Total No. of Questions : 8]

SEAT No. :

P-648

[Total No. of Pages : 3

[6004]-609

B.E. (Mechanical)

Industrial Engineering

(2019 Pattern) (Semester - VII) (402044D) (Electie - 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 indicate full marks.***
3) ***Use of electronic calculator is allowed.***
4) ***Assume suitable data, if necessary.***

Q1) a) Sketch and explain in brief Material flow patterns. **[6]**

b) Explain product layout with advantage and disadvantage. **[6]**

c) Summarize the different principles of material handling? **[6]**

OR

Q2) a) Explain plant location also describe the factors to be considered while finalizing the plant location with suitable illustration. **[9]**

b) Explain different material handling equipment's with their application. **[9]**

Q3) a) Write short notes on : **[8]**

i) Assembly line balancing technique

ii) Capacity Planning

b) Explain the need for forecasting The past data about the load on a machine center is as given below : **[9]**

Month	Sells of cars
1	585
2	611
3	656
4	748
5	863
6	914
7	964

P.T.O.

i) If a five month moving average is used to forecast the next month's demand, compute the forecast of the load on the center in the 8th month.

ii) Compute a weighted three moving average for the 8th month, where the weights are 0.5 for the latest month, 0.3 and 0.2 for the other months, respectively.

OR

Q4) a) Enlist different types of production? Describe various functions of Production Planning& Control. **[8]**

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	85
Feb 2022	70
March 2022	90
April 2022	70
May 2022	80
June 2022	100
July 2022	85
August 2022	65
September 2022	75

Q5) a) Write short notes on : **[9]**

i) Just-in-time (JIT)

ii) MRP-I

iii) EOQ

b) Annual requirement of an item is 2400 units. Each item costs the company Rs. 6. The manufacturer offers discount of 5% if 500 or more quantities are purchased. The ordering cost is Rs. 32/- per order and inventory cost is 16% Weather it is a advisable to accept the discount? Comment. **[9]**

OR

Q6) a) The annual demand for an item is 3500 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]**

i) EOQ

ii) Number of orders per year

iii) Time between two consecutive order

iv) The optimal cost

b) Explain any thee selective control techniques of inventory. **[9]**

Q7) a) Describe the principles of ergonomics. **[5]**

b) Explain the steps involved in job evaluation. **[6]**

c) Write short a note on the "KRA". **[6]**

OR

Q8) a) Explain the quantitative & qualitative methods of Job evaluation. **[8]**

b) What is performance appraisal? Enlist various performance appraisal methods. Explain Rapid upper limb assessment (RULA) with level of MSD risk. **[9]**

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