

## Question bank 05-SA- English

### Short Answer Questions

#### Question 01

Activity based costing system is used to allocate fixed production overhead in a more representative manner. **Explain** following terms in relation to an Activity based costing system.

- a. Cost driver
- b. Cost pool

#### Question 02

The Demand function of a product has been identified as  $P = 70 - 1.7Q$  where Q is the quantity demanded in units and P is the unit price in Rs. at that demand. In relation to this product, **identify**:

- (i) Total Revenue function
- (ii) Marginal Revenue function

#### Question 03

Joint cost of one batch of a production process is Rs. 250,000 with an output of 1,250 units on which following information is given.

	Units	Selling price
X	500	Rs. 350
Y	400	Rs. 275
Z	350	Rs. 500

200 Units of a by-product have also been separated from the process. Selling price of a unit of by-product is Rs. 45 and selling cost is Rs. 10 per unit.

Company has planned to further process product Y and keep a Mark-up of 20%. Further processing cost per unit is Rs. 150.

**Calculate** the selling price of further processed unit of Y.

#### Question 04

Historical information collected from a research in relation to sales of a company are as follows.

Year	Cost of promotion Rs. million	Sales revenue Rs. million
2011	80	250
2012	80	270
2013	85	290
2014	88	290
2015	92	330

**Calculate** the formula of the regression line and estimate the promotion cost if the expected sales income is Rs. 400 million.

### **Question 05**

A tyre manufacture has identified that Mean running distance of a tyre is 25,000 km with a standard deviation of 5,000 km. Company has offered warranty for the customers as follows.

- (i) If the actual running distance is less than 15,000 km company will give a free tyre of which the cost is Rs. 5,000.
- (ii) If the actual running distance is between 15,000 km and 20,000 km company will refund Rs. 2000 if they buy a new tyre.

Only 75% of the tyres, which run less than 15,000 km, are brought for replacements while only 50% of the tyres, which run between 15,000 km and 20,000 km, are brought for the refund of Rs. 2000. Budgeted sales are 10,000 tyres per annum. **Calculate** the annual expected cost of warranty claims.

### **Question 06**

Information relating to a proposed new machine of ABC company would be as follows.

Year	Cash flow (Rs.)
0	(250,000)
1	75,000
2	125,000
3	80,000
4	40,000

A bank has agreed to grant a loan to buy the machine. **Calculate** the maximum rate of interest beyond which the loan cannot be recommended.

### **Question 07**

Over a 20-month period, sales of a product have been found to have a linear trend given by  $y = 29.23 + 2.87x$ , where  $y$  is the number of items sold while  $x$  represents the month. Monthly deviations of sales from trend have been estimated and sales of month 21 are expected to be 1.38 times the trend value.

**Calculate** the forecast number of items to be sold in month 21.

### **Question 08**

Information relating to the fourth quarter of a business entity would be as follows.

	Units
Production	20,000
Opening stocks	2,000
Closing stocks	3,000
	Rs.
Selling price per unit	200
Variable cost per unit	110
Fixed cost per unit	20

Actual fixed production overhead is Rs. 425,000 for the quarter.

Required to **calculate** profit under:

- (i) marginal costing system
- (ii) absorption costing system

### **Question 09**

Information relating to stocks of a company would be as follows.

Annual demand	240,000 units
Cost of ordering	Rs. 10,000 per order
Cost of holding per unit	Rs. 20 per annum

Supplier has offered quantity discounts as follows.

Units	Price
0 – 19,999	200
20,000 – 29,999	190

**Calculate** the optimum order quantity.

### **Question 10**

In a production company, cost of 1 kg of raw material would be Rs. 200 and it can transport only 2,000 kg at a given time. Cost of transportation is Rs. 12,000 and other cost per transport order is Rs. 80,000. There is a loss of 2 % during the transportation. In the production, there is a Normal loss of 10%. **Calculate** the cost of raw material of a product of 12 kg?

## Answers

### Answer 01

#### (a) Cost driver

The cost driver is a factor that creates or drives the cost of the activity.

For example, the activity of running machinery, the driver is likely to be machine-operating hours. That is, machine-operating hours drive labour, maintenance, and power cost during the running machinery activity.

#### (b) Cost pool

Cost pool is a concept of accumulating all the overheads, which arise due to a particular reason, which is identified as cost driver.

Example: - Machine operating cost.

### Answer 02

#### (i) Total Revenue

Total Revenue} Price \* Quantity

$$TR = P * Q$$

$$P = 70 - 1.7Q$$

$$TR = P * Q$$

$$TR = (70 - 1.7Q)Q$$

$$TR = 70Q - 1.7Q^2$$

#### (ii) Marginal Revenue

$$MR = \frac{dy}{dx} TR$$

$$MR = \frac{dy}{dx} (70Q - 1.7Q^2)$$

$$MR = 70 - 3.4Q$$

### Answer 03

Joint cost per unit based on the physical measure method

$$= \frac{250,000 - (200 * 35)}{1,250}$$

$$= \frac{250,000 - (200 * 35)}{1,250}$$

$$= \frac{250,000 - (200 * 35)}{1,250}$$

$$= \frac{250,000 - (200 * 35)}{1,250}$$

$$= \underline{194.4}$$

#### Selling price of Y

$$\text{Joint Cost} = 194.4$$

$$\text{Further processing Cost} = \underline{150.0}$$

$$\text{Total cost} = 344.4$$

$$\text{Mark - Up 20] = } \underline{68.88}$$

$$\text{Selling Price} = \underline{413.28}$$

**Answer 04**

Cost of promotion (x)	Revenue (y)	x <sup>2</sup>	xy
80	250	6400	20,000
80	270	6400	21,600
85	290	7225	24,650
88	290	7744	25,520
92	330	8464	30,360
$\Sigma x = 425$	$\Sigma y = 1,430$	$\Sigma x^2 = 36,233$	$\Sigma xy = 122,130$

$$y = a + bx$$

$$\Sigma y = an + b\Sigma x$$

$$\Sigma xy = a\Sigma x + b\Sigma x^2$$

$$1,430 = 5a + 425b \longrightarrow \textcircled{1}$$

$$122,130 = 425a + 36,233b \longrightarrow \textcircled{2}$$

$$\textcircled{1} * 85$$

$$1430 * 85 = 85 * 5a + 85 * 425b$$

$$121,550 = 425a + 36,125b \longrightarrow \textcircled{3}$$

$$\textcircled{3} - \textcircled{2}$$

$$121,550 - 122,130 = 425a + 36,125b - 425a - 36,233b$$

$$- 580 = - 108b$$

$$\underline{- 580} = b$$

$$-108$$

$$5.37 = b$$

$$1,430 = 5a + 425 * 5.37$$

$$1,430 = 5a + 2,282.25$$

$$1,430 - 2,282.25 = 5a$$

$$- 852.25 = 5a$$

$$\underline{- 852.25} = a$$

$$y = - 170.45 + 5.37x$$

$$400 = -170.45 + 5.37x$$

$$570.45 = 5.37x$$

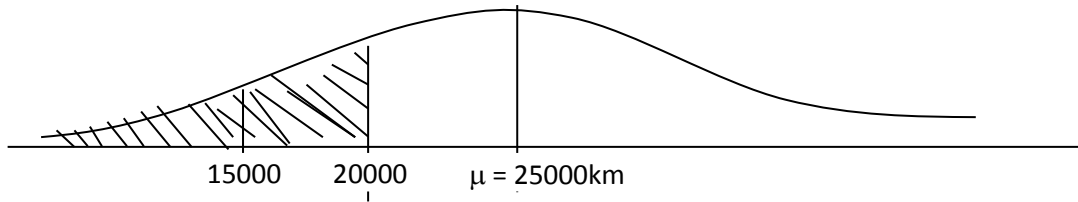
$$\underline{570.45} = x$$

$$5.37$$

$$106.23 = x$$

At the sales revenue of Rs. 400 million cost of promotion is Rs. 106.23 million.

**Answer 05**



No of tyres less than running distance of 15,000 km

$$\begin{aligned} Z &= \frac{x - \mu}{\sigma} \\ Z &= \frac{15,000 - 25,000}{5,000} \\ Z &= \frac{10,000}{5,000} \\ Z &= 2 \\ Z &= 0.4772 \\ &= 0.5 - 0.4772 \\ &= 0.0228 \\ &= 2.28\% \\ &= 10,000 * 2.28\% \\ &= 228 \end{aligned}$$

No of tyres running distance in between 15,000 km and 20,000 km

$$\begin{aligned} Z &= \frac{x - \mu}{\sigma} \\ Z &= \frac{20,000 - 25,000}{5,000} \\ Z &= 1 \\ Z &= 0.3413 \\ &= 0.5 - 0.3413 - 0.0228 \\ &= 0.1359 \\ &= 13.59\% \\ &= 10,000 * 13.59\% \\ &= 1,359 \end{aligned}$$

**Expected cost for warranties**

For free tyres	= 228 * 0.75 * 5,000	= 855,000
For cash discounts	= 1359 * 0.5 * 2,000	= <u>1,359,000</u>
		= <u>2,214,000</u>

### **Answer 06**

Year	0	1	2	3	4
Cash Flow	(250,000)	75,000	125,000	80,000	40,000
Discount Factor (10%)	1	0.909	0.826	0.751	0.683
Discounted Cash Flows	(250,000)	68,175	103,250	60,080	27,320
	NPV = 8,825				

Discount Factor (20%)	1	0.833	0.694	0.578	0.482
Discounted Cash Flows	(250,000)	62,475	86,750	46,240	19,280
	NPV = - 35,255				

$$\text{IRR} = A + \frac{\text{NPV}_A}{\text{NPV}_A - \text{NPV}_B} * B - A$$

$$\text{IRR} = 10 + \frac{8825}{8825 - (-35,255)} * (20 - 10)$$

$$\text{IRR} = 10 + \frac{8,825}{44,080} * 10$$

$$\text{IRR} = 10 + 2.002$$

$$\text{IRR} = 12.002\%$$

Any interest rate beyond 12.002% should not be recommended.

### **Answer 07**

$$\begin{aligned}y &= 29.23 + 2.87x \\y &= 28.23 + 2.87 * 21 \\y &= 89.5 \\y &= 89.5 * 1.38 \\y &= \underline{123.51}\end{aligned}$$

**Answer 08****(i) Profit under marginal costing system**

Sales revenue 19,000 * 200		3,800,000
<u>Variable cost</u>		
Opening stocks 2,000 * 110	220,000	
Variable cost 20,000 * 110	2,200,000	
- Closing stocks 3,000 * 110	<u>(330,000)</u>	<u>(2,090,000)</u>
Contribution		1,710,000
Production overhead		<u>(425,000)</u>
Profit		<u>1,285,000</u>

**(ii) Profit under absorption costing system**

Sales revenue 19,000 * 200		3,800,000
<u>Cost of sales</u>		
Opening stocks 2,000 * 130	260,000	
Variable cost 20,000 * 110	2,200,000	
Production OH 20,000 * 20	400,000	
- Closing Stock 3000 * 130	<u>(390,000)</u>	<u>2,470,000</u>
Gross profit		1,330,000
Under absorption of Production OH		<u>(25,000)</u>
(425,000 - 400,000)		<u>1,305,000</u>
Net profit		



**Answer 09**

$$\begin{aligned} \text{EOQ} &= \sqrt{\frac{2 \times D \times C_o}{C_h}} \\ &= \sqrt{\frac{2 \times 240000 \times 10000}{20}} \\ &= 15,492 \text{ Units} \end{aligned}$$

Order quantity	15 492 Units	20 000 Units
Purchase cost	48,000,000	45,600,000
Cost of ordering	$\frac{240,000}{15,492} * 10,000$ 15,492 <b>154,919</b>	$\frac{240,000}{20,000} * 10,000$ 20,000 120,000
Cost of holding	$\frac{15,492}{2} * 20$ 2 154,920	$\frac{20,000}{2} * 20$ 2 200,000
Total cost	<b>48,309,839</b>	45,920,000

Optimum order quantity would be 20,000 units.

**Answer 10**

Purchase price Rs. 200 * 2,000 =	<b>400,000</b>
Other Cost	80,000
Transport cost	<u>12,000</u>
	492,000

Cost of 1kg of Quality raw material

$$\begin{aligned} &= \frac{492,000}{1960} \\ &= \text{Rs. } 251.02 \end{aligned}$$

Cost of producing 12 kg

$$\begin{aligned} &\frac{12}{0.9} \\ &= 13.33 \text{ kg} \\ \text{Material Cost} &= 13.33 \text{ kg} * 251.02 \\ &= \text{Rs. } 3,346 \end{aligned}$$

