Code: 9A03801

R09

B.Tech IV Year II Semester (R09) Regular & Supplementary Examinations April 2016
PRODUCTION & OPERATIONS MANAGEMENT
(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) Explain the techniques involved to improve productivity.
  (b) Write a note on various types of production systems.

2 (a) Define forecasting. What are the factors affecting forecasting?
  (b) Describe any two types of forecasting techniques.

3 (a) What are the factors affecting plant location?
  (b) Write a note on computerized relationship layout planning (CORELAP).

4 (a) List out the objectives of aggregate planning.
  (b) Explain the linear programming model for aggregate planning.

5 (a) The annual demand for an automobile component is 24,000 units. The carrying cost is Rs 0.40 per unit per year, the ordering cost is Rs 20.00 per order and the shortage cost is Rs 10.00 per unit year. Find the optimal values of the following:
      (i) Economic order quantity (EOQ).
      (ii) Maximum inventory.
      (iii) Cycle time.
      (iv) Inventory period (t_1).
  (b) What do you understand ABC and VED analysis? Explain.

6 (a) Consider the following 3 machines and 5 jobs flow shop problem. Check whether Johnson's rule can be extended to this problem. If so, what is the optimal schedule and the corresponding make span?

Job	Machine 1	Machine 2	Machine 3
1	11	12	10
2	13	8	18
3	15	7	15
4	12	8	14
5	11	6	13
6	16	9	12

  (b) What is the job shop scheduling problem? Write the differences between flow shop and job shop scheduling.

7 (a) Explain the following inputs of MRP.
      (i) Master production schedule (MPS). (ii) Inventory status file. (iii) Bill of materials (BOM).
  (b) Write the applications of line of balancing (LOB) and describe the steps of line of balancing.

8 (a) What do you understand Lean manufacturing technique? And how it is implemented in industry.
  (b) Write a note on JIT concept.

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