B. Tech. Sem - III (Mechanical Engg.) (2014 COURSE) (CBCS) : SUMMER - 2019

SUBJECT-COMPUTER PROGRAMMING AND SIMULATION

Day: Wednesday | S-2019-2579 | Time: 02.30 PM TO 05.30 PM
Date: 15/05/2019 | Max. Marks: 60

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data if necessary.

Q.1 Describe the importance & model in a system? How are models classified? **(10)**

OR

Q.1 State the different entities, states and other components in the following systems **(10)**

i) Car wash shop ii) Fast food cafe

Q.2 Integrate the following using Monte carol simulation using 20 random points. **(10)**

$$I = \int_0^5 x^3 - 3x^2 + 2x - 7$$

OR

Q.2 Define simulation & describe the basic nature of simulation process. **(10)**

Q.3 If electricity power failures occur according to a Poisson's distribution with an average of 3 failures every 20 weeks. Calculate the probability that there will no be more than one failure during a particular weak. **(10)**

OR

Q.3 Hospital records show that the patients suffering from a certain disease, 75% die of it. What is the probability that of 6 randomly selected patients, 4 will recover? **(10)**

Q.4 Two months ago there were three rats in a house, now there are 18. Assuming the growth continues like this **(10)**

i) What is the K value ii) How many mice two moths from now

ii) How many mice a year from now?

OR

Q.4 State the algorithm for pure pursuit problem. **(10)**

Q.5 A dealer of appliances has a certain appliance with probability distribution of demand per day and probability distribution of lead time as given in table below **(10)**

Demand units	3	4	5	6
Probability	0.15	0.25	0.50	0.10
Lead time(Days)	1	2	3	4
Probability	0.20	0.30	0.35	0.15

The various costs involved are
Ordering costs Rs50/-
Holding costs Rs1/unit/day
Shortage costs RS.20/unit/Day
The dealer is interested in an inventory policy with two parameters, the re-order point & recorder quantity. Simulate the system for 10 days with a plan that orders 10 units at recorder level of 5 with beginning inventory of 8.

Q.5 What us Kendell notations? Describe its components. **(10)**

Q.6 What are the principles & verification of a simulation experiment? **(10)**

OR

Q.6 Describe the evaluation & simulation experiments. **(10)**

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