

Total No. of Questions : 8]

SEAT No. :

**P3453**

[Total No. of Pages :2

**[4660] - 225**

**M.E. (Mechanical) (CADM&E)  
SIMULATION & MODELING  
(2012 Pattern) (Semester - II)**

*Time : 3 Hours]*

*[Maximum Marks :100*

*Instructions to the candidates:*

- 1) *Answer any Three questions from each section.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Use of calculator is allowed.*
- 5) *Assume suitable data if necessary.*

**SECTION - I**

**Q1) a)** Discuss various Application areas of Simulation. What are limitations of Simulation? [9]

b) Discuss in detail discrete and continuous system simulation with suitable . [9]

**Q2)** Discuss briefly Mid Square Method, Mid Product Method, Constant Multiplier Technique and Additive Congruential Method for Random Number [16]

**Q3)** Discuss in detail, Uniform Distribution, Poisson Distribution, Geometric Distribution and Gamma Distribution with suitable examples. [16]

**Q4) a)** Elaborate the concept of Single Channel queue with suitable example and analysis. [8]

b) Discuss the systematic procedure for simulation model building. [8]

**P.T.O.**

## SECTION - II

- Q5)** What are the performance parameters of simulation? Discuss in detail. How randomness affects productivity? Discuss factors causing randomness. [18]
- Q6)** a) Explain Verification and Validation of Simulation Model. [8]  
b) Discuss Chi Square Test in Detail. [8]
- Q7)** a) Discuss the concept of Machine Downtime with example. [8]  
b) What is the applicability of Kolmogorov-Smirnov test in simulation? Discuss. [8]
- Q8)** a) Discuss output analysis for Simulation Termination. [8]  
b) Perform run tests on following sequence. 0.09 0.07 0.023 0.55 0.86 [8]

