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Total No. of Questions : 09]

[Total No. of Pages : 02

MCA (Sem. - 5th)

SYSTEM SIMULATION & MODELING

SUBJECT CODE : MCA - 504(A) (Elective - III)

Paper ID : [B0126]

[Note : Please fill subject code and paper ID in FORM]

Time : 03 Hours

Maximum Marks : 60

Instruction to candidates :

- 1) Attempt any One question from each sections - A, B, C & D.
- 2) Section - E is **Compulsory**.
- 3) Use of Non-programmable **Scientific Calculator** is allowed.

Section - A

(1 x 10 = 10)

Q1) What are various models classified in simulation? Explain the importance of each model.

Q2) (a) What are continuous and discrete systems? Explain with the help of examples.

(b) Define the following terms along with examples :

- (i) System modeling.
- (ii) System design.

Section - B

(1 x 10 = 10)

Q3) Explain the following with the help of example :

- (a) Monte Carlo method.
- (b) Fixed Time Step.
- (c) Event to event model.

Q4) Explain what is stochastic simulation with the help of example. Also discuss what is the role of random numbers in simulation explain with the help of examples.

Section - C**(1 x 10 = 10)**

- Q5)** By taking some examples discuss simulation of single and two server queue is done.
- Q6)** What is network model of a project? Explain.

Section - D**(1 x 10 = 10)**

- Q7)** Explain with the help of an example the role of GPSS in simulation and also draw a GPSS block diagram of example taken. (You can take any example).
- Q8)** Discuss the simulation of telephone system.

Section - E**(10 x 2 = 20)**

- Q9)** a) What is the importance of distributed lag model?
- b) Name several entities, attributes and state variables for the following systems : Grocery store.
- c) What is real time simulation? Explain in brief.
- d) What are characteristics of simulation systems?
- e) What is the role of feedback in simulation system?
- f) Define effectiveness of the system.
- g) What are applications of simulation system?
- h) What is inventory control system?
- i) What do you mean by queuing system?
- j) What do you mean by service time?

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