Subject Code : 17MCA4C22

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Objective Type Questions

Department of Computer Science

Semester : IV **UG / PG : MCA**

Title of the Paper : Core XXII : COMPUTER SIMULATION AND MODELING

1. Simulation can be used for the following purposes:

a. used as a pedagogical device to reinforce analytic solution methodologies.

b. used to verify analytic solutions.

c. used to experiment with new designs or policies prior to implementation, so as to prepare for what may happen.

d. All of them

2. Which one is following not advantage of simulation?

a. Hypotheses about how or why certain phenomena occur can be tested for feasibility.

b. Insight can be obtained about the interaction of variable.

c. Simulation results may be difficult to interpret.

d. "what if "questions can be answered.

3. Which one is following advantage of simulation?

a. Model building requires special training.

b. Insight can be obtained about the interaction of variable.

c. Simulation modelling and analysis can be time consuming and expensive.

d. Simulation results may be difficult to interpret

4. Where the outcome the activity can describe completely in terms of its input, the activity is said to be

a. Deterministic b. Stochastic c. Exogenous d. Endogenous

5. A system which does have exogenous activity to be

a. Open system b. Closed system

c. both of them d. none of them

6. A system with no exogenous activity is

a. Closed system b. Open system

c. Both of them d. none of them

7. In a Bank system, What is customer?

a.Entity b. Activity c. Event d. Environment

8. Factory is an example of:

a. Attribute b. System c. Activity d. Event

9. Message in communication system is

a. Entity b. Attribute c. Environment d. all of them

10. Depositing in a Baking system is

a. Activity b. Attribute c. Entity d. Environment

11. In communication system, what is 'Transmitting'?

a. Attribute b. Entity c. Activity d. Environment

12. Bank, Traffic and Super market are the examples of

a. Activity b. System c. Attribute d. Environment

13. Bank system is an example of

a. Exogenous. b. Endogenous.

c. Both of them. d. None of them.

14. Bank system is an example of

a. Continuous b. Discrete c. Both of them d. None of them

15. The head of water behind a bam is an example of

a. Continuous b. Discrete c. Both of them d. None of them

16. Break down of the production system is an example of

a. Entity b. Event c. Attribute d. Activity

17. A ---------- simulation model, sometimes called a Monte Carlo simulation.

a. Static b. Dynamic c. Deterministic d. Stochastic

18. Simulation models that contain no random variable are classified as ----------

a. Continuous b. Deterministic c. Stochastic d. all of them

19. A ---------- simulation model has one or more random variables as inputs.

a. Deterministic b. Continuous c. Stochastic d. Statistic

20. ========= simulation models represents system at they change over time.

a. Statistic b. Deterministic c. Stochastic d. Dynamic

21. which of the following is general purpose programming language used in simulation?

a. C++ b. SQL c. JavaScript d. GPSS

22. Which of the following is not the special purpose simulation language?

a. BASIC b. GPSS c. SIMSCRIPT d. SIMAN

23. Which one of the following is a simulation package?

a. Java b. SIMSCRIPT c. Arena d. GPSS

24. In the history of simulation software, the period 1966 - 1970 was called as the _____ period.

a. Advent b. Expansion c. search d. formative

25. In the history of simulation software, the period _____ was called as the advent period.

a.1966 - 1970 b.1955-1960 c. 1961-1965 d.1979-1986

26. SIMSCRIPT language was developed by the _____ Corporation.

a.IBM b. RAND c. AT&T d.SUN

27. Two major descendants of GASP are SLAM II and _____.

a. SIMAN b. GPSS c. ALGOL d. SIMSCRIPT II

28._____ is a widely used programming language that has been used extensively in simulation.

a. BASIC b. Java c. Pascal d. Extend

29. GPSS was developed by _____

a. Jerry Banks b. Nance

c. Geoffrey Gordon d. Harry Markowitz

30. The first version of GPSS was released by _____

a. Microsoft Corporation b. IBM corporation

c. Google corporation d. AT&T corporation

31. The _____ block in GPSS is to signal the end of data collection for an individual transaction.

a. QUEUE b. TEST c. ADVANCE d. DEPART

32. The _____is an Application Program Interface that describes a set of capabilities for object oriented ,process view simulation.

a. SSF b. CSIM c. AUTOMOD d. GPSS/H

33.____ bridges the gap between models developed in pure Java and models developed in languages specifically designed for simulation.

a. CSIM b. C++ c. SSF d. Arena

34._____ is simulation software that can be used for simulating discrete and continuous systems.

a. SLAM b. Automod c. Arena d. QUEST.

35._____ simulation software is used to create discrete-event simulation models of manufacturing and material handling systems.

a. AutoMod b. Arena c. Extend d. GPSS/H

36._____ is a multipurpose simulation application which allows users to build iconic models of systems in any discipline.

a. AutoMod b. Arena c. Extend d. GPSS/H

37._____ is a discrete-event, object-oriented simulator developed in C++, using Open GL technology.

a. Java b. SSF c. Flexsim d. Micro saint

38._____ is a general-purpose, discrete-event, network simulation-software package for building models that simulate real-life processes.

a. Java b. SSF c. Flexsim d. Micro saint

39. SIMUL8 saves its simulation model and data in ____ format.

a. HTML b. CSS c. XML d.class file

40. _____is a discrete-event simulation package from Lanner Group.

a. WITNESS b. EXTEND c. ARENA d.SSF

41. A random variable that assumes a finite or a countably infinite number of values is called_____ random variable

a. Continuous b. discrete c. regular d. uncertain

42. A variable that can assume any possible value between two points is called _____ random variable.

a. Discrete b. Continuous c. regular d. uncertain

43. An expected value of a random variable is equal to its:

a. Variance b. Standard deviation

c. Mean d. Covariance

44. Var(X) is equal to:
a. $E(X^2)$ b. $[E(X)]^2$ c. $E(X^2) - [E(X)]^2$ d. $E(X^2) + [E(X)]^2$

45. In the discrete Random variable case, the ___ is the value of the random variable that occurs most frequently.
a.SD b. mode c. mean d. variance

46.If only random failures occur, the time-to-failure (TTF. distribution may be modeled as _____.
a. binomial b. Poisson c. normal d. Exponential.

47. Binomial Distribution is a_____
a. Continuous distribution b. discrete distribution
c. Irregular distribution d. Not a Probability distribution

48. If n = 10 and p= 0.8, then the mean of the binomial distribution is _____.
a. 0.08 b.1.26 c. 1.60 d. 8.00

49. In a Binomial Distribution, if p, q and n are probability of success, failure and number of trials respectively then the variance is given by
a. n b. npq c. np d. pq

50. Poisson distribution is applied for_____
a. Continuous Random Variable b. Discrete Random Variable
c. Irregular Random Variable d. Uncertain Random Variable

51. The mean and variance are equal for:
a. all probability distributions
b. the binomial distribution.
c. the Poisson distribution
d. the empirical probability distribution

52. A random variable X is uniformly distributed on the interval (a,b), then the mean is given by
a. (a-b)/2 b. (a+ b)/2 c. (a-b)/12 d.(a+b)(a-b)/2

53. The exponential distribution is defined by:
a. Two parameters: a mean and standard deviation
b. a single parameter defined as a rate.
c. Two parameters: a minimum and maximum
d. a single parameter, a mean.

54.The normal distribution is a _____ distribution.
a. discrete b. continuous
c. positively skewed d. rectangular

55. A standard normal distribution has which of the following properties?
a. The mean is equal to the standard deviation
b. The mean and the variance both equal 1.
c. The mean is equal to 0 and the variance is equal to 1.
d. The mean is equal to the variance.

56. When the shape parameter is unity, the weibull distribution is reduced to ____ distribution.
a. normal b. Poisson c. triangular d. Exponential

57.The mean of a triangular distribution is _____.
a. (a + b + c) / 3 b.(a-b-c)/3 c.(a+b+c)/2 d.(a*b*c)/3

58. The population of potential customers is referred to as the_____
a. system capacity b. calling population
c. server d. arrival process

59. The maximum number of customers allowed in the system is called the _____.
a. system capacity b. calling population
c. server d. arrival process

60. In queuing theory, SIRO stands for _____
a. System In Reverse Order
b. Service In Random Order
c. Software Inspection In Random Order
d. Service In Reverse Order

61. The key properties of random numbers are:
a. Uniform and dependent b. Different and independent
c. Different and dependent d. Uniformity and independent
62. Each random number Ri must be an independent sample drawn from a _____ distribution.
a. Poisson b. Binomial c. uniform d. random

63. The expected value of each random number Ri is _____.
a. 1/2 b. 3/4 c.1/3 d. 4/3

64. The variance of each random number Ri is _____.
a. 1/2 b. 3/4 c.1/24 d. 1/12

65.Linear congruential method uses the recurrence relationship_____ to generate random numbers.
a. Xi+1=(aXi+c) mod m b.Xi+1=(aXi mod c) + m
c. Xi+1=(a/Xi+c) / m d.Xi+1=(a+Xi+c) mod m

66. In the LCM recurrence relation, Xi+1=(aXi+c) mod m, when c=0 , then the form is called _____ Cogruential method.
a. additive b. mixed c. multiplicative d. Lehmer

67._____ test is used to check for uniformity of random numbers.
a. auto correlation b. LCM
c. Kolmogorov-Smirnov d. poker

68._____ test is used to check for independence of random numbers.
a. chi-square b. LCM
c. Kolmogorov-Smirnov d. runs

69. A ____ is defined as succession of similar events preceded and followed by a different event.
a. Walk b. jump c. run d. path

70. A_____ is a sequence of numbers above the mean.
a. positive run b. negative run
c. runs up d. runs down
71. Autocorrelation tests can be used to check for _____ of random numbers.
a. Uniformity b. independence
c. maximization d. Expectation

72. The ____ test is used to determine the significance of the interval between recurrence of the same digit.
a. auto correlation b. runs c. Gap d. poker

73. In a three digit number, P(3 different digits. = _____
a.0.27 b.0.127 c. 0.01 d. 0.72

74._____ test is used to test the frequencies of digits within numbers.
a. auto correlation b. runs c. Gap d. poker

75.Random numbers generated from a specified probability distribution is called a _____.
a.pdf b. random stream
c. random variate d. random event
76.Random variate of probability distribution can be generated using _____technique
a. Inverse-transform b.LCM c. mid square d.data table

77. The inverse transform technique can be used to sample from _____ distribution.
a. Binomial b. Poisson c. Geometric d. exponential

78.The Acceptance-rejection technique can be used to sample from _____ distribution.
a. Binomial b. Poisson c. Geometric d. exponential

79.The _____ method refers to adding together two or more random variables to obtain a new random variable with the desired distribution.
a. inverse transform b. convolution
c. acceptance-rejection d. Gaussian
80. The convolution method can be used to sample from _____ distribution.
a. Erlang b. Poisson c. Geometric d. Exponential

81. Development of a useful model of input data:
a. Collect data from the real system of interest.
b. Identify a probability distribution to represent the input process.
c. Both of them
d. None of them

82. The following suggestion(s. may enhance and facilitate the conduct of the data collection
a. A useful expenditure of time is in planning.
b. Try to combine homogeneous data set.
c. Try to analyse the data as it is being collected.
d. All of them.

83. A histogram is constructed as follows
a. Label the horizontal axis to confirm to the interval selected.
b. Determine the frequency of occurrences within each interval.
c. Plot the frequencies on the vertical axis.
d. All of above.

84. A histogram is not constructed as follows
a. Label the vertical axis to confirm to the interval selected.
b. Determine the frequency of occurrences within each interval.
c. Plot the frequencies on the vertical axis.
d. Label the vertical axis so that the total occurrences can be plotted for each interval

85.A family of distribution is selected on the bas*is* of what might arise in the context being Investigated along with the shape of the ----------.
a. Square b. Pie diagram c. Histogram d. none of them.

86. Models the number of independent events that occur in a fixed amount of time or space.
a. Binomial b. Normal c. Poisson d. Exponential

87. Models the number of successes in n trials, when the trials are independent with common success probability, p.
a. Binomial b. Normal c. Poisson d. Exponential

88. Models the distribution of a process that can be thought of as the sum of a number of component processes.
a. Binomial b. Normal c. Poisson d. Exponential

89. Models the time between independent events, or a process time which is memoryless.
a. Binomial b. Normal c. Poisson d. Exponential

90. Models the time to failure for components
a. Poisson b. Normal c. Weibull d. Exponential

91.Models a process when only the minimum, most likely, and maximum values of the distribution are known.
a. Triangular b. Gamma c. Normal d. Beta

92. In a evaluation of the linearity of a q-q plot, the following should be considered
a. The observed values will never fail exactly on a straight line.
b. The ordered values are not independent since they have been ranked.
c. The variances of the extremes are much higher than the variances in the middle of the pot.
d. All the above.

93. The goal of the validation process is
a. to produce a model that represents true system behaviour closely enough for the model to be used as a substitute for the actual system for the purpose of experimenting with the system
b. to increase to an acceptable level the credibility of the model, so that the model will be used by managers and other decision makes.
c. Both of them
d. None of them

94. The verification and validation process consists of the following component:
a. Verification is concerned with building the model right.
b. Validation is concerned with building the right model
c. Both of them
d. None of them

95. Conceptual model contains
a. Assumptions on system components
b. Structural assumptions which define the interactions between system components
c. Input parameters and data assumptions.
d. All the above.

96. Conceptual model consists
a. assumption on system components and system structure
b. parameter values
c. abstractions and simplifications
d. all of these

97.Many common sense suggestions can be given for use in the verification process
a. Have the computerized representation checked by someone other than its developer
b. Closely examine the model output for reasonableness under a variety of settings of the input parameters.
c. Make the computerized representation as self-documenting as possible.
d. all of them

98. The IRC assists in finding and correcting those errors in the following ways.
a. The simulation can be monitored as it progress.
b. Attention can be focussed on a particular block, group of blocks, or a particular entity.
c. Values of selected model components can be observed.
d. All the them.

99. Naylor and Finger formulated approach which has been widely followed
a. Build a model that has high face validity
b. Validate mdl model assumptions.
c. Compare the model input-output transformations to corresponding input-output transformation for the real system.
d. All of them.

100. Using computer software for the purpose, the analysis consists of
a. Identifying the appropriate probability distribution.
b. Estimating the parameters of the hypothesized distribution.
c. Validating the assumed statistical model by a goodness of fit test, such as the chi-squareor Kolmogorov-Smirnov test, and by graphical method.
d. All the above.

ANSWERS WITH EXPANSION

1. d. All of them
2. c. Simulation results may be difficult to interpret.
3. b. Insight can be obtained about the interaction of variable.
4. a. Deterministic
5. b. Closed system
6. a. Closed system
7. a. Entity
8. b. System
9. a. Entity
10. a. Activity
11. c. Activity
12. b. System
13. c. Both of them
14. b. Discrete
15. a. Continuous
16. b. Event
17. a. Static
18. b. Deterministic
19. c. Stochastic
20. d. Dynamic
21. a. C++
22. a. BASIC
23. c. Arena
2 4. d. formative
25. c. 1961-1965
26. b. RAND

27. a. SIMAN
28. b. Java

29. c. Geoffrey Gordon
30. b. IBM corporation
31. d. DEPART
32. a. SSF
33. c. SSF
34. c. Arena
35. a. AutoMod
36. c. Extend
37. c. Flexsim
38. d. Micro saint
39. c. XML
40. a. WITNESS
41. b. discrete
42. b. Continuous
43. c. Mean
44. c. $E(X^2) - [E(X)]^2$
45. b. mode
46. d. Exponential
47. b. discrete distribution
48 d. 8.00
49. b. npq
50. b. Discrete Random Variable
51. c. the Poisson distribution
52. b. (a+ b)/2
53. b. a single parameter defined as a rate.
54 . b. continuous
55. c. The mean is equal to 0 and the variance is equal to 1
56. d. Exponential
57. a. (a + b + c)/ 3
58. b. calling population
59. a. system capacity
60. b. Service In Random Order
61. d. Uniformity and independent
62. c. uniform
63. a. ½
64. d. 1/12
65. a. Xi+1=(aXi+c) mod m
66. c. multiplicative
67. c. Kolmogorov-Smirnov
68. d. runs
69. c. run
70. a. positive run
71. b. independence
72. c. Gap
73. d. 0.72

74. d. poker
75. c. random variate
76. a. Inverse-transform
77. d. exponential
78. b. Poisson
79. b. convolution
80. a. Erlang
81. c. Both of them
82. d. All of them
83. d. All of above
84. a. Label the vertical axis to confirm to the interval selected
85. c. Histogram
86. c. Poisson
87. a. Binomial
88. b. Normal
89. d. Exponential
90. c. Weibull
91. a. Triangular
92. d. All the above
93. c. Both of them
94. c. Both of them
95. d. All the above
96. d. all of these
97. d. all of them
98. d. All the them
99. d. All of them.
100. d. All the above