Second Semester M.Tech Degree Examination, September 2014

Branch: Civil Engineering (2013 Scheme)

Stream: TRAFFIC AND TRANSPORTATION ENGINEERING

CTE 2004: Traffic Simulation Modelling and Applications

Time: 3hr   Max mark: 60

Answer any 2 questions from each module

MODULE 1

1. (a) Explain the two approaches of pseudo random number?   **(5)**
    (b)Define random numbers and list out its properties?   **(5)**

2. Explain the different statistical tests for pseudo random generators?   **(10)**

3. (a) Briefly explain the Congruential method and LFG method?   **(5)**
    (b) Discuss about composite generators and its advantages?   **(5)**

MODULE 2

4. Explain the different techniques to generate random variates?   **(10)**

5. Explain the queuing theory concepts and characteristics of queuing systems?   **(10)**

6. Give a brief description about

      (a) Measures of performance of queuing systems   **(5)**

      (b) Steady state behaviour of Markovian models   **(5)**

MODULE 3

7. Draw a flow chart to model vehicle arrival pattern at an uncontrolled intersection and explain its working.   **(10)**

8. Explain the analytical solution of simulating a single server queueing system under steady state conditions.   **(10)**

9. Write short notes on:

    (a) Cellar automated constants.   **(5)**

    (b) A typical problem of a queueing system in traffic engineering.   **(5)**