

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

1. (a). Define Industrial Engineering and discuss its functions. (10)
 (b) What is the importance of plant Location? Discuss in detail the factors which should be considered in selecting a site for an industrial plant. (10)
2. (a) Enlist the methods of sales forecasting. Discuss the method of time series analysis for sales forecasting. Give its advantages and disadvantages. (8)
 (b) A wholesale distributor finds that the number of one of his products sold during post seven years is related to an economic index and the data is as follows:

Years	Economic Index	Sales (1000 units)
1	87	13.1
2	122	17.4
3	119	15.3
4	130	22.8
5	93	11.6
6	124	19.2
7	115	14.7

- (i) Determine the equation of the least squares line that gives the relationship between the economic index and sales.
 (ii). Determine the coefficient of correlation between the two. (12)
3. (a) Discuss the cost factors associated with inventory control. (8)
 (b) A hardware store produces and sells hardware items. Following information is available: - (12)
 Expected annual sales = 8000 units
 Ordering cost = Rs. 180 per order
 Holding cost = 10% of average inventory value.
 The items can be purchased in the following schedule:

Lot Size	Unit Price Rs.
1 -999	22.00
1000 - 1499	20.00
1500 - 1999	19.00
2000 and above	18.50

You are required to determine the order size.

4. (a) The balls for ball bearings are inspected by attributes. A sample of 100 inspected daily continuously ten days. The samples are taken randomly from the daily production of 1000 balls. Compute the control limits for (i). P-chart (ii). np chart. (10)
 The observations are as follows:

Date	1	2	3	4	5	6	7	8	9	10
Rejection	18	12	6	15	2	20	14	10	8	6

- (b). Write notes on:
 (i). Consumer's risk and Producer's risk
 (ii). Sequential sampling plan. (5x2=10)
5. (a). Discuss the elements of Product development and design. (10)
 (b) Discuss the economics of introduction of a new design in place of present production. (10)

6. (a). Define Production, Planning and control. Enlist its objectives and discuss under different heads. (8)
- (b). What do you mean by dispatching? Give its functions and explain the dispatching procedure for any industry. (12)

7. (a) Explain the following :

- (i). Prime Cost
- (ii). Costing v/s Estimating. (3x2=6)
- (b) Draw the network of the project with the following situation:
- (i). P is prerequisite of S
- (ii). Q is prerequisite of S and T
- (iii) R is prerequisite of T
- (iv). S and T are prerequisite of V. (8)
- (c) Define stock and updating. Explain the various types of floats. (6)

8. Write notes on any FOUR of the following:

- (i). Effect of Industrial revolution and World War-II on Manufacturing Techniques.
- (ii). ABC Analysis
- (iii). Types of Production
- (iv). Purpose and types of depreciation.
- (v). Break even analysis (5 x 4 =20)

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