

Total No. of Questions : 12]

SEAT No. :

P5140

[Total No. of Pages : 3

[5561]-544

**B.E. (Mechanical Engineering)**  
**INDUSTRIAL ENGINEERING (Elective - III)**  
**(2015 Pattern) (Semester - II)**

*Time : 2 Hours 30 Minutes]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Answers should be written in one answer book.*
  - 2) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.12.*
  - 3) *Neat diagrams must be drawn wherever necessary.*
  - 4) *Figures to the right side indicate full marks.*
  - 5) *Assume Suitable data if necessary.*
- Q1)** a) Define productivity? Explain various factors which affect productivity?[4]  
b) Explain any two productivity models used in Industrial Engineering? [4]  
OR
- Q2)** a) Enlist elements of an organization? Explain the term departmentalization in details? [4]  
b) Enlist any 4 objectives of an industrial engineering? [4]
- Q3)** What are therblings? Give any 5 therblings with symbols? [6]  
OR
- Q4)** Describe Travel chart following with suitable example. [6]
- Q5)** a) Define the term:- work sampling. [2]  
b) In a work sampling study carried out in heat treatment shop, following data was collected [4]  
i) Total time spent by the operator = 450 minutes  
ii) Number of components produced = 150 No's  
iii) Working time of the operator = 70%  
iv) Idle time for operator = 30%  
v) Avg. rating for operator = 90%  
Calculate the standard time for the component if total relaxation allowance is 30% of the basic time?

**P.T.O.**

OR

- Q6)** a) Define the term with suitable example:- MOST. [2]  
b) Compare : Work sampling and PMTS? [4]
- Q7)** a) Explain SCM with flow diagram? Discuss its importance in industry?[8]  
b) Write a short note on [8]  
i) Aggregate planning  
ii) Push and Pull System

OR

- Q8)** a) Discuss the importance of sales forecasting. Explain any one method of sales forecasting? [8]  
b) Discuss MRP-I and MRP-II with suitable example. [8]
- Q9)** a) Enlist & Explain different computer aided layout design techniques? [8]  
b) Classify & Explain different types of material handling equipments? [8]

OR

- Q10)**a) Define Inventory and its importance. Enlist different types of Inventories? Also explain various costs involved with Inventory? [8]  
b) A manufacturing company requires 9000 units per year. Ordering cost is Rs. 125/- per order and carrying cost is 20%. Purchase price per unit is Rs. 42 Determine [6]  
i) EOQ  
ii) Optimum number of orders  
iii) Total cost including acquisition of material  
c) Explain the term:- ABC analysis. [2]
- Q11)**a) Write a short note on : [10]  
i) KRA  
ii) Break even analysis  
b) What is cost accounting? What are objectives of cost accounting? Explain elements of cost. [8]

OR

**Q12)a)** What is industrial safety? What are the objectives of industrial safety?  
Explain general safety rules. **[8]**

b) Calculate B.E.P.(In Unit and In Rupee) from the following information.**[5]**

Fixed cost = Rs 1200/-

Variable cost = Rs 4000/-

Sales in rupee = Rs 7000

Sales in unit = Rs 1000/-

c) Explain the term:- Payback method. **[5]**

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