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SUGGESTED SOLUTION
IPCC NOVEMBER 2016 EXAM
COSTING
Test Code - I N J 1 1 0 6
BRANCH - (MUMBAI) (Date : 10.07.2016)

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Answer-1 :

Calculation of Price of the Delhi-Jaipur-Agra-Delhi tour package

Particulars	Amount (Rs.)	Amount (Rs.)
Diesel Cost (Working Note-2)		2,635.00
Servicing Cost $\left(\frac{\text{Rs.}30,000}{50,000 \text{ kms}} \times 754 \text{ kms.} \right)$		452.40
Chauffeur's meal cost (three 200 km. completed journey x Rs.50)		150.00
Other Allocable Costs :		
Depreciation $\left(\frac{\text{Rs.}12,00,000}{24,00,000 \text{ kms}} \times 754 \text{ kms.} \right)$	377.00	
Other set-up and office cost $\left(\frac{\text{Rs.}2,400}{30 \text{ days}} \times 3 \text{ days} \right)$	240.00	
Chauffeur's Salary $\left(\frac{\text{Rs.}12,000}{30 \text{ days}} \times 3 \text{ days} \right)$	<u>1,200.00</u>	<u>1,817.00</u>
Total Cost		<u>5,054.40</u>
Add : Profit (25% of net takings or 1/3 rd of total cost)		<u>1,684.80</u>
		6,739.20
Add : Service Tax @ 12.36%		<u>832.97</u>
Price of the package (inclusive of service tax)		<u>7,572.17</u>

(6 Marks)

Working Notes :

(1) Total distance of journey

From	To	Distance (Km.)
Delhi	Jaipur	274
Jaipur	Agra	238
Agra	Delhi	<u>242</u>
Total Distance		<u>754</u>

(1 Mark)

(2) Cost of Diesel

From	To	Distance (in Km.)	Price of diesel per litre (Rs.)	Total diesel Cost (Rs.)
I	II	III	IV	V = (III + 16 km) x IV
Delhi	Jaipur	274	54	924.75
Jaipur	Agra	238	56	833.00
Agra	Delhi	242	58	<u>877.25</u>
				<u>2635.00</u>

(1 Mark)

Answer-2 (a) :

$$\text{EOQ} = \sqrt{\frac{2 \times 5,000 \times 20}{5}}$$

$$= 200 \text{ units}$$

$$\text{Min. Rate of Consumption} = (15 \times 2) - 20$$

$$= 10 \text{ units per day}$$

i) Re-order Level (ROL) = Maximum usage per period x Maximum Re-order Period

$$= 20 \text{ units per day} \times 15 \text{ days} = 300 \text{ units}$$

ii) Maximum level = ROL + ROQ - (Min. Rate of Consumption x Min. Re-order Period)

$$= 300 \text{ units} + 200 \text{ units} - (10 \text{ units per day} \times 6 \text{ days})$$

$$= 440 \text{ units}$$

- iii) Minimum level = ROL – (Average Rate of Consumption x Average Re-order Period)
 = 300 units – (15 units per day x 10 days)
 = 150 units
- iv) Danger level = Average Consumption x Lead time for Emergency Purchases
 = 15 units per day x 4 days = 60 units

(4 Marks)

Answer-2 (b) :

(a) Calculation of Economic Order Quantity

$$EOQ = \sqrt{\frac{2AO}{C}}$$

$$EOQ = \sqrt{\frac{2 \times 8,000 \text{ units} \times \text{Rs.}200}{\text{Rs.}400 \times 20/100}}$$

$$= 200 \text{ units}$$

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

(a) When EOQ is ordered

Purchase Cost	(8,000 units x Rs. 400)	32,00,000
Ordering Cost	[(8,000 units / 200 units) x Rs. 200]	8,000
Carrying Cost	(200 units x Rs. 400 x ½ x 20/100)	8,000
Total Cost		32,16,000

(b) When quantity discount is accepted

Purchase Cost	(8,000 units x Rs. 384)	30,72,000
Ordering Cost	[(8,000 units / 4000 units) x Rs. 200]	400
Carrying Cost	(4000 units x Rs. 384 x ½ x 20/100)	1,53,600
Total Cost		32,26,000

Advise:

The total cost of inventory is lower if EOQ is adopted. Hence, the company is advised not to accept the quantity discount.

Answer-3 :

Input		Output		Equivalent production					
Item	Units	Item	Units	Material A		Material B		Lab. & OHs	
				Units	%	Units	%	Units	%
Op. Stock	2,000	Work on op. WIP	2,000	-	-	400	20	800	40
Process II transfer	53,000	Introduced & completed during the period (48,000 – 2,000)	46,000	46,000	100	46,000	100	46,000	100
			48,000						
		Normal Loss (2,000 + 53,000 – 5,000) x 5%	2,500	-	-	-	-	-	-
		Closing WIP	5,000	5,000	100	3,500	70	2,500	50
			55,500	51,000		49,900		49,300	
		Abnormal Gain	500	500	100	500	100	500	100
	55,000		55,000	50,500		49,400		48,800	

(4 Marks)

* Material A represents transfer in units from Process-II

Statement of Cost for each Element

Element of cost	Cost (Rs.)	Equivalent Production	Cost per unit (Rs.)
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Material A

- Transferred from Process-II	4,11,500		
- Less: Scrap realisation (2,500 × Rs.3)	<u>(7,500)</u>		
	4,04,000	50,500	8.00
Material B	1,97,600	49,400	4.00
Wages	97,600	48,800	2.00
Overheads	<u>48,800</u>	48,800	<u>1.00</u>
	7,48,000		15.00

(2 Marks)

Process Cost Sheet (in Rs.)

Opening W-I-P:		
- Material B (400 × Rs. 4)		1,600
- Wages (800 × Rs. 2)		1,600
- Overheads (800 × Rs.1)		<u>800</u>
		<u>4,000</u>
Introduced and completely processed during the period (46,000 × Rs. 15)		<u>6,90,000</u>
Closing W-I-P:		
Material A (5,000 × Rs. 8)		40,000
Material B (3,500 × Rs. 4)		14,000
Wages (2,500 × Rs. 2)		5,000
Overheads (2,500 × Rs. 1)		<u>2,500</u>
		<u>61,500</u>
Abnormal Gain (500 × Rs. 15)		7,500

(3 Marks)

Process III A/c

	Units	Amount		Units	Amount
To Balance b/d	2,000	25,750	By Normal Loss	2,500	7,500
To Process II A/c.	53,000	4,11,500	By Process IV A/c		
			(6,90,000 + 4,000+25,750)	48,000	7,19,750
To Direct Material	1,97,600		By Bal c/d	5,000	61,500
To Direct Wages	97,600				
To Prodn OHs	48,800				
To Abnormal Gain	500	7,500			
	55,500	7,88,750		55,500	7,88,750

(3 Marks)

Answer-4 :

Budgeted Cost Sheet for the year 2014

Particulars		(Amount Rs.)
Direct material consumed		12,00,000
Add: 44% due to increased output		<u>5,28,000</u>
		17,28,000
Less: 6% for decline in price		<u>1,03,680</u>
Direct wages (manufacturing)		7,00,000
Add: 60% increase		<u>4,20,000</u>
Prime cost		27,44,320
Manufactured Overhead:		
Fixed	3,60,000	
Add: 20% increase	<u>72,000</u>	
		4,32,000
Variable	2,50,000	

Add: 60% increase	<u>1,50,000</u>	<u>4,00,000</u>	<u>8,32,000</u>
Cost of production			35,76,320
Add: 1/9 of Cost or 10% on selling price			<u>3,97,369</u>
Selling price			39,73,689

(7 Marks)

Production will increase by 60% but efficiency will decline by 10%.

160 – 10% of 160 = 144%

So increase by 44%.

(1 Mark)

Note: If we consider that variable overhead once will change because of increase in production (From Rs. 2,50,000 to Rs. 4,00,000) then with efficiency declining by 10% it shall be Rs. 3,60,000 and then again as mentioned in point No. (iii) of this question it will increase by 60% then variable overhead shall be Rs. 3,60,000 x 160% = Rs. 5,76,000. Hence, total costs shall be Rs. 37,52,320 and profit shall be 1/9th of Rs. 37,52,320 = Rs. 4,16,924. Thus, selling price shall be Rs. 41,69,244.

Answer-5 :

(i) **Comparison of alternative Joint-Cost Allocation Methods:**

(a) **Sales Value at Split-off Point Method**

	Chocolate powder liquor base	Milk chocolate liquor base	Total
Sales value of products at split off	Rs. 2,99,250*	Rs. 5,55,750**	Rs. 8,55,000
Weights	0.35	0.65	1.00
Joint cost allocated	Rs. 2,49,375 (Rs. 7,12,500 × 0.35)	Rs. 4,63,125 (Rs. 7,12,500 × 0.65)	Rs. 7,12,500

(2 Marks)

* (3,000 lbs ÷ 200 lbs) × 20 gallon × Rs. 997.50 = Rs. 2,99,250

** (5,100 lbs ÷ 340 lbs) × 30 gallon × Rs. 1,235 = Rs. 5,55,750

(b) **Physical Measure Method**

	Chocolate powder liquor base	Milk chocolate liquor base	Total
Output	300 gallon*	450 gallon**	750 gallons
Weight	300/750 = 0.40	450/750 = 0.60	1.00
Joint cost allocated	Rs. 2,85,000 (Rs. 7,12,500 x 0.40)	Rs. 4,27,500 (Rs. 7,12,500 x 0.60)	Rs. 7,12,500

(1 Mark)

* (3,000 lbs ÷ 200 lbs) × 20 gallon = 300 gallon

** (5,100 lbs ÷ 340 lbs) × 30 gallon = 450 gallon

(c) **Net Realisable Value (NRV) Method**

	Chocolate powder liquor base	Milk chocolate liquor base	Total
Final sales value of production	Rs. 5,70,000 (3,000 lbs × Rs. 190)	Rs. 12,11,250 (5,100 lbs × Rs. 237.50)	Rs. 17,81,250
Less: Separable costs	Rs. 3,02,812.50	Rs. 6,23,437.50	Rs. 9,26,250
Net realisable value at split off point	Rs. 2,67,187.50	Rs. 5,87,812.50	Rs. 8,55,000
Weight	0.3125 (2,67,187.50 ÷ 8,55,000)	0.6875 (5,87,812.5 ÷ 8,55,000)	1.00

Joint cost allocated	Rs. 2,22,656.25 (Rs. 7,12,500 x 0.3125)	Rs. 4,89,843.75 (Rs. 7,12,500 x 0.6875)	Rs. 7,12,500
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(3 Marks)

(d) Constant Gross Margin(%) NRV method

	Chocolate powder Liquor base	Milk chocolate liquor Base	Total
Final sales value of production	Rs. 5,70,000	Rs. 12,11,250	Rs. 17,81,250
Less: Gross margin* 8%	Rs. 45,600	Rs. 96,900	Rs. 1,42,500
Cost of goods available for sale	Rs. 5,24,400	Rs. 11,14,350	Rs.16,38,750
Less: Separable costs	Rs. 3,02,812.50	Rs. 6,23,437.50	Rs. 9,26,250
Joint cost allocated	Rs. 2,21,587.50	Rs. 4,90,912.50	Rs. 7,12,500

(2 Marks)

*Final sales value of total production	= Rs.17,81,250
Less: Joint and separable cost	= Rs. 16,38,750 (Rs. 7,12,500 + Rs. 9,26,250)
Gross Margin	= Rs. 1,42,500
Gross margin (%)	= $\frac{\text{Rs.1,42,500}}{\text{Rs.17,81,250}} \times 100 = 8\%$

(ii) Chocolate powder liquor base

(Amount in Rs.)

	Sales value at Split off	Physical Measure	Estimated net Realisable Value	Constant Gross Margin NRV
Final sale value of Chocolate powder	5,70,000	5,70,000	5,70,000	5,70,000
Less: Separable costs	3,02,812.50	3,02,812.50	3,02,812.50	3,02,812.50
Less: Joint costs	2,49,375	2,85,000	2,22,656.25	2,21,587.50
Gross Margin	17,812.50	(17,812.50)	44,531.25	45,600
Gross Margin %	3.125%	(3.125%)	7.8125%	8.00%

(2 Marks)

Milk chocolate liquor base

(Amount in Rs.)

	Sales value at split off	Physical measure	Estimated net realizable	Constant Gross margin NRV
Final sale value of milk chocolate	12,11,250	12,11,250	1,11,250	12,11,250
Less: Separable costs	6,23,437.50	6,23,437.50	6,23,437.50	6,23,437.50
Less: Joint costs	4,63,125	4,27,500	4,89,843.75	4,90,912
Gross Margin	1,24,687.50	1,60,312.50	97,968.75	96,900.50
Gross Margin %	10.29%	13.24%	8.09%	8.00%

(2 Marks)

(iii) Further processing of Chocolate powder liquor base into Chocolate powder

(Amount in Rs.)

Incremental revenue {Rs. 5,70,000 – (Rs. 997.50 x 300 gallon)}	2,70,750
Less: Incremental costs	3,02,812.50
Incremental operating income	(32,062.50)

(1 Mark)

Further processing of Milk Chocolate liquor base into Milk Chocolate.

(Amount in Rs.)

Incremental revenue {Rs.12,11,250 – (Rs. 1,235 x 450 gallon)}	6,55,500
Less: Incremental cost	6,23,437.50
Incremental operating income	32,062.50

(1 Mark)

The above computations show that Pokemon Chocolates could increase operating income by Rs. 32,062.50 if chocolate liquor base is sold at split off point and milk chocolate liquor base is processed further.