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SEAT No. :

P1963

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[5059] - 546

B.E. (Mechanical Engineering)

INDUSTRIAL ENGINEERING

(2012 Pattern) (Semester - II) (Elective - III)

Time : 2½ Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) Answers should be written in one answer book.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right indicate full marks.*
- 4) Assume suitable data if necessary.*

Q1) Explain briefly the productivity improvement techniques. **[6]**

OR

Q2) Write short note on : **[6]**

- a) Organization chart
- b) Delegation of Authority

Q3) Define method study. Explain procedure of method study. **[7]**

OR

Q4) Write short note on : **[7]**

- a) Travel chart
- b) String diagram

Q5) Write short notes on: (Any Two) **[7]**

- a) Qualified worker.
- b) Performance rating.
- c) Work measurement.

OR

P.T.O.

Q6) Following are the element times of a machining operation. The corresponding rating and relaxation allowances are given in table as below:

Element	Observed Time (Min)	Frequency	Performance Rating	Relaxation Allowance (%)
1	0.15	1	100	12
2	0.12	1	90	15
3	0.08	1	75	11
4	10.00	1/50	80	11
5	6.00	1/55	90	13

Calculate normal time, standard time for this job. [7]

Q7) a) ABC Company uses exponential smoothing with $\alpha = 0.15$ for estimating a demand. Following table shows the demand for 6 months. The forecast for June is 500 units. Estimate the forecast for December. [8]

Month	Actual Demand	Forecast
June	450	500
July	505	
August	516	
September	488	
October	467	
November	554	

b) Explain briefly ABC analysis and VED analysis used in Industries.[8]

OR

Q8) a) Annual demand for an item is 5400 units, ordering cost is Rs 600 per order, inventory carrying cost is 12% of average inventory. Determine order size. [8]

Lot size	Unit Price(Rs)
0-2300	12
2400-2999	10
3000 and above	8

- b) What is demand forecasting? Explain Moving Average Method for demand forecasting. [8]

- Q9)** a) In a company for one product assembly line requires 7 different tasks. Precedence information and task time is given below. If cycle time is 7 minutes find the minimum number of stations. Also calculate the line efficiency and smoothness index. [9]

Task, t	Task time, t	Precedence
1	3	None
2	4	1
3	1	1
4	4	1
5	3	2
6	1	3 and 4
7	2	5 and 6

- b) Write short note on : [8]
- Selection criterion for material handling.
 - Supply chain network.

OR

- Q10)** a) Define plant location and plant layout. What are various factors involved in selection of site for good plant. [9]

- b) Write short note on [8]
- Material flow patterns
 - Line balancing

- Q11)** a) Write short note on Depreciation and causes for depreciation. [8]

- b) A Company has given following information [9]

Data	Rs.
Sales	1,50,000/-
Variable Overheads	1,20,000/-
Gross Profit	60,000/-
Fixed Overheads	20,000/-
Net Profit	40,000/-

Determine-

- P/V ratio
- BEP
- Net profit when sales are Rs. 4,00,000/-

OR

- Q12)**a) What is importance of standard costing? Explain different elements of costs. [8]
- b) A factory producing only one item which it sells for Rs. 12.50 per unit has fixed cost Rs. 60,000 and variable cost is Rs. 7.50 per unit. Find out [9]
- i) No. of units to be produced to break even
 - ii) No. of units to be produced to earn profit Rs. 12,000/-
 - iii) The profit if 25,000 units are produced and sold.

