Subject Code: KCA023

PAPER ID-311787

Roll No: | | | | | | | | | | | | | |

MCA
(SEM III) THEORY EXAMINATION 2023-24
SIMULATION & MODELING

TIME: 3HRS **M.MARKS: 100**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

Qno.	Question	Marks	CO
a.	What are the various aspects of system study?	2	1
b.	Define Dynamic Mathematical Models?	2	1
c.	Write a short note on : Hybrid Simulation	2	2
d.	Write the relationship between $L,\ W,\ L_q\ and\ W_q$?	2	2
e.	What is the Parameter Estimation?	2	3
f.	What are the acceptance and rejection techniques?	2	3
g.	Define advantages of Poisson Distribution?	2	4
h.	Define Queue Behavior and Discipline?	2	4
i.	What is activity network?	2	5
j.	What is continuous simulation?	2	5

SECTION B

2. Attempt any *three* of the following: **10 x 3 = 30**

a.	Name four principal entities, attributes and activities for the following systems— i. University examination system ii. A cafeteria	10	1
b.	Describe simulation of single server queuing system.	10	2
c.	Give a comparison between Stochastic Simulation and Monte-Carlo Simulation.	10	3
d.	Explain modified exponential growth model? What is generalization of growth model.	10	4
e.	What are simulation languages? List few of them. Differentiate between discrete and continuous simulation languages?	10	5

SECTION C

3. Attempt any *one* part of the following: **10 x 1 = 10**

a.	What is a model? Explain the various types of models with suitable example.	10	1
b.	Explain combined linear congruential generator and define the linear Congruential?	10	1

4. Attempt any *one* part of the following: **10 x 1 = 10**

a.	Explain the simulation of an auto pilot system.	10	2
b.	How simulations help in time-to-market industry?	10	2

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5. Attempt any *one* part of the following: 10 x 1 = 10

a.	What are the different techniques for generating random numbers? Explain.	10	3
b.	Explain the iterative process calibrating a model?	10	3

6. Attempt any *one* part of the following: 10 x 1 = 10

a.	Explain logistic curves in detail.	10	4
b.	Explain System Dynamics in detail.	10	4

7. Attempt any *one* part of the following: 10 x 1 = 10

a.	List any five circumstances when the simulation is the appropriate tool and when it is not?	10	5
b.	Write short note on: Object Oriented Simulation .	10	5

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