Dr. Rajender

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-3 EXAMINATION (May 2018)
B-Tech (6th SEM)

Course Code: 16B22CI621 Max. Marks: 35
Course Name: Data Analysis and Simulation Techniques Max. Time: 2 HRS
Course Credit: 4

Note: All questions are compulsory. Scientific calculator is allowed in the examination. Attempt question at one place of answer sheet.

Q. No. 1 [CO-3] **[3 Marks]**

Given a set of paired data (X,Y)
a. if Y is independent of X, then what value of a correlation coefficient would you expect?
b. if Y is linearly dependent on X, then what value of a correlation coefficient would you expect?
c. How could Y be closely dependent upon X yet $r \approx 0$?

Q. No. 2 [CO-6] **[3 Marks]**

Provide detailed classification of simulation software's available in the market.

Q. No. 3 [CO-2] **[3 Marks]**

Explain the role of Project understanding in Data analysis process based on problems faced by the project developer and owner.

Q. No. 4 [CO-5] **[3 Marks]**

Provide any three methods for generation of random numbers with example of each of the technique.

Q. No. 5 [CO-6] **[3 Marks]**

Briefly explain all the ethics which should be followed while designing and constructing any simulation environment.

Q. No. 6 [CO-2] **[3 Marks]**

Explain box plots for data visualization with example and also provide its different components.

Q. No. 7 [CO-5] **[4 Marks]**

List all the properties of petri nets with suitable diagram of each.

Q. No. 8 [CO-1] **[4 Marks]**

What is the role of random numbers in Monte Carlo Simulations and list three different scenarios where you will recommend to use Monte Carlo simulation.

Q. No. 9 [CO-5] **[4 Marks]**

Construct an Activity Cycle Diagram for registration of elective subjects in any university. Take the assumption that elective subjects will be allocated based on CGPA of students.

Q. No. 10 [CO-1] **[5 Marks]**

A businessman is considering taking over a certain new business. Based on past information and his own knowledge of the business. He works out the probability distributions of the daily costs and sales revenues, as given here:

Cost(in Rs)	Probability	Sales	Probability
8500	0.10	9500	0.10
9000	0.10	10000	0.10
9500	0.40	10500	0.20
10000	0.20	11000	0.40
10500	0.20	11500	0.15
		12000	0.05

Use the following sequences of random numbers to be used for estimating costs and revenues. Obtain the average daily net revenue.

Cost: 81, 83, 27, 81, 35, 91, 72, 90, 62, 28, 26, 25, 91, 62, 82, 02, 12, 38, 10, 18.

Sales: 38, 71, 28, 70, 82, 18, 71, 91, 58, 48, 38, 71, 92, 02, 91, 73, 17, 09, 04.