Course Code:CIT 412
Course Title:Modelling & Simulation
Credit Unit:3
Time Allowed: 2 Hours

Instruction:Answer Any 4 Questions

1. (a) Explain the term Simulation and enumerate its objectives and its various types. (12 marks)
   (b) Using suitable diagram, identify the various steps involved in the physical
      simulation process   (5.5marks)

2. (a) Using Monte Carlo's Algorithm, outline the steps involved in deriving an

   Algorithm.   (5 marks)

   (b) Enumerate and discuss at least six areas of application of the Monte Carlo's

   Method.   (12.5marks)

3. (a) Carefully explain theCongruential Methods.   (4marks)
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   (b) Enumerate and discuss explicitly the various methods of generating random numbers;
      indicating the formulas applicable under each methods.   (13.5marks)

4. (a) Using suitable diagram, identify the various constituents of Visual Modelling. (6 marks)

   (b) Enumerate and explain five types of models available, outlining at least five
procedures involved inmodelling.   (11.5 marks)

5.(a) Briefly explain when a probability is:
      i.   Jointly
      ii.   Mutually Exclusive
      iii. Conditional   (7.5 marks)
   (b) Outline and discuss the three perspective to a Data Model   (10 marks)

6. (a) Explain how a computer generates a sequence of random numbers.Outline other ways of Generating pseudo-random numbers.   (9 marks)

  (b) Write a QBASIC program to simulate the tossing of a fair coin 10 times. The program displays a Hwhen a Head appears and a T when a Tail appears.(8.5 marks)