(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   *Max. Marks : 100*

SECTION—A
1. Attempt all parts: **(2×10=20)**
(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
Attempt any two questions: **(15×2=30)**
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.