

Total No. of Questions : 8]

SEAT No. :

P6669

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B.E. (Mechanical)

INDUSTRIAL ENGINEERING

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

Time : 2 ½ 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 indicate full marks.*
- 3) *Use of electronic calculator is allowed*
- 4) *Assume suitable data if necessary.*

Q1) a) Define Plant Location & explain four factors which affects plant location selection. **[6]**

b) Differentiate between Product Layout & Process Layout. **[6]**

c) What are the objectives of material handling? **[6]**

OR

Q2) a) Define material handling. List Material Handling equipment and describe any three of them. **[9]**

b) Describe material flow pattern in material handling with suitable sketches? **[9]**

Q3) a) What are the different techniques of production control? **[9]**

P.T.O.

- b) Explain the need for forecasting. [8]
The past data of monthly sell is as given below:

Month	Actual Sells
1	56
2	76
3	58
4	67
5	75
6	76
7	

- i) If a three month moving average is used to forecast the next month's demand, compute the forecast of the load on the center in the 7th month.
ii) Compute by exponential smoothing for the 7th month. Take smoothing coefficient ($\alpha = 0.3$)

OR

- Q4) a) Write short notes on : [8]
i) Assembly line balancing technique
ii) Capacity Planning

- b) A dealership for Skoda cars sells a particular model of the car in various months of the year shown in the table below. Estimate the forecast for the month of October 2022 Using (Take period $n = 3$) [9]
i) Moving average method
ii) Exponential smoothing method (Take exponential smoothing constant as 0.2)
iii) Comment on the results of above methods.

Month	Sells of cars
Jan 2022	80
Feb 2022	65
March 2022	90
April 2022	70
May 2022	80
June 2022	100
July 2022	85
August 2022	60
September 2022	75

- Q5) a)** Enumerate needs of inventories? [9]
- b)** M/s Patil Brother Ltd. are the manufacturers of Lamps. The following are the details of their operation during 2022 : [9]
- Average monthly market demand 2,000 lamps
Ordering cost` 200 per order
Inventory carrying cost 20% per annum
Cost of lamps` 1000 per lamp
Normal usage 100 lamps per week
Minimum usage 50 lamps per week
Maximum usage 200 lamps per week
Lead time to supply 4 - 6 weeks
Compute from the above :
- Economic order quantity.
 - Maximum level of stock.
 - Minimum level of stock.
 - Re-order level of stock.

OR

- Q6) a)** The annual demand for an item is 3200 parts. The unit cost is Rs. 6 and the inventory carrying charges are estimated as 25% per annum. If the cost of one procurement is Rs. 150. Calculate. [9]
- EOQ
 - Number of orders per year
 - Time between two consecutive order
 - The optimal cost
- b)** Write a short note on EPR? Also explain different modules present in ERP. [9]

- Q7) a)** Write a short note on Value Engineering. [5]
- b)** Enlist the objectives of job evaluation. [6]
- c)** Explain the principle of ergonomics. [6]

OR

- Q8) a)** What is Performance Appraisal? Explain Performance Appraisal methods. [9]
- b)** Explain the quantitative & qualitative methods of Job evaluation. [8]

