**KHWOPA ENGINEERING COLLEGE**

**Seventh Semester Assessment - 2017**

lEVEL:- B. E. (Computer) IV/VII

SUBJECT:- BEG473CO, Simulation and Modeling

FULL MARKS:- 80

TIME:- 03:00 hrs. 2074-04-08 PASS MARKS:- 32

*Candidates are requested to give their answers in their own words as far as practicable.*

*Figures in the margin indicate full marks.*

**Attempt any Eight Questions**. **[8x10=80]**

Q.1. Differentiate between static mathematical model and dynamic mathematical model. Take suitable examples to illustrate these models.

Q.2. Differentiate between Monte Carlo and stochastic simulation. Discuss the steps for Monte Carlo simulation.

Q.3. What is the significance of queue in simulation? What are the queuing disciplines you are familiar with? Discuss Kendall’s Notation in brief.

Q.4.The emergency of a hospital receives on an average of 71 patients in a day. On an average a patient can be given 12 min. of active attention and the section can handle only one patient at a time. What is the average number of patients in the section and those waiting for attention? What is the average waiting time per patient and the average time which could be devoted to a patient?

Q.5. What are the characteristics of a good random number generator? Generate random numbers using m=16, a=5, c=3 and x0=7 using mix3ed congruential generator.

Q.6. The sequence of random numbers 0.54, 0.73, 0.98, 0.11 and 0.68 has been generated. Use K-S test with α=0.05 and Dα=0.565 to determine if the hypothesis that the numbers are uniformly distributed on the interval [0, 1] can be rejected?

Q.7. What do you mean by an analog computer? Develop an analog computer model of automobile wheel suspension system.

Q.8. What is GPSS? Discuss the features of GPSS. Simulate a manufacturing shop model having single inspector using GPSS.

Q.9. Write short notes on (any two)

a. Markov Chains

b. Steps and phases in Simulation study

c. Verification and Validation of Models

**The End**