Printed Pages : 3   **TMT – 032**

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0470   Roll No. [ ][ ][ ][ ][ ][ ][ ][ ][ ]

B. Tech.

(SEM. VIII) EXAMINATION, 2008-09
SIMULATION & MODELING

Time : 3 Hours]   *[Total Marks : 100*

Note :   (1)   Answer **all** questions.

(2)   Be precise in your answer.

(3)   Assume missing datas suitably, if any, but state them clearly.

1   Attempt any **two** parts of the following :   **10×2=20**

(a)   What are objectives of modeling of system? Explain dynamic mathematical model, taking an appropriate example.

(b)   Mention the limitations of simulation techniques. Discuss the role of simulation in model evaluation.

(c)   Distinguish between :

(i)   Continuous and discrete system

(ii)   Stochastic and deterministic activity.

2   Attempt any **two** parts of the following :   **10×2=20**

(a)   Downtime has a major effect on the performance of manufacturing systems. Discuss the problems that can arise when the downtime is modelled incorrectly.

(b) Discuss the following system in brief related to material handling system: ·

  (i) Conveyors

  (ii) Transporters

(c) Discuss significance of the computer in the use of simulation.

3 Attempt any **two** parts of the following :   **10×2=20**

(a) How should you decide how long to run a simulation model?

(b) List four variance reduction techniques and describe any two of them.

(c) Describe the utilities of random number in simulation. What does it mean by pseudo-random numbers?

4 Attempt any **two** parts of the following :   **10×2=20**

(a) Sketch a basic structure of a system dynamics model. Explain all the basic elements of system dynamics model.

(b) Discuss 'Cause and effect' and causal loop diagram taking appropriate examples.

(c) Narrate simulation of system dynamics in brief.

5 Attempt any **two** parts of the following :   **10×2=20**

(a) What is objective of validation? How is it done? Does the assumption taken in developing the model weaken the model? Discuss.

(b) What is SIMSCRIPT? What is GPSS? Briefly describe these two.

(c) The birth rate of a country is adding 100,000 people a year to an initial population of 5,000,000. The average life expectancy is 65 years. It is estimated that one ton of coal is consumed per annum for each individual. Draw a diagram showing how the country resources of 500,000,000 tons are being depleted.

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