B. TECH. SEM - III (MECHANICAL ENGG.) (2014 COURSE)
(CBCS) : SUMMER - 2018
SUBJECT : COMPUTER PROGRAMMING AND SIMULATION

Day : **Friday** **S-2018-2258** Time : **02.30 PM TO 05.30 PM**
Date : **25/05/2018** Max. Marks : 60

N. B. :

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Use of non-programmable calculator is **ALLOWED**.
4) Draw neat and labeled diagram **WHEREVER** necessary.

Q. 1 In modeling discuss the terms, state, event and entity with suitable examples. **(10)**

OR

Explain natural and artificial system. **(10)**

Q. 2 Determine value of π using Monte Carlo method. **(10)**

OR

Solve the $\int_0^1 x dx$ using Monte Carlo method. Take 20 random numbers between 0 and 1. **(10)**

Q. 3 A box contains 24 transistors, 4 of which are defective. If 4 are sold at random, find the following: **(10)**

a) Exactly 2 are defective
b) None is defective
c) All are defective
d) At least one is defective

OR

Define mean, variance and standard deviation. **(10)**

Q. 4 Explain the exponential growth model with neat sketch. **(10)**

OR

Explain simulation of pure pursuit problem with suitable example. **(10)**

Q. 5 Explain the simulation of inventory system. **(10)**

OR

A bakery keeps stock of cakes. Daily demand is : **(10)**

Daily demand	0	15	25	35	45	50
Probability	0.01	0.15	0.2	0.5	0.12	0.02

Simulate for next 10 days using Random numbers:
48, 78, 69, 87, 99, 77, 15, 14, 68, 89.
Find out the stock stimulation if the owner of the bakery decides to make 35 cakes every day.

Q. 6 Explain any one simulation language. **(10)**

OR

Write note on validation of simulation experiment. **(10)**

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