Q.21 What do you mean by modeling of manufacturing system? (CO5)

Q.22 Write the advantages of simulation in manufacturing industry. (CO5)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Discuss the steps involved in a simulation study and illustrate each step with examples. (CO1)

Q.24 Explain in detail the simulation of inventory systems, focusing on the single item constant demand inventory model. Discuss its applications and limitations. (CO3)

Q.25 Explain GPSS. What is the use of Block diagram in GPSS? Explain the characteristics and types of Blocks operands (CO5)

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6th Sem./Branch : Automation & Robotics

Subject : Modeling, Simulation & Analysis Of Manufacturing Systems

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 _____is the process of representing a model which includes its construction and working.(CO1)

a) Simulation
b) Modeling
c) Modeling & Simulation
d) None of the above

Q.2 The Runge-Kutta method is used for:

a) modeling the relationship between scalar response and explanatory variables.
b) solving system of linear equations
c) Solving linear programming models
d) Solving ordinary differential equations.

Q.3 Which is the best way to generate numbers between 0 to 99? (CO2)

a) Rand()-100 b) Rand()%100
c) Rand(100) d) Srand (100)

Q.4 The economic order quantity formula is taken using: (CO3)

a) Integral calculus
b) Differential calculus
c) Matrix algebra
d) Multivariate analysis

Q.5 In PERT analysis, the estimates of activities follow:

a) Normal distribution curve
b) Poisson's distribution curve
c) ß- distribution curve
d) Binomial distribution curve

Q.6 The purpose of Simulation technique is to: (CO5)

a) Imitate a real world situation
b) Understand properties and operating characteristics of complex real-life problems.
c) Reduce the cost of experiment on a model of real situation
d) All of the above

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Digital simulation runs orders of magnitude _____than analog simulation. (CO1)

Q.8 What is the application of uniformity test? (CO2)

Q.9 Name any one method of measures of probability function. (CO2)

Q.10 The process of time estimation is analyzed by a curve called as a _____curve. (CO3)

Q.11 What for the queuing system is used? (CO1)

Q.12 ANOVA stands for_____ (CO4)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Explain the concept of discrete systems and give an example where discrete system simulation is applied. (CO1)

Q.14 Compare and contrast simulation with analytical methods in terms of advantages and limitations.(CO1)

Q.15 Discuss the significance of pseudo random numbers in simulation studies and the role of hash algorithms in generating these numbers. (CO2)

Q.16 What are stationary and time-dependent queues? Provide examples illustrating their differences.(CO3)

Q.17 Explain the concept of steady-state and transient states in queuing systems with examples. (CO3)

Q.18 What is standard error of estimate? Calculate SEE for the given data. Y: 5, 10, 12, 15, 20 (CO4)

Q.19 What do you mean by skewness of data? Explain the types of skewness. (CO4)

Q.20 Write short note on simulation software FlexSim. (CO5)