

[Total No. of Questions - 8] [Total No. of Printed Pages - 2]  
(2066)

16424(J)

M. Tech 2nd Semester Examination

Management of Production Systems

PE-E15

Time : 3 Hours

Max. Marks : 100

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

**Note :** Attempt any five questions. All questions carry equal marks.

1. (a) List out the functional elements of a system. Explain general system theory. (10)  
(b) Explain the concept of system. How system approach is adopted in manufacturing industry? (10)
2. (a) Define and explain the following terms used in linear programming: (i) Objective function, (ii) Constraints, (iii) Feasible solution, (iv) Optimal solution and (v) Decision variable. (10)  
(b) A company is manufacturing two products A and B. The net profit for these products is Rs. 60 and Rs. 50 respectively. These products require working in two departments C and D. The available hours per month in these departments are 150 each. Product A requires 2 hours in department C and 3 hours in department D. Product B requires 3 hours in department C and 2 hours in department D. The production of the product A and B cannot exceed 40 units each because of marketability constraints. Formulate the linear programming model and solve it by simplex method. (10)

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3. (a) What do you understand by a 'man-machine system'? How is the man-machine systems classified? Name the important aspects of a man-machine system. Explain any two of them in details. (10)  
(b) Describe the following in connection with a man-machine system: (i) Design of work posture and (ii) Design of controls. (10)
4. (a) Define 'Material Resources Planning' (MRP) and describe the various steps involved in working of MRP. (10)  
(b) Explain in detail the impact of advancing technology on program management. (10)
5. (a) Define the terms set-up cost, holding cost and shortage or penalty cost as applied to an inventory problem. (10)  
(b) Explain the role of management cybernetics in controlling a manufacturing firm. (10)
6. (a) How is the Monte Carlo analysis carried out? Explain the analysis with the help of suitable simple example. (10)  
(b) Explain in detail the motivations and leadership factors in system design. (10)
7. (a) Enumerate the various types of inventory models. Explain any one in detail. (10)  
(b) Write short note on large scale integrating system. (10)
8. Write short notes on:
  - (a) Industrial dynamics.
  - (b) Microanalysis of complex system.
  - (c) Matrix organization.
  - (d) Enterprise control system. (5×4= 20)