BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2025)

CLASS: BTECH **SEMESTER : IV**
BRANCH: PIE **SESSION : SP/2025**

SUBJECT: PE222 DISCRETE-EVENT SYSTEM SIMULATION

TIME: 02 Hours **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Monte Carlo Simulation is deterministic or Stochastic. Give an example of it.	[2]	1	3
Q.1(b)	Differentiate between a deterministic dynamic model which is continuous with a stochastic dynamic model which is discrete. Cite examples.	[3]	1	3
Q.2(a)	Differentiate between conceptual and computational model.	[2]	2	2
Q.2(b)	What are the feedback provisions in the flowchart for model development.	[3]	2	2
Q.3(a)	What is 'Experimental Design' in the context of simulation.	[2]	2	2
Q.3(b)	Construct a flow diagram for 'Unit entering System'.	[3]	3	3
Q.4(a)	Differentiate between 'Delay' and 'Activity' from programming point of view.	[2]	3	3
Q.4(b)	The probability distribution of the number of cars arriving per day in an auto-garage is as follows:	[3]	2	2

Number of cars	Probability
50	0.31
60	0.19
75	0.29
80	0.21

Consumption of a car cleaning liquid is 15 ml/car. Estimate the requirement of cleaning liquid for the next five days using simulation.

Q.5(a)	Decode the queue denoted as H/G/2/5/∞	[2]	3	2
Q.5(b)	Compare between a deterministic and stochastic inventory system for the purpose of simulation.	[3]	2	3

::::::24/02/2025::::::E