

Industrial Engineering (ME-307E)**Time: Three Hours****Maximum Marks: 75****Note: - Attempt any five questions.**

1. (a). Define 'Method study'. Discuss the role of method engineer in improving the industrial productivity. Explain the various steps required to conduct method study. (3+5=8)
(b). what do you understand by 'work Measurement'? Discuss the procedure to establish standard time for completion of a job. (7)
2. (a) Discuss the primary fundamentals of an organizations. (7)
(b) Compare line and staff type of organizations. Discuss their suitability. (8)
3. (a). Discuss briefly the functions planning and control. (8)
(b). Discuss the role of product development in order to fight market competition. (7)
4. Determine the quarterly sales for the fifth year by suitable forecasting technique for the data given below (data of 4 years). Also make adjustment for expected seasonal variations:-

Year	Quarter	Sales (1000 units)
1	1	1.0
	2	3.0
	3	4.0
	4	2.0
2	1	1.0
	2	3.0
	3	5.0
	4	3.0
3	1	2.0
	2	4.0
	3	6.0
	4	3.0
4	1	2.0
	2	5.0
	3	7.0
	4	4.0

From this data, determine the equation of the trend line. With this equation, calculate the trend values of quarterly sales for the coming year i.e. 5th year and adjust these values to provide for expected seasonal variations.
(5 + 1 + 6 + 3 = 15)

5. Describe:-

- (a) (i). Functions of Inventory
(ii) Types of inventory (3+2=5)
- (b) The purchase manager of a distillery company is considering three sources of supply for oak barrels. The first supplier offers any quantity of barrel at Rs. 150 each. The second supplier offers barrels in lots of 150 or more at Rs.125 per barrel a year at a constant rate. The carrying costs are 40 or more at Rs.100 each. The distillery uses 1500 barrels a year at constant rate. Carrying costs are 40 percent and it costs the purchasing agent Rs. 400 to place an order. Calculate the total annual cost for the order placed to the probable supplier and find out the supplier to whom orders should be placed. (5+3+2=10)

6. (a). Define value engineering. What are its benefits? (5)
(b) "Value engineering is a powerful cost reduction tool". Justify. (10)
7. (a). What is the importance of ergonomics? Discuss man-machine work Place system. (8)
(b). What is supply chain management? Give objectives and applications. (7)

8. Write short notes on any THREE of the followings:-

- (i). Elements of JTF
- (ii). Wages and Incentives
- (iii). MRP System
- (iv). Time Management
- (v). Economic Indicators method of sales Forecasting. (5 x 3 = 15)