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SUGGESTED SOLUTION

IPCC NOVEMBER 2016 EXAM

COSTING

Test Code - I N J1 1 4 7

BRANCH - (MUMBAI) (Date :28.08.2016)

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Answer-1 :

Workings:

Monthly Production of X = 30,000 kgs.

Raw Material Required = $\frac{30,000}{3}$ x 5 = 50,000 kgs.

Material A = $\frac{50,000}{5}$ x 3 = 30,000 kg.

Material B = $\frac{50,000}{5}$ x 2 = 20,000 kg.

(2 Marks)

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

Material A $= \sqrt{\frac{2 \times \text{Annual Consumption} \times \text{Order cost}}{\text{Carrying cost per unit p.a.}}}$

$= \sqrt{\frac{2 \times (30,000 \text{ kg.} \times 12 \text{ months}) \times \text{Rs.}120}{(15\% \text{ of Rs.}15)}}$

$= \sqrt{\frac{8,64,00,000}{2.25}}$ = 6,196.77 kg. or 6,197 kg.

Material B $= \sqrt{\frac{2 \times (20,000 \text{ kg.} \times 12 \text{ months}) \times \text{Rs.}120}{(5\% \text{ of Rs.}22.44^*)}}$

$= \sqrt{\frac{5,76,00,000}{1.122}}$ = 7,164.97 or 7,165 kg.

*Purchase price + 2% CST = Rs. 22 + 2% of Rs. 22 = Rs. 22.44

(2 Marks)

(ii) Calculation of Maximum Stock level: Since, the Material A is perishable in natureand it required to be used within 5 days, hence, the Maximum Stock Level shall belower of two:

(a) Stock equal to 5 days consumption

$= \frac{30,000 \text{ kg.}}{25 \text{ days}}$ x 5 days = 6,000 kg.

(a) Maximum Stock Level for Material A:

Re-order Quantity + Re-order level – (Min consumption* × Min. lead time)

Where, Re-order Quantity = 8,000 kg.

Re-order level = Max. Consumption* × Max. Lead time

= 30,000/25 × 2 days = 2,400 kg.

Maximum stock Level = 8,000 kg. + 2,400 kg. - (30,000/25 × 1 day)

= 10,400 – 1,200 = 9,200 kg.

Stock required for 5 days consumption is lower than the maximum stock levelcalculated through the formula. Therefore, Maximum Stock Level will be 6,000 kg.

(*Since, production is processed evenly throughout the month hence materialconsumption will also be even.)

(2 Marks)

(iii) Calculation of Savings/ loss in Material A if purchase quantity equals to EOQ.

	Purchase Quantity = 8,000 kg.	**Purchase Quantity = EOQ i.e. 6,197 kg.**
Annual consumption	3,60,000 kg. (30,000 × 12 months)	3,60,000 kg. (30,000 × 12 months)
No. of orders [Note- (i)]	60 (3,60,000 ÷ 6,000)	60 (3,60,000 ÷ 6,000)
Ordering Cost (a)	Rs.7,200 (Rs.120 × 60)	Rs.7,200 (Rs.120 × 60)
Carrying Cost (b)[Note- (ii)]	Rs.8,100 (15% of Rs.13.50 ×4,000)	Rs.6,972 (15% of Rs.15 × 3,098.5)
Purchase Cost (c)	Rs.48,60,000	Rs.54,00,000

(for good portion)	(Rs.13.50 × 3,60,000)	(Rs.15 × 3,60,000)
Loss due to obsolescence (d) [Note- (iii)]	Rs.16,20,000 [Rs.13.5 × (60 × 2,000)]	Rs.1,77,300 [Rs.15 × (60 × 197)]
Total Cost [(a) + (b) + (c) + (d)]	Rs. 64,95,300	Rs. 55,91,472

If purchase quantity equals to EOQ, there will be a saving of Rs.9,03,828 i.e. Rs.64,95,300 - Rs. 55,91,472.

(2 Marks)

Notes:

(i) As after 5 days of purchase the Material A gets obsolete, the quantity inexcess of 5 days consumption i.e. 6,000 kg. are wasted. Hence, after 6,000 kg. afresh order needs to be given.

(ii) Carrying cost is incurred on average stock of Materials purchased.

(iii) the excess quantity of material gets obsolete and loss has to be incurred.

Answer-2 :

(i) Computation of wages of each worker under guaranteed hourly rate basis

Worker	**Actual hours worked (Hours)**	**Hourly wage rate (Rs.)**	**Wages (Rs.)**
I	380	40	15,200
II	100	50	5,000
III	540	60	32,400

(2 Marks)

(ii) Computation of Wages of each worker under piece work earning basis

Product	**Piece rate Per unit (Rs.)**	**Worker-I**		**Worker-II**		**Worker-III**	
		Units	**Wage (Rs.)**	**Units**	**Wage (Rs.)**	**Units**	**Wages (Rs)**
A	15	210	3,150	-	-	600	9,000
B	20	360	7,200	-	-	1,350	27,000
C	30	460	13,800	250	7,500	-	-
Total			**24,150**		**7,500**		**36,000**

(2 Marks)

Since each worker's earnings are more than 50% of basic pay. Therefore, worker-I, II and III will be paid the wages as computed i.e. Rs. 24,150, Rs. 7,500 and Rs. 36,000respectively.

Working Notes:

1. Piece rate per unit

Product	**Standard time per unit in minute**	**Piece rate each minute (Rs.)**	**Piece rate per unit (Rs.)**
A	15	1	15
B	20	1	20
C	30	1	30

(2 Marks)

2. Time allowed to each worker

Worker	**Product-A**	**Product-B**	**Product-C**	**Total Time (Hours)**
I	210 units ×15 = 3,150	360 units × 20 = 7,200	460 units × 30 = 13,800	24,150/60 = 402.50
II	-	-	250 units × 30	7,500/60

			= 7,500	= 125
III	600 units ×15 = 9,000	1, 350 units ×20 = 27,000	-	36,000/60 = 600

(2 Marks)

(iii) Computation of wages of each worker under Premium bonus basis (where eachworker receives bonus based on Rowan Scheme)

Worker	Time Allowed (Hr.)	Time Taken (Hr.)	Time saved (Hr.)	Wage Rate per hour (Rs.)	Earning Rs.	Bonus Rs.*	Total Earning Rs.
I	402.5	380	22.5	40	15,200	850	16,050
II	125	100	25	50	5,000	1,000	6,000
III	600	540	60	60	32,400	3,240	35,640

(2 Marks)

* $\frac{\text{Time Taken}}{\text{Time Allowed}}$ x Time Saved x Wage Rate

Worker-I = $\frac{380}{402.5}$ x 22.5 x 40 = 850

Worker-II = $\frac{100}{125}$ x 25 x 50 = 1,000

Worker-III = $\frac{540}{600}$ x 60 x 60 = 3,240

(2 Marks)

Answer-3 :

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	2,24,000	15,52,000	- Work certified	1,00,00,000	
To Site expenses		9,60,000	- Work uncertified	12,00,000	1,12,00,000
To Office expenses		6,26,000			
To Postage and Stationery		29,600			
To Rates and taxes	25,600				
Less: Advance	(1,400)	24,200			
To Fuel and power		8,46,000			
To Depreciation*		9,80,300			
To Notional profit c/d		37,05,900			
		1,12,50,000			**1,12,50,000**

* 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-4 :

(a) Production Budget (in units)

	Product- K	Product- H

	(units)	(units)
Expected sales	8,000	4,200
Add: Closing stock	1,000	2,100
Less: Opening stock	(800)	(1,600)
Units to be produced	8,200	4,700

(3 Marks)

(b) Material Purchase Budget

	Material-X (kg.)	Material-Y (kg.)	Material-Z (ltr.)
Materials required:			
- Product-K	98,400 (8,200 units ×12 kg.)	1,23,000 (8,200 units×15 kg.)	65,600 (8,200 units× 8 ltr.)
- Product- H	70,500 (4,700 units ×15 kg.)	28,200 (4,700 units × 6 kg.)	65,800 (4,700 units×14ltr.)
Total	1,68,900	1,51,200	1,31,400
Add: Closing stock	30,000	18,000	7,500
Less: Opening stock	(25,000)	(30,000)	(14,000)
Quantity to bepurchased	1,73,900	1,39,200	1,24,900
Rate	Rs.15 per kg.	Rs.16 per kg.	Rs.5 per ltr.
Purchase cost	Rs. 26,08,500	Rs. 22,27,200	Rs. 6,24,500

(4 Marks)

(c) Direct Labour Budget

	Unskilled (hours)	**Skilled (hours)**
For Product K	98,400 (8,200 units × 12 hours)	65,600 (8,200 units × 8 hours)
For Product H	47,000 (4,700 units × 10 hours)	23,500 (4,700 units × 5 hours)
Labour hours required	1,45,400	89,100
Rate	Rs. 40 per hour	Rs. 75 per hour
Wages to be paid	Rs. 58,16,000	Rs. 66,82,500

(3 Marks)

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

(1 Mark)

*(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 ofproduction	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 atsplit 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 x0.3125)	Rs. 4,89,843.75 (Rs. 7,12,500 x 0.6875)	Rs. 7,12,500

(2 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 (%) = $\frac{\text{Rs.1,42,500}}{\text{Rs.17,81,250}} \times 100 = 8\%$ **(2 Marks)**

(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 ofChocolate 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 milkchocolate	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 isprocessed further.