

Paper ID [PE 304]

(Please fill this Paper ID in OMR Sheet)

B.Tech. (Sem. - 6th)

MODELLING & SIMULATION (PE - 304)

Time : 03 Hours

Maximum Marks : 60

Instruction to Candidates:

- 1) Section - A is **Compulsory**.
- 2) Attempt any **Four** questions from Section - B.
- 3) Attempt any **Two** questions from Section - C.

Section - A

Q1)

(10 x 2 = 20)

- a) Define system and its types.
- b) Write a short note on Stochastic activities.
- c) Enlist the advantages of modeling and simulation.
- d) Differentiate simulation and analytical solutions.
- e) Define feed back system.
- f) Differentiate continuous and discrete system.
- g) Differentiate deterministic & stochastic simulation models.
- h) Define predictive model. Discuss its various types.
- i) Differentiate static and dynamic physical models.
- j) Discuss briefly the time scaling.

Section - B

(4 x 5 = 20)

- Q2) What are the various kinds of analytical models? Discuss briefly.
- Q3) Give examples of differential equations used to define food processing. Enlist the various numerical methods to solve these equations.
- Q4) Write a brief note on analog computers. Enlist the basic analog computer components.
- Q5) Discuss briefly continuous and discrete probability distributions.
- Q6) Explain Monte Carlo method of simulation.

Section - C

(2 x 10 = 20)

- Q7) Discuss the various steps of mathematical modeling.
- Q8) Form a model for dynamic system & Simulate this model on analog computer.
- Q9) Define simulation language. Give detailed overview of GPSS.