

(Following Paper ID and Roll No. to be filled in your Answer Books)

PAPER ID :**Roll No.**

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B.TECH.

Theory Examination (Semester-IV) 2015-16
BASICS OF SYSTEM MODELLING AND SIMULATION

Time : 3 Hours**Max. Marks : 100****SECTION—A****(2×10=20)****1. Attempt all parts:**

- Classify the different types of models.
- Write the component of system with example.
- What is the system modeling?
- Compare Analytical and Simulation Model.
- What are the properties of C.D.F.?
- What do you mean by parameter estimator?
- Define Service Utilization?
- Define Kendall notation for queuing theory.
- What do you mean by reliability estimation?
- What is the real world application of simulation?

SECTION—B**(5×10=50)****2. Attempt any five parts of the following:**

- Define the entities, attributes and activities of a cafeteria, grocery store and a fast food.
- Write down the principles and steps in creating system modeling with required flow table.
- Define System dynamics with flow diagrams used to represent it and also differentiate between Casual Loop diagram and State Flow diagram.
- What is the criterion of selecting appropriate modeling techniques?
- Discuss in detail the difference between Validation and Verification.
- Discuss the Poisson distribution. Derive an expression of it.
- Discuss the procedure involved in developing the mathematical model for a physical system.
- Explain any **two** the following :
 - Transfer line model
 - Inventory system model
 - Deadlock detection model.

SECTION—C**(15×2=30)****Attempt any two questions:****3. Attempt the following:**

- What is the Simulation? What are the needs, advantages and disadvantages of simulation modeling?
- Discuss the merits and demerits of simulation.

4. Attempt the following:

- What is the model? What is the type of system model and what are the differences between static and dynamic model?
- What is the Monte Carlo method? Explain with any one example.

5. Attempt the following:

- What are GOOD-OF-FIT tests? Explain any one method with the example.
- What is the Distributed Lag Model and COBWEB Model? Explain with example.