Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 08

M.Tech.(CAD/CAM) (Sem.–2)

SYSTEM DESIGN & ANALYSIS

Subject Code : ME-503

M.Code : 23507

Time : 3 Hrs. **Max. Marks : 100**

INSTRUCTION TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carries TWENTY marks.**

1. What do you understand by "system" in system design and analysis? Discuss with the help of a suitable example. List the :

   a) entities

   b) attributes

   c) activities in a :

      i) supermarket and

      ii) petrol/diesel filling station.

2. How will you formulate model of a system? Discuss the use of system flow graphs in modeling and simulating systems.

3. "*The term simulation is used to describe any procedure of establishing a model and deriving a solution numerically*". Comment. What is Monte-Carlo method of simulation?

4. What do you understand by discrete system simulation? Discuss the general procedure involved in preparing a computer program for simulating a discrete system.

5. Discuss the exponential growth and exponential decay models used in system dynamics modeling.

6. A company manufacturing a certain product is to supply 40 units at the end of month 1 and 60 units at the end of month 2. The cost of manufacturing x units every month is given by $c(x) = 100x + 0.4x^2$. The company has a monthly production capacity of 100 units and there is an inventory carrying cost of Rs. 5 per unit carried over from month 1 to month 2. How many units should the company produce per month to minimize the total cost assuming that there is no initial inventory?

7. Discuss the role of game theory in scientific decision making. What are the limitations of game theory?

8. Write short notes on :

   a) Role of analog computers in simulation

   b) Techniques for creative design

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.