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SUGGESTED SOLUTION

CA INTERMEDIATE

SUBJECT- COSTING

Test Code - CIM 8335

BRANCH - () (Date :)

Head Office : Shraddha, 3rd Floor, Near Chinai College, Andheri (E), Mumbai – 69.
Tel : (022) 26836666

ANSWER-1

Material M	Material N
Turnover ratio	**Turnover ratio**
$= \frac{Cost\ of\ Stock\ of\ raw\ material\ consumed}{Average\ stock\ of\ raw\ material}$ $= \frac{Rs.6,00,000+Rs.9,50,000-Rs.4,50,000}{(6,00,000+4,50,000)/2} = 2.09$ Average number of days for which the average inventory is held $= \frac{360 days}{2.09}$ = 172.25 days	$= \frac{Cost\ of\ stock\ of\ raw\ material\ consumed}{Average\ stock\ of\ raw\ material}$ $= \frac{Rs.10,00,000+ Rs.18,40,000-Rs.7,25,000}{(10,000,000+7,25,000)/2} = 2.45$ Average number of days for which the average inventory is held $= \frac{360\ days}{2.45}$ = 146.94 days

(2*2 = 4 MARKS)

(ii) Advice

Comparatively Material M is slower than Material N since Inventory holding period of 'M' is 172.25 days in Comparison to 'N' i.e. 146.94 days. Infact, both materials have slow inventory turnover. Though, different business has their own expected rates for inventory turnover like food shops have fast inventory turnover, shop selling furniture etc. will have slower inventory turnover while manufacturers of large items of plant will have very long inventory turnover.

If it is not as per the Industry Standard, then a slow turnover may indicate that excessive inventory is held and risk of obsolete or spoiled inventory will increase. Large quantity of slow moving material means that capital is locked up in business and not earning revenue. It is advisable to make proper investigations into slow moving materials and take steps to minimize the loss arises therefrom as it may impact overall financial health of the organization.

(2 MARKS)

ANSWER-2

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):**

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

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

(iii) **Re- Order level:**

= (Maximum consumption per day × Maximum lead time)

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

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

(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

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

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

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

(a) Re-order Quantity :

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

(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.

(c) Minimum Stock level:

= Re-order level – (Average consumption per day × Average lead time)

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

(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	$\frac{17,200\text{kg.}}{1,000\text{kg.}} = 17.2 \text{ or } 18 \text{ orders}$	$\frac{17,200\text{kg.}}{1,200\text{kg.}} = 14.33 \text{ or } 15 \text{ orders}$
III	Ordering Cost	18 orders × ₹ 720 = ₹12,960	15 orders × ₹ 720 = ₹10,800
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. × ₹ 17.2 = ₹ 8,600	600 kg. × ₹ 17.2 = ₹ 10,320
VI	Total Cost	₹ 21,560	₹ 21,120

Extra Cost incurred due to not ordering EOQ = ₹ 21,560 - ₹ 21,120 = ₹440

(10 MARKS)

ANSWER-3

(a) (i) Economic Order Quantity = $\sqrt{\frac{2ab}{CS}}$

$= \sqrt{\frac{2 \text{ x } 24,000 \text{ x } 1.20}{10 \text{ x } 10\%}} = \sqrt{57,600} = 240 \text{ packets}$

(1 MARK)

(ii) Cost of ordering and carrying :

Per order Rs. 1.20

EOQ 240 packets

Per annum 24,000 packets

For 1 order of 240 packets, cost is Rs. 1.20.

For 24,000 packets, cost will be = (1.20 x 24,000)/240 = Rs. 120

Carrying cost is 10%ofRs. 10 = Re. 1 per packet

Average inventory = 240/2 x 10% of Rs. 10

= 120 x Re. 1 = Rs. 120

Total ordering and carrying cost = Rs. 120 4 Rs. 120 — Rs. 240.

(2.5 MARKS)

(b) Number of orders = $\frac{\text{Annual usage}}{\text{EOQ}}$

= $\frac{24,000}{240} = 100 \text{ orders per year}$

Consumption per day = $\frac{2,000}{30 \text{ days}}$ packets per month = 66.66 packets

Present supply on hand : 200 packets

66.66 packets last for = 1 day

200 packets will last for = 200 ÷ 66.66 = 3 days

Existing supply lasts for 3 days. Lead time is also 3 days. Hence, next order is to be placed immediately.

(2.5 MARKS)

ANSWER-4

(a) Buffer stock

= Minimum level

= Reorder Level-(Average Usage x Average Delivery Time)

= 10,710- (595 x 12)

= 3,570 units

(b) Maximum level

= Reorder level + Reorder Quantity - (Minimum consumption during the period required to obtain delivery)

= 10,710 + 11,050 - (305 x 10)

= 18,710 units

(2.5*2 = 5 MARKS)

ANSWER-5

(i) EOQ = $\sqrt{\frac{2AO}{C}}$

A = Annual consumption = $\frac{96,000 \text{ units}}{4 \text{ units}} = 24,000 \text{ kgs.}$

O = Cost of placing order = Handling cost + Freight = Rs. 1,500 + Rs.4,000 = Rs.5,500

C = Carrying cost per kg. per annum

Carrying cost (Rs.1.50 × 12) = Rs. 18

Finance charges on investment in inventory = Rs. 8

= Rs. 26

EOQ = $\sqrt{\frac{2 \text{ x } 24,000 \text{ kgs x Rs.5,500}}{\text{Rs.26}}} = 3,186.5 \text{ kgs.}$

(ii) Number of orders = 24,000 kgs./ 3,186.5 kgs. = 7.53 or 8 orders

Frequency in placing orders = 365 days / 8 orders = 45.63 or 46 days

(iii) If company places orders on quarterly basis, percentage of discount in price of raw material to be negotiated:

(4 MARKS)

Cost under EOQ:

Ordering cost	8 orders × Rs. 5,500	44,000.00
Carrying cost	3,186.5 kgs. × ½ × Rs. 26	41,424.50
Total		85,424.50

Cost under Ordering on Quarterly Basis:

Ordering cost	4 orders × Rs. 5,500	22,000.00
Carrying cost	(24,000 kgs./ 4 orders) × ½ × Rs.26	78,000.00
Total		1,00,000.00

Incremental cost if orders are placed on quarterly basis

= Rs.1,00,000 – Rs. 85,424.50 = Rs. 14,575.50

Reduction in purchase price to be negotiated

= Rs. 14,575.50 ÷ 24,000 kgs. = Rs.0.61 per kg.

Percentage of discount to be negotiated 0.61 ÷ 54 × 100 = 1.13%

(2 MARKS)

ANSWER-6

(i) EOQ = $\sqrt{\frac{2ab}{CS}}$

where

a = Annual consumption

b — Buying cost per order

C =Cost per unit

S = Storage and other inventory carrying cost rate

EOQ for Super Grow	EOQ for Nature's Own
EOQ = $\sqrt{\frac{2 \text{ x } 2{,}000 \text{ x } 1{,}200}{480}}$	EOQ = $\sqrt{\frac{2 \text{ x } 1{,}280 \text{ x } 1{,}400}{560}}$
= $\sqrt{10{,}000}$ or 100 bags	= $\sqrt{6{,}400}$ or 80 bags

(3 MARKS)

(ii) Total annual relevant cost for Super Grow Fertilizer

= Total annual relevant ordering costs + Total annual relevant carrying cost

= (1,200/100) x 2,000 + ½ x 100 bags x 480

= Rs. 24,000 + Rs. 24,000 = Rs. 48,000

Total annual relevant costs for Nature's Own Fertilizer

= Total annual relevant ordering costs + Total annual relevant carrying costs

= (1,400/80) x 1,280 bags + ½ x 80 bags x Rs. 560

= Rs. 22,400 + Rs. 22,400 = Rs. 44,800

(2 MARKS)

(iii) Number of deliveries for Super Grow Fertilizer per year

$$= \frac{\text{Annual Demand of Fertilizer bags}}{EOQ}$$

= 2,000 bags/100 bags = 20 orders

Number of deliveries for Nature's Own Fertilizer per year

= 1,280 bags/80 bags =16 orders

(2 MARKS)