Name: Enrolment No:	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: M.Tech CSE **Semester: II**
Program: Modelling and Simulation of Digital Systems **Time 03 hrs.**
Course Code: CSEG 7005 **Max. Marks: 100**

S. No.		Marks	CO
	SECTION A		
Q 1	Explain discrete and continuous simulation system with example.	**4**	**CO1**
Q 2	Elaborate are the principles of modeling.	**4**	**CO2**
Q 3	Differentiate Pseudo code and algorithm with example.	**4**	**CO2**
Q 4	Explain the Combined Linear Congruential generators.	**4**	**CO3**
Q 5	Explain any 4 applications of simulation.	**4**	**CO4**
	SECTION B		
Q 6	Define simulation. Explain the purpose, limitation and advantages of simulation.	**10**	**CO3**
Q 7	Which scheduling policy is most suitable for time-shared systems and why?	**10**	**CO4**
Q 8	Explain the Analytical Hierarchical Process with examples.	**10**	**CO1** **CO2**
Q 9	"*A classic example of exponential growth is expansion of bacterial colonies*". Making suitable assumptions design a mathematical model to replicate the bacterial growths on a system. OR We observe the following n = 8 data points: 1.41 0.26 1.97 0.33 0.55 0.77 1.46 1.18 Is there any evidence to suggest that the data were not randomly sampled from a Uniform (0, 2) distribution?	**10**	**CO4**
	SECTION-C		
Q 10	Critically discuss the Verification and Validation of Digital Models? Explain the techniques with suitable examples and diagrams.	**20**	**CO3** **CO4**
Q 11	For each of the following pairs of terms, define each term, and state the key difference(s) between the two terms: a) "simulation model" and "analytical model" b) "transient" and "steady-state" c) "confidence interval" and "confidence level" d) "2 test" and "KS test" e) "open queueing network" and "closed queueing network"	**20**	**CO1** **CO3** **CO4**

	OR Construct Causal Graphs for the following cases (make suitable assumptions and justify with explanations): a) Climate change in India b) Speech modulation and sentiments		