18,00,000} \\ X + \text{Rs.1,80,000} &= \text{Rs.10,80,000} \\ X &= \text{Rs.9,00,000} \end{aligned}$$

So, Prime Cost is 50% of Sales.

(1 Mark)

##### 2. Fixed and Variable Selling Cost at 100% capacity utilization :

$$\begin{aligned} \text{Selling Cost} &= 20\% \text{ of Sales Value} = 20\% \times \text{Rs.18,00,000} = \text{Rs.3,60,000} \\ \text{Variable Selling Cost} &= 75\% \times \text{Rs.3,60,000} = \text{Rs.2,70,000} \\ \text{Fixed Selling Cost} &= 25\% \times \text{Rs.3,60,000} = \text{Rs.90,000} \end{aligned}$$

(1 Mark)

##### 3. Statement of Profitability (at 50% and 75% levels of activity)

Levels of activity	50%	75%
(a) Sales Value	9,00,000	13,50,000
Price Cost at 50% of Sales (WN 1)	4,50,000	6,75,000
Add : Variable Factory Overheads (WN 1)	45,000	67,500
Add : Fixed Factory Overheads (WN 1)	90,000	90,000
Factory Cost	5,85,000	8,32,500
Add : Variable Selling Cost (WN 2)	1,35,000	2,02,500
Fixed Selling Cost (WN 2)	90,000	90,000
(b) Total Cost of Sales	8,10,000	11,25,000
(c) Profit (a-b)	90,000	2,25,000

(2 Marks)



**4. Evaluation of Government Order (15% of capacity utilization of plant).**

<b>Particulars</b>	<b>Rs.</b>
(a) Sales Price offered	1,45,000
Prime Cost (given)	1,35,000
Variable Factory Overhead (WN 1)	13,500
Variable Selling Cost (2% x Rs.1,45,000)	2,900
Processing Cost (Given)	8,000
(b) Total Cost of Sales	1,59,400
<b>(c) Profit / (Loss) (a – b)</b>	<b>(14,400)</b>

**(2 Marks)**

**Decision :** The Government order results in a loss of Rs.14,400 and is hence not acceptable.