

Industrial Engineering (ME-307 E)**Time: Three Hours****Maximum Marks: 100****Note: - Attempt any FIVE questions.**

1. (a) Discuss the contribution of L. Gantt and Frank B. Gilbreth made in management thoughts.
 (b) Discuss briefly the functions of Industrial Engineering and the role it can play in raising industrial productivity. (10+10)

2. (a) Discuss the method of time series analysis for sales forecasting. Give its disadvantages and disadvantages. (8)
 (b) A manufacturer of musical instruments finds that the semi annual sales of one of his products during the past four years have been as follows:

Years	Semi annual period	Sales 10000 units
1	1	5.5
	2	4.2
2	1	5.1
	2	3.9
3	1	4.8
	2	3.5
4	1	4.4
	2	3.2

Using time series analysis of this data obtain a seasonally adjusted forecast for semi annual sales during the fifth and six years. (12)

3. (a). Explain the various costs associated with inventory. (5)
 (b). A manufacturer requires rivets at an approximately constant rate of 2500 kgs per year. The cost of rivets is Rs. 40 per kg. The company's purchase manager estimates that the carrying cost of inventory 10% per year. Procurement cost is Rs. 200 per order:-
 (i). How frequently should orders for rivets be placed and what quantities should be ordered? Also calculate total cost of inventory.
 (ii). If the ordering cost is Rs. 40 per order and 15% is the carrying cost, how would the optimal policy change ? How much is the loss per years because of imperfect cost information? (15)

4. (a). Differentiate between control charts for attributes and control charts for variables. (7)
 (b). Differentiate between sampling inspection and 100% inspection. (7)
 (c). Explain the operating characteristic curve. (6)

5. (a). What is meant by break-even analysis? What are the assumptions of break-even analysis?
 (b). The data of an industrial unit is as follows: (8+12)

Fixed cost of assets= Rs. 24000

Variable cost= Rs. 64000

Sales price/unit= Rs. 10

Contribution for 8000 units = Rs. 16000

- (i). What is the sales volume for break even?
 (ii). What should be selling price if the break even quantity is to be brought down to 10000 units?

6. (a). Explain the function of production control department. (8)
 (b). What do you mean by dispatching? Give its functions and explain the dispatching procedure for any industry . (12)

7. (a). Explain the different methods of allocating overhead expenses. (10)
 (b). Explain the methods of determining depreciation costs. (10)

8. Write short notes on any FOUR:

- (a). Break even analysis (b). ABC Analysis of inventory control (c). Crashing of Network
 (d). Floats and Slacks (e). PERT and CPM.
 (4x5=20)