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B.Tech IV Year II Semester (R15) Advanced Supplementary Examinations July 2019

INDUSTRIAL ENGINEERING

(Mechanical Engineering)

Max. Marks: 70

Time: 3 hours

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
 - (a) What is the systems approach in management?
 - (b) Mention any four principles of organization.
 - (c) What is the use of machine data cards in plant layout?
 - (d) What is the principle of "unit load" and explain with an example?
 - (e) Define the concept of rating and standard time.
 - (f) Mention any five fundamental motions of MTM.
 - (g) What is Pareto analysis? How does it helps in controlling the inventory?
 - (h) Write note on: (i) VED. (ii) SDE Inventory.
 - (i) What is meant by process capability? How will you determine the same?
 - (j) Differentiate between "Attribute charts" and variable charts.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Define departmentation and decentralization. Explain their merits, demerits and suitability.

OR

3 Discuss on the principles of Taylor scientific management.

4 How do you classify material handling devices? Explain each with examples.

OR

5 Explain product layout and process layout also state the factors which influence the selection of these layouts.

UNIT – III

6 Define time study, name the time study equipments and explain the utility of each of them.

OR

7 Explain the various types recording techniques used in method study.

UNIT – IV

8 For one of the brought out items, the following are the relevant data: Ordering cost = Rs 500, Holding cost = 40%, Cost per item = Rs 100, Annual demand = 1000. The purchase manager placed five orders of equal quantity in one year, in order to avail the discount of 5% on the cost if items. Work out the gain or loss to the organization due to his ordering policy for this item.

OR

Considering the following: Unit cost = Rs 100, Ordering cost = 160, inventory carrying cost = Rs 20, Back order cost (Stock-out cost) = Rs 10; annual demand = 1000 units. Compute the following:
(i) Minimum cost order quantity. (ii) Time between orders. (iii) Maximum number of back orders. (iv) Maximum inventory level. (v) Overall annual cost.

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UNIT – V

10 Define TQM and describe its various elements.

OR

11 Compare X chart with R chart. Discuss the circumstances in which either of the two or a combination of these will be used for the purpose of control. The following are \overline{X} and R values of 4 subgroups of readings:

 \overline{X} = 10.2, 12.1, 10.8 and 10.9

R = 1.1, 1.3, 0.9 and 0.8

The specification limits for the components are 10.7 ± 0.2 .

Establish the control limits for \overline{X} and R charts. Will the product able to meet specifications.

Given: A₂ (factor for \overline{X} chart) = 0.58

 D_4 (factor for R chart) = 2.11

 D_5 (factor for R chart) = 0.00

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