

Total No. of Questions : 08]

SEAT No. :

PA-965

[Total No. of Pages : 3

[5927]-418

**B.E. (Mechanical Engineering)  
INDUSTRIAL ENGINEERING**

**(2019 Pattern) (Semester - VII) (402044D) (Elective - III)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates :*

- 1) *Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 , Q.7 or Q.8.*
- 2) *Figures to the right side indicate full marks.*
- 3) *Use of electronic calculator is allowed.*
- 4) *Assume suitable data if necessary.*

**Q1) a)** What do you mean by plant Location? Mr. Vishal wants to start his new plant, for this suggests which are the different factors that he should consider while selecting location for his new plant? **[6]**

b) Explain process layout with suitable sketch. **[6]**

c) Explain types of material flow patterns to achieve optimum flow of material in the plant? **[5]**

OR

**Q2) a)** Explain the term material handling equipment's? Elaborate any four different types of material handling equipment's with suitable applications? **[9]**

b) Compare product layout and Process Layout and explain factors affect while selecting plant layout? **[8]**

**Q3) a)** Explain the term Line Balancing with its objectives? Compare Job Production and Batch Production? (any 4 points) **[9]**

**P.T.O.**

- b) List any six functions of production planning and control. [9]

Past data on the sale of Diesel engines for the last 12 years is given below. By the method of three yearly moving averages establish the trend values and forecast demand for 13<sup>th</sup> year. If the actual demand for 13<sup>th</sup> year is 540 nos. What shall be the forecast of 14<sup>th</sup> year. Take value of smoothing constant is 0.3.

Year	1	2	3	4	5	6	7	8	9	10	11	12
Sale numbers	335	350	330	340	380	410	430	440	430	460	500	560

OR

- Q4)** a) What is demand forecasting? What are applications of demand forecasting? Explain Moving average method of demand forecasting. [9]
- b) For a water bottle, demand is given below. Forecast for the month May was 160 Units with a smoothing constant of 0.20 and using first order exponential smoothing what is forecast for month of October? [9]

Month	Actual Demand
May	250
June	180
July	200
August	260
September	250

- Q5)** a) Elaborate role of materials management in cost reduction and value improvement? Also explain the term "ABC analysis". [9]
- b) Explain vendor rating system with vendor rating criteria? Also explain objectives of JIT. [9]

OR

- Q6) a)** What is inventory control? Explain [9]
- i) MRP - I
  - ii) ERP with different module
- b) The Prisha enterprises use EOQ logic to determine the order quantity for its various components and are planning its orders. The Annual consumption is 80,000 units, Cost to place one order is Rs.1200, Cost per unit is Rs.50 and carrying cost is 6% of unit cost. Find, [9]
- i) EOQ,
  - ii) No. of order per year,
  - iii) Ordering Cost and Carrying Cost
  - iv) Total Cost of Inventory.

- Q7) a)** What is “value analysis”? Explain types of value? [6]
- b) Explain Rapid Entire Body Assessment (REBA) with level of MSD risk. [6]
- c) Write a short note on “KRA”? [5]

OR

- Q8) a)** Elaborate the term “merit rating”? Explain any 4 methods of merit rating? [9]
- b) Define job evaluation? What are its objectives? Explain procedure of job evaluation? [8]

