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

B.TECH.

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

Time : 3 Hours

Printed Pages : 1

Max. Marks : 100

SECTION—A

(2×10=20)

1. Attempt all parts:

- (a) Classify the different types of models.
- (b) Write the component of system with example.
- (c) What is the system modeling?
- (d) Compare Analytical and Simulation Model.
- (e) What are the properties of C.D.F.?
- (f) What do you mean by parameter estimator?
- (g) Define Service Utilization?
- (h) Define Kendall notation for queuing theory.
- (i) What do you mean by reliability estimation?
- (j) What is the real world application of simulation?

SECTION—B

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

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

SECTION—C (15×2=30)

Attempt any two questions:

3. Attempt the following:

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

4. Attempt the following:

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

5. Attempt the following:

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