

GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. - SEMESTER – I • EXAMINATION – SUMMER • 2014

Subject code: 712106N**Date: 21-06-2014****Subject Name: Modelling Simulation and Computer Application****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain purpose and classification of model. **07**
 (b) Write short note on MATLAB for various simulation tools. **07**
- Q.2** (a) Discuss computer techniques for simulation **07**
 (b) Write short note on various simulation software used in the field of mechanical engineering. **07**
- OR**
- (b) Write short note on various simulation software used in the field of civil engineering **07**
- Q.3** (a) Discuss analog & hybrid simulation system. **07**
 (b) Explain computer technique for simulation application for small hydro project. **07**
- OR**
- Q.3** (a) Draw and explain logic structure of thermodynamic base simulation of I. C. Engine operation cycle. **07**
 (b) The number of accidents in a year involving taxi drivers in a city follow a Poisson distribution with mean equal to 3. Out of 1000 taxi drivers find approximately the number of drivers with (i) no accident in a year (ii) more than 3 accident in a year [$e^{-3} = 0.0498$]. **07**
- Q.4** (a) Explain Monte carlo method and state the points which make it different from other simulation. **07**
 (b) Explain optimization tool box of MATLAB. **07**
- OR**
- Q.4** (a) What do you understand linear & nonlinear systems of modelling ? **07**
 (b) Find the Probability that no defective fuse will be found in a box of 200 fuses if experience show that 2% such fuses are defective. **07**
- Q.5** (a) What do you understand stochastic variables system ? Also discuss rejection method. **07**
 (b) Explain image processing tool box of MATLAB. **07**
- OR**
- Q.5** (a) How computer techniques is applicable for renewable energy projects ? **07**
 (b) What is the need of combustion modelling for I C Engine ? **07**
