

1. _____ is the process of representing a model which includes its construction and working.

- A. Simulation
- B. Modelling**
- C. Modelling & Simulation
- D. None of the above

2. _____ of a system is the operation of a model in terms of time or space, which helps analyze the performance of an existing or a proposed system.

- A. Modelling
- B. Control Systems
- C. Simulation**
- D. Radar

3. In which year, first special-purpose simulation languages were developed?

- A. 1940
- B. 1960**
- C. 1970
- D. 1980

4. Which of the following are the advantages of using Modelling and Simulation?

- A. Easy to understand
- B. Easy to test
- C. Easy to upgrade
- D. All of the above**

5. Which of the following are the disadvantages of using Modelling and Simulation?

- A. Simulation requires manpower and it is a time-consuming process.
- B. Simulation results are difficult to translate. It requires experts to understand
- C. Simulation process is expensive
- D. All of the above**

6. Which of the following is not an Application Areas of Modelling & Simulation?

- A. Military applications
- B. Designing semiconductors
- C. Food industry**
- D. Telecommunications

7. Modelling is creating a model which represents a system including their properties. It is an act of building a model.

A. TRUE

B. FALSE

8. Simulation is the process of using a model to study the performance of a system. It is an act of using a model for simulation.

A. TRUE

B. FALSE

9. Which of the following is Step 1 for Performing Simulation Analysis?

A. choose input variables

B. create entities for the simulation process

C. prepare a problem statement

D. determine the output variables

10. Which of the following is Step 1 for Developing Simulation Models?

A. Design the problem

B. Identify the problem

C. Collect and start processing the system data

D. Develop the model using network diagrams

11. _____ is an entity which exists in the real world to study the behavior of a model.

A. System

B. Object

C. Base Model

D. Lumped Model

12. _____ is the process of comparing two results.

A. System

B. Verification

C. Validation

D. None of the above

13. In _____ the system state variables are defined by differential equation results whose value changes continuously over time.

A. continuous-event model

B. discrete-event model

C. Both A and B

D. None of the above

14. _____ are the local values used by the entity.

A. Resources

B. Entity

C. Object

D. Attributes

15. _____ are used to represent the queues used by the entities and resources.

A. Tuple

B. Resources

C. Delay

D. Lists

16. In a discrete-event model, the system state variables remain constant over intervals of time and the values change at defined points called event times.

A. TRUE

B. FALSE

17. _____ are not affected by randomness and their output is not a random variable.

A. Deterministic systems

B. Stochastic systems

C. Dynamic systems

D. Continuous systems

18. _____ include models which are not affected with time.

A. Dynamic Simulation

B. Discrete Simulation

C. Static Simulation

D. Continuous Simulation

19. Which of the following is Step 1 of Modelling Process?

A. Design a model

B. Provide recommendations

C. Examine the problem

D. None of the above

20. Lumped Model is an exact explanation of a system which follows the specified conditions of a given Experimental Frame.

A. TRUE

B. FALSE

21. _____ is the process of comparing two or more results to ensure its accuracy.

- A. Validation
- B. Verification**
- C. substantiate
- D. confirm

22. In which we need to compare the representation of a conceptual model to the real system?

- A. Validation**
- B. Verification
- C. Both A and B
- D. None of the above

23. Which of the following are Techniques to Perform Verification of Simulation Model?

- A. By using programming skills to write and debug the program in sub-programs
- B. By tracing the intermediate results and comparing them with observed outcomes
- C. By checking the simulation model output using various input combinations
- D. All of the above**

24. Which of the following are Techniques to Perform Validation of Simulation Model?

- A. Design a model with high validity
- B. Test the model at assumptions data
- C. Determine the representative output of the Simulation model
- D. All of the above**

25. In _____, the model performs on opposite logics, then it should be rejected even if it behaves like the real system.

- A. Subsystem Validity
- B. Internal Validity
- C. Face Validity**
- D. Sensitivity Analysis

26. Which of the following provides the information about the sensitive parameter in the system to which we need to pay higher attention.

- A. Subsystem Validity
- B. Internal Validity
- C. Face Validity
- D. Sensitivity Analysis**

27. Does the statement is Techniques to Perform Validation of Simulation Model : "By using Structured Walk-through policy in which more than one person is to read the program".

A. TRUE

B. FALSE

28. Does the statement is Techniques to Perform Verification of Simulation Model : "By comparing final simulation result with analytic results".

A. TRUE

B. FALSE

29. Statistical method can be used for compare the model output with the real system output

A. TRUE

B. FALSE

30. In which approach, we use real-world inputs of the model to compare its output with that of the real-world inputs of the real system.

A. Validating the First Time Model

B. Validating the Second Time Model

C. Validating the Existing System

D. Validating the New System

31. In discrete systems, the changes in the system state are discontinuous and each change in the state of the system is called an?

A. state

B. event

C. model

D. object

32. Which of the following means to link entities together?

A. Simulation

B. Entities

C. Relationships

D. Modeling

33. In a graphical representation it is referred to as clock time or time counter and initially it is set to?

- A. -1
- B. 0
- C. 1
- D. infinite

34. Time is updated based on the following _____ factors.

- A. 2 //Time Slicing and Next Event.
- B. 3
- C. 4
- D. 5

35. Which symbol Denotes traffic intensity?

- A. r
- B. R
- C. p
- D. u

36. Which symbol Denotes the number of servers in a system?

- A. n
- B. N
- C. p
- D. D

37. Which of the following is the time defined by a model for each event until the absence of any event?

- A. Time Slicing
- B. Next Event
- C. Current Event
- D. None of the above

38. Next Event is less efficient than Time Slicing

- A. TRUE
- B. FALSE

39. T_r Denotes the mean time of an item in the system.

- A. TRUE
- B. FALSE

40. The system consists of multiple servers and a common queue for all items is known as?

- A. Single Server Queue
- B. Two Server Queue
- C. Both A and B
- D. Multi Server Queue


41. The first data model was introduced in?

- A. 1940
- B. 1950
- C. 1970
- D. 1980

42. The first neural model was developed in ?

- A. 1940
- B. 1945
- C. 1949
- D. 1953

43. How many important characteristics of Monte-Carlo method?

- A. 2
 - B. 3
 - C. 4
 - D. 5
- 
 - 1. Its output must generate random samples.
 - 2. Its input distribution must be known.
 - 3. Its result must be known while performing an experiment.

44. Which of the following are Advantages Monte Carlo Simulation?

- A. Easy to implement
- B. Provides statistical sampling for numerical experiments using the computer
- C. Provides approximate solution to mathematical problems.
- D. All of the above

45. Which of the following are disadvantages Monte Carlo Simulation?

- A. Time consuming
- B. The results of this method are only the approximation of true values, not the exact
- C. Both A and B
- D. None of the above

46. Monte Carlo Simulation method was first used by scientists working on the atom bomb in 1950.

A. TRUE

B. FALSE

47. The objective of the database in Modelling & Simulation is to provide data representation and its relationship for analysis and testing purposes

A. TRUE

B. FALSE

48. The latest concept for data modeling is the object-oriented design in which entities are represented as classes, which are used as templates in computer programming.

A. TRUE

B. FALSE

49. Every simulation process requires a different set of input data and its associated parameter values.

A. TRUE

B. FALSE

50. **Which of the following are advantages of simulation?**

A. Simulation allows "what-if?" type of questions.

B. Simulation can usually be performed by hand or using a small calculator.

C. Simulation does not interfere with the real-world system.

D. (C) and (A) only

51. **The first step in simulation is to**

A. set up possible courses of action for testing.

B. construct a numerical model.

C. validate the model.

D. define the problem.

52. **Which of the following are disadvantages of simulation?**

- A. inability to analyze large and complex real-world situations
- B. "time compression" capability
- C. could be disruptive by interfering with the real-world system
- D. is not usually easily transferable to other problems

53. **The first step in the Monte Carlo simulation process is to**

- A. generate random numbers.
- B. set up cumulative probability distributions.
- C. establish random number intervals
- D. set up probability distributions.

54. **Cumulative probabilities are found by**

- A. summing all the probabilities associated with a variable.
- B. simulating the initial probability distribution.
- C. summing all the previous probabilities up to the current value of the variable.
- D. any method one chooses.

55. **If we are going to simulate an inventory problem, we must**

- A. run the simulation for many days.
- B. run the simulation for many days many times, i.e., using multiple sets of random numbers.
- C. run the simulation many times, i.e., using multiple sets of random numbers.
- D. run the simulation once, for a relative short period of time

56. **From a practical perspective, if we have a waiting line problem for which the Poisson and negative exponential distributions do not apply, and we desire a reasonably accurate solution, we should**

- A. *modify the queuing equations to make them appropriate for our problem.*
- B. *use simulation.*
- C. *use the simple queuing equations even though we realize they are inappropriate*
- D. *build a physical model and use that to study the problem.*

57. **All of the following are various ways of generating random numbers except**

- A. *Fibonacci series*
- B. *spin of roulette wheel*
- C. *computer-generated random numbers*
- D. *Von Neumann midsquare method*

57. **The three types of mathematical simulation models are**

- A. *operational gaming, Monte Carlo, systems simulation.*
- B. *Monte Carlo, queuing, maintenance policy.*
- C. *Monte Carlo, systems simulation, computer gaming*
- D. *none of the above*

58. **simulation should be thought of as a technique for**

- A. *increasing one's understanding of a problem.*
- B. *obtaining a relatively inexpensive solution to a problem.*
- C. *obtaining an optimal solution to a problem*
- D. *providing quick and dirty answers to complex problems*