

Higher Secondary (Vocational)

CLASS XII

Semester - IV

Costing (CSTG)

Full Marks: 30

Answer **Question No. 1** and **any two** from the rest.

1. a. What is the meaning of overheads? Explain with an example.
b. Compare the bonus schemes under Halsey and Rowan Plans.
c. From the following details calculate Maximum Level and Minimum Level of inventory.

Normal Usage	50 per week
Minimum Usage	25 per week
Maximum Usage	75 per week
Re-order Quantity	300 units
Re-order Period	4 to 6 weeks

(2 + 3 + 5)

2. a. The annual demand for a product is 6,400 units. The unit cost is Rs. 6 and the inventory carrying cost is 25% per annum. If the cost to procure one unit is Rs. 75, determine the following:
EOQ; Number of orders per year; Time between two consecutive orders.
- b. From the following particulars, calculate the overhead allocable to production department: P and Q. There are also two service departments S1 and S2. S1 renders service worth Rs 6,000 to S2 and the balance to P and Q as 3:2. S2 renders services to P and Q as 9:1. Show the Primary Distribution.

Particulars	P	Q	S1	S2
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Floor space (sqft)	2500	2000	500	500
Assets(Rs in lakh)	5	2.5	1.5	0.5
HP of machines	500	250	200	50
No of workers	100	50	50	25
Light and fan points	50	30	20	20

Expenses and Charges

Depreciation	95000
Insurance	7600
Canteen expenses	5400
Rent, rates and taxes	18,000
Power	10,000
Electricity	2400

(5 + 5)

3. a. Consider the following information:

Annual consumption: 40,00,000 kgs

Cost of placing one order: Rs. 100

Calculate the Economic Order Quantity (EOQ).

b. Differentiate between Over Absorption and Under Absorption of Overheads.

c. Calculate the total earnings and effective rate of earnings per hour of an operator A under Halsey System and Rowan System from the following particulars.

The standard time fixed for producing 1 dozen articles is 50 hours. The rate of wages is ₹1/- per hour actual time taken 45 hours.

(3 + 3 + (2 + 2))

4. a. A workman takes 9 hours to complete a job on daily wages and 6 hours on a scheme of payment by results. His hourly rate is 25 p. The Material cost of the product is ₹4 and factory overheads are recovered at 150% of the total direct wages. Calculate the labour cost of the product under following methods:- (i) Time rate system (ii) Halsey Plan (iii) Rowan Plan.

b. What is idle time? Explain with an example.

c. Explain the concept of Economic Order Quantity. ((2 + 2 + 2) + 2 + 2)

5. a. A company uses annually 50,000 units of an item each costing ₹ 1.20. Each order costs ₹ 45 to place and carrying cost is 15% of the average inventory value.
Find: (i) EOQ, (ii) If the company operates 250 days a year, the procurement time is 10 days and safety stock is 500 units find the reorder level.

b. A company has three departments and two service departments. Distribution summary of overheads is as follows:

Production departments	
A:	13,600
B:	14,700
C:	12,800
Service departments	
X	9,000
Y	3,000

The expenses of service departments are charged on a percentage basis which is as follows:

	A	B	C	X	Y
X depart	40%	30%	20%	---	10%
Y depart	30%	30%	20%	20%	--

Show the apportionment of the cost of service department by using repeated distribution method.

(5 + 5)

COSTING SOLUTION ANSWER (SEM4)

Solution 1

- a. Meaning.
- b. Any 3 points of difference.

1 c. Re-order level = Max. consumption per day / per week etc. x Max. re-order period

= 75 units x 6 weeks = 450 Units

Maximum Level = Re-order Level + Re-order Quantity - (Minimum consumption per day/per week etc. x Minimum time required to obtain supplies)

= 450 units + 300 units - (25 units x 4 weeks)

= 750 units - 100 units = 650 units

Minimum Level = Re-Order level - (Normal consumption per day/per week etc. x Average re-order period)

= 450 units - (50 units x 5 weeks)

= 450 units - 250 units = 200 units

Solution 2:

- a. Calculation of EOQ

EOQ = $\sqrt{2 * 6400 * 75} / 1.5 = 40000$ units

No. of orders per year = Annual consumption / Size of one order

= 6,400 units / 800 units

= 8 orders

Time gap between two consecutive orders = 12 months / No. of orders

= 12 months / 8 orders

= 1.5 months

b. Primary Distribution method

Allocation and apportionment of factory overhead costs to production and service department

Items of overhead	Basis of apportionment	Ratio	Total	Production department		Service department	
				P	Q	S1	S2
Depreciation	Value of asset	10:5:3:1	95,000	50,000	25,000	15,000	5,000
Insurance	Value of asset	10:5:3:1	7600	4,000	2,000	1200	400
Canteen expenses	No. of workers	4:2:2:1	5400	2400	1200	1200	600
Rent, rates and taxes	Floor space	5:4:1:1	18000	8183	6545	1636	1636

Power	Hpof machines	10:5:4:1	10,000	5,000	25000	2000	500
Electricity	Lightpoints	5:3:2:2	2400	1000	600	400	400
Total			138400	70583	37845	21436	8536

SecondaryDistribution

Reappointmentofservicedepartmentcoststoproductiondepartment

Particulars	Production		Service	
	P	Q	S1	S2
Overheadasperprimary distribution	70583	37845	21436	8536
Reappointmenttooverheadof S1toS2,P&Q(W1)	9262	6174	(21436)	6000
	79845	44019	NIL	14536
Reapportionmentofoverhead	13082	1454	NIL	(14536)

Solution 3:

- $EOQ = \sqrt{2 * 4000000 * 100} / 0.5 = 40000$ units
- Total 3 points of distinction required.
- Total Earnings: Halsey: Rs. 47.5; Rowan: Rs. 49.5

Solution 4:

- i. Rs. 2.25; ii. Rs. 1.88; iii. Rs. 2.00
- Explanation.
- Definiton.

Solution 5:

a. Economic Order Quantity (EOQ) = $\sqrt{\frac{2 A. O.}{C}}$

$$= \sqrt{\frac{2 \times 50,000 \times 45}{15\% \times 1.20}}$$

$$= 5,000 \text{ units}$$

$$\text{Re-order Level} = \text{Safety Stock} + (\text{Lead time} \times \text{average consumption})$$

$$= 500 + (10 \text{ days} \times \frac{50,000}{250} \text{ units per day})$$

$$= 2,500 \text{ units}$$

b.

Particulars	Ratio	Production Department			Service	
		A	B	C	X	Y
Total departmental overhead	Given	13600	14700	12800	9000	3000
Distribution of overhead of service	4:3:2:0:1	3600	2700	1800	(9000)	900
departX						
Distribution of overhead of service departY	3:3:2:2:0	1170	1170	780	780	(3900)
Distribution of overhead of service departX	4:3:2:0:1	312	234	156	(780)	78
Distribution of overhead of service departY	3:3:2:2:0	23	23	16	16	(78)
Distribution of overhead of service departX	4:3:2:0:1	6	5	3	(16)	2
Distribution of overhead of service departY	3:3:2:2:0	1	1	--	--	(2_
Total overhead after reapportionment		18712	18833	15555	--	--