CSE 453: SIMULATION AND MODELING

LAB QUIZ
TOTAL MARKS: 30
TOTAL QUESTION: 22 MCQ (20 Marks)+ 2 AREAN Model (10 Marks)

PART-1: MCQ

1. _____ is considered to be a numerical computation technique used in conjunction with dynamic math magical model
   (a) Analysis
   (b) System Simulation
   (c) Dynamic Computation
   (d) None of the above

2. Which System/model applies computational procedures to solve equations:
   (a) Dynamic Model
   (b) Static Model
   (c) Analytical Model
   (d) Numerical Model

3. Which System/model applies deductive reasoning of mathematical theory to solve a model
   (a) Dynamic Model
   (b) Static Model
   (c) Analytical Model
   (d) Numerical Model

4. Which model follows the changes over time that results from the system activities:
   (a) Dynamic Model
   (b) Static Model
   (c) Analytical Model
   (d) Numerical Model

5. Which model can only show the values that system attributes take when the system is in balance:
   (a) Dynamic Model
   (b) Static Model
   (c) Analytical Model
   (d) Numerical Model

6. Mathematical models are based on:
   (a) Analog between such system as mechanical and electrical
   (b) Use symbol notation and mathematical equations to represent a system
   (c) All of the above
   (d) None of the above

7. Physical models are based on:
   (a) Analog between such system as mechanical and electrical
   (b) Use symbol notation and mathematical equations to represent a system
   (c) All of the above
   (d) None of the above

8. In system modeling, the task of deriving a model of a system may be divided broadly into two subtasks:
   (a) Establishing the model structure
   (b) Supplying the data
   (c) Both of above
   (d) None of the above

9. Which one of the following is false about model:-
   (a) Model is the body of information about a system gathered for the purpose of studying the system.
   (b) Since the purpose of the study is varying, there is no unique model for a system.
   (c) Both of above are false
   (d) None of the above

10. In Discrete system, changes are :
   (a) Predominantly continuous
   (b) Predominantly discrete
   (c) Depend on the system
   (d) None of the above

11. System analysis, System design and system postulation are the examples of:
   (a) Types of system
   (b) Types of system study
   (c) Types of entities
   (d) Type of environment

12. Where the outcomes of the activity can describe completely in terms of its input, the activity is said to be:
   (a) Deterministic

(b) Stochastic
(c) Endogenous
(d) Exogenous

13. A system which does have exogenous (having an external cause or origin) activity is said to be:
(a) Open system
(b) Closed System
(c) Both of above
(d) None of the above

14. Aggregation is a:
(a) Combining infinite objects to form system
(b) is the extent to which the number of individual entries can be grouped together into large entities.
(c) Both of the above
(d) None of the above

15. In a Bank System, what is customer
(a) Entity
(b) Activity
(c) Environment
(d) None of the above

16. A simple market model is an example of
(a) Static Physical Model
(b) Dynamic Physical Model
(c) Static Mathematical Model
(d) Dynamic Mathematical Model

17. Factory is an example of:
(a) System
(b) Attribute
(c) Activity
(d) Environment

18. Depositing in Bank system is:
(a) Entity
(b) Attribute
(c) Activity
(d) Environment

19. Principle/principles used in modeling:

(a) Block-building
(b) Relevance
(c) Aggregation
(d) All of the above

20. Traffic, Bank and Supermarket are the examples of
(a) Attribute
(b) System
(c) Activity
(d) Environment

21. Monte Carlo simulation ensures that:
(a) The simulated probability distribution will be the same as the actual probability distribution
(b) Only one uncertain decision can be in any simulation model
(c) Probabilities must be at most two decimal places
(d) Each of the above is true

22. How many times should a Monte Carlo simulation model be run?
(a) 100 times
(b) Hundreds or thousands of times
(c) Three times
(d) Once

PART-2: DESIGN

1. For any organization having several manufacturing facilities, and a huge and spread market, transportation remains an inevitable part of its total system. The transportation model developed by the simulation team serves as a guideline to study how automobiles manufactured at a particular facility are transported to various places. Draw the block diagram explaining how the automobiles takes place once manufactured, to the time they are delivered to their final destination.

2. Suppose, the Emergency Department of Army Medical College hired you to study their existing operations model and you have found the casualties can be admitted into three different wards: General Surgery Wards, General Medicine Wards and Specialty Wards and once they are admitted, they can either be Brough to the operations room (if required) or with simple medical treatment can be discharged. Now using the Arena Process Modeling, design

this model which can be later briefed to the developer team to go for implementation.