National Academy of Science & Technology

Dhangadhi Engineering College Dhangadhi, Kailali

Pre-University Examination

Level: Bachelor Year: 2020
Programme: BCA Full Marks: 100
Course: Simulation and Modelling Pass Marks: 45
Time: 3hrs.

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

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What is Simulation? Explain the application areas of simulation.

b) 8

7

7

8

a) Why Monte Carlo method is used in simulation? Evaluate the value of
following integral using Mote Carlo method and also calculate the
error percentage.

$$\int_0^1 \frac{4}{1+x^2} \, dx$$

b) Construct analog computer for following system:

 $1.5(d^2x/dt^2)+0.5(dx/dt)+x=4$

3. a) What are the statements used in CSMPIII? Explain with example.

b) Show the process for the delayed-call system in a simulation of a Telephone system with diagram.

4. a) What is discrete system? Explain discrete simulation language with 7 7 examples

b)	What do you mean by random numbers? Suppose that five numbers	
	0.44, 081, 0.14, 0.05, 0.93 were generated by a number generator. It	8
	is desired to perform a test for the uniformity at the level of	
	significance 0.05. Use Kolmogorov-Smirov Test to perform the test.	
a)	Explain the types of simulation languages.	7
b)	Write GPSS code for manufacturing shop model with one inspection	8
	processed at one time.	
a)	What types of tasks are referred as analysis of simulation output?	7
	Explain Estimation Methods for Analysis of simulation output.	
b)	Discuss about the process of eliminating initial bias effect.	8
Write short notes on: (Any two)		2×5
a)	Predator Prey Model	

5.

6.

7.

a)b)

c)

Pseudo Random Numbers

SIMSCRIPT