1. How many steps are in the systems development life cycle (SDLC)?
   A. 4  
   B. 5  
   C. 6  
   D. 10

2. The first step in the systems development life cycle (SDLC) is:
   A. Analysis.  
   B. Design.  
   C. Problem/Opportunity Identification.  
   D. Development and Documentation.

3. Most modern software applications enable you to customize and automate various features using small custom-built “miniprograms” called:
   A. macros.  
   B. code.  
   C. routines.  
   D. subroutines.

4. The organized process or set of steps that needs to be followed to develop an information system is known as the:
   A. analytical cycle.  
   B. design cycle.  
   C. program specification.  
   D. system development life cycle.
5. How many steps are in the program development life cycle (PDLC)?
   A. 4
   B. 5
   C. 6
   D. 10

6. The make-or-buy decision is associated with the ____________ step in the SDLC.
   A. Problem/Opportunity Identification
   B. Design
   C. Analysis
   D. Development and Documentation

7. In the Analysis phase, the development of the ____________ occurs, which is a clear statement of the goals and objectives of the project.
   A. documentation
   B. flowchart
   C. program specification
   D. design

8. Actual programming of software code is done during the ____________ step in the SDLC.
   A. Maintenance and Evaluation
   B. Design
   C. Analysis
   D. Development and Documentation
9. Enhancements, upgrades, and bug fixes are done during the ___________ step in the SDLC.
   A. Maintenance and Evaluation
   B. Problem/Opportunity Identification
   C. Design
   D. Development and Documentation

10. The ___________ determines whether the project should go forward.
    A. feasibility assessment
    B. opportunity identification
    C. system evaluation
    D. program specification

11. Technical writers generally provide the ___________ for the new system.
    A. programs
    B. network
    C. analysis
    D. documentation

12. ___________ design and implement database structures.
    A. Programmers
    B. Project managers
    C. Technical writers
    D. Database administrators
13._________ spend most of their time in the beginning stages of the SDLC, talking with end-users, gathering information, documenting systems, and proposing solutions.

A. Systems analysts  
B. Project managers  
C. Network engineers  
D. Database administrators

14._________ manage the system development, assign staff, manage the budget and reporting, and ensure that deadlines are met.

A. Project managers  
B. Network engineers  
C. Graphic designers  
D. Systems analysts

15._________ is the process of translating a task into a series of commands that a computer will use to perform that task.

A. Project design  
B. Installation  
C. Systems analysis  
D. Programming

16. Debugging is:

A. creating program code.  
B. finding and correcting errors in the program code.  
C. identifying the task to be computerized.  
D. creating the algorithm.
17. Translating the problem statement into a series of sequential steps describing what the program must do is known as:

A. coding.
B. debugging.
C. creating the algorithm.
D. writing documentation.

Answer of MCQ

1-c 2-c 3-a 4-d 5-b 6-b 7-c 8-d 9-a 10-a 11-d 12-d 13-a 14-a 15-d 16-b 17-c

1. Which of the following technique detects transposition errors?
   
   (a) check digit
   (b) automatic correction
   (c) existence test
   (d) duplicate processing
   (e) limit and range test

2. The structure chart derived by studying the flow through the system supports the activity of

   (a) File design
   (b) Program design
   (c) Database design
   (d) Internal controls design
(e) Output design.

3. Which of the following suggests phased implementation of the system?
   (a) introduce a new system gradually either by functions or by organizational units.
   (b) procure resources in stages and then introduce the system at once
   (c) Withdraw the existing system gradually
   (d) allow the new system and old system to run parallel for sometime
   (e) train the users first and then introduce the new system.

4. Class is analogous to
   (a) object
   (b) blue print
   (c) instance
   (d) record
   (e) entity.

5. Which of the following represents the condition of an object at a specific moment in time?
   (a) behaviour
   (b) properties
   (c) instance
   (d) state
   (e) method.

6. Some object-oriented systems permit a class to inherit its state(attributes) and behaviors from more than one super class. This is called
(a) multiple inheritance
(b) inheritance
(c) hybrid inheritance
(d) specialization
(e) aggregation.

7. Identify the following who presented the object modeling technique (OMT).
(a) Booch
(b) Jim Rumbaugh ET AL
(c) Jacobson ET AL
(d) Both (a) and (b) above
(e) Both (b) and (c) above.

8. Which of the following statements is false with respect to a use case?
(a) A use case is a scenario for understanding the requirements
(b) It is an interaction between the users and the system
(c) It captures the responsibility of the system to its users
(d) It is used for the requirements analysis
(e) It represents the flow of activities of various processes in the system.

**Answer of MCQ**
1-A  2-D  3-C  4-B  5-D  6-A  7-B  8-E
1. Which of the following relationships are used in a use-case diagram?
   (a) Communication
   (b) Uses
   (c) Extends
   (d) Both (b) and (c) above
   (e) All (a), (b) and (c) above.

2. Which of the following are UML interaction diagrams?
   (a) Activity diagram
   (b) sequence diagram
   (c) collaboration diagram
   (d) class diagram
   (e) Both (b) and (c) above.

3. The vertical dimension of a sequence diagram represents
   (a) time
   (b) objects
   (c) lines
   (d) messages
   (e) methods.

4. Which of the following component is used to clarify which actor performs which activity in an activity diagram?
5. Which of the following statements is not true regarding activity diagram?

(a) A solid filled circle represents the final state
(b) The final state is shown using so called bull’s eye symbol
(c) Transitions can branch and merge (diamond) – alternative computation threads
(d) Transitions can fork and re-join (bar line) – concurrent (parallel) computation threads
(e) Activity diagram without concurrent processes resembles a conventional flowchart.

6. Which of the following diagrams model the physical components of the system?

(a) use case diagram
(b) collaboration diagram
(c) class diagram
(d) component diagram
(e) deployment diagram.

7. Which of the following represent the built-in extensibility mechanism of the UML?

(a) associations
(b) relationships
(c) stereotypes
(d) comments
8. Noun-Phrase Approach and CRC Approach are used to identify
(a) classes
(b) Use cases
(c) objects
(d) collaborators
(e) Actors.

9. The testing of software without the knowledge of source code is called
(a) white box testing
(b) black box testing
(c) gray box testing
(d) glass box testing
(e) blue box testing.

10. The largest percentage of total life cycle cost of software is
(a) analysis costs
(b) design costs
(c) maintenance costs
(d) coding costs
(e) testing costs.

**Answer of MCQ**
1-e 2-e 3-a 4-c 5-a 6-d 7-c 8-a 9-b 10-c
1. Which UML diagram provides a variety of symbols and encompasses a number of ideas, all to model the changes which just one object goes through?

(a) Package
(b) Object
(c) State
(d) Class
(e) Use Case.

2. Which relationship specifies an optional behavior?

(a) A generalization
(b) An inheritance
(c) An include
(d) An aggregation
(e) An extend.

3. Which among the following literally means ‘many forms’, the concept that different objects can respond to the same message in different ways?

(a) Composition
(b) Encapsulation
(c) Polymorphism
(d) Aggregation
(e) Inheritance.
4. What do you call, “where the Objects hide their inner workings of their operations from the outside world and from other objects”?

(a) Composition
(b) Encapsulation
(c) Generalization
(d) Polymorphism
(e) An object.

5. Which of the following statement is not correct regarding Object Oriented Methodologies?

(a) Gane and Sarson, Shlaer Mellor and Extreme Programming are object oriented methodologies
(b) RUP activities emphasize the creation and maintenance of models rather than paper documents
(c) Establishment of the project plan and the architecture is done during the Elaboration phase of RUP
(d) During the Elaboration phase, the focus turns towards analysis and design
(e) During inception, it is common to create an executable prototype that serves as a proof of concept.

6. Which of the statement(s) is/are true in relation to Object Oriented concepts?

I. Encapsulation states that when designing an object, one should separate what he knows about the object according to the following:
   - The minimum information needed to use the object.
   - The information required to make the object work properly.

II. In polymorphism an operation can have the same name in different classes, and proceed differently in each class.

III. Objects communicate with each other through message interactions.

(a) Only (I) above
7. Which of the statement(s) is/are correct related to UML 2.0?

I. Composite Structure Diagram, Interaction Overview Diagram and Timing Diagram are new in UML 2.0.

II. A composite structure diagram shows the components of a class as a diagram nested inside a large class rectangle.

III. UML 2.0 takes the interface concept a step further by allowing one to model the connection between an interface and a class.

(a) Only (I) above  
(b) Both (I) and (II) above  
(c) Both (I) and (III) above  
(d) Both (II) and (III) above  
(e) All (I), (II) and (III) above.

8. Which of the following is not correct regarding diagrams in UML 2.0?

(a) A Sequence diagram is called a communication diagram in UML 2.0  
(b) Component diagrams are implementation-type diagrams which are used to graphically show the physical architecture of the software of the system  
(c) One can frame a sequence diagram by surrounding it with a border and adding a compartment in the upper left corner to contain information that identifies the diagram.  
(d) Framing gives one a quick and easy way to reuse a part of a sequence diagram in another  
(e) A sequence diagram shows the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario.
9. Which of the statement(s) is/are correct related to UML 2.0?

I. Time is represented in a sequence diagram in the vertical direction starting at the top and progressing towards the bottom.

II. A Communication diagram is another way of presenting the information in a sequence diagram.

III. The Communication diagram shows the associations among objects as well as the messages which pass from one object to another.

(a) Only (I) above
(b) Only (II) above
(c) Both (I) and (II) above
(d) Both (I) and (III) above
(e) All (I), (II) and (III) above.

10. Which of the following statement(s) is/are correct in relation to role names in associations between two classes?

I. Role names have to be used with association names.

II. If there is a relationship between Company and Person then one could use Employee or Employer as role names to convey an employment relationship.

III. The role name is placed on the association near the class that it modifies.

(a) Only (III) above
(b) Both (I) and (II) above
(c) Both (I) and (III) above
(d) Both (II) and (III) above
(e) All (I), (II) and (III) above.

Answer of MCQ
1. Which of the following represents the correct sequence of testing activities?
(a) Unit testing, system testing, module testing, integration testing, acceptance testing
(b) Unit testing, volume testing, integration testing, system testing, acceptance testing
(c) Unit testing, integration testing, system testing, module testing, acceptance testing
(d) Unit testing, module testing, integration testing, system testing, acceptance testing
(e) Unit testing, system testing, integration testing, volume testing, acceptance testing.

2. Which of the following is not a component of CASE Tool?
(a) Diagramming Tools
(b) Code Generators
(c) Information Repository
(d) Debugging Tools
(e) All of the above.

3. The process of converting a new or revised system design into an operational one is known as _________________.
(a) Testing
(b) Implementation
(c) Quality Assurance
(d) Design
(e) Maintenance.
4. Which one the following is not a form of Decision Table?
(a) Limited-Entry
(b) Extended-Entry
(c) Mixed-Entry
(d) Double-Entry
(e) All of the above.

5. Which of the following tool is not used during system analysis?
(a) Data Flow Diagram
(b) Structured English
(c) Structured Chart
(d) Decision Table
(e) Decision Tree.

6. Application prototyping follows an organized process or steps that begins with ____________.
(a) Use prototype
(b) Review prototype
(c) Develop working model
(d) Identify known requirements
(e) None of the above.

7. The requirements model consists of four parts:
(a) Use cases, interface descriptions, class diagram, project scope
(b) Project scope, use cases, class diagram, context diagram
(c) Interface descriptions, data model, context diagram, class diagram
8. __________ are used to group classes together for ease of use, maintainability, and reusability.
   (a) Objects
   (b) Use Cases
   (c) States
   (d) Packages
   (e) None of the above.

9. An association must
   (a) Be described by nouns
   (b) Have attributes
   (c) Be described by a verb or nouns
   (d) Have a 1:M component
   (e) Be based on events.

10. A data dictionary
    (a) Is a book used by programmers to find the definitions of technical terms
    (b) Is the central place where the components of a system are defined
    (c) Helps to avoid ambiguities among different development team members
    (d) Is a computer software tool
    (e) Includes a range of acceptable values for data.
Answer of MCQ

1-d  2-d  3-b  4-d  5-c  6-d  7-d  8-d  9-c  10-e

1. Traditionally, the only phase of software development where a formal approach is used is
(a) Programming
(b) Design
(c) Requirements
(d) Planning
(e) Testing.

2. Which of the following statements is/are true?
(a) There is no restriction on multiple associations between the same two classes
(b) There can be multiple associations between the same two classes, but they should represent different roles
(c) Multiple associations between the same two classes is not allowed
(d) Multiple associations between the same two classes must be aggregated to one
(e) All of the above.

3. Which of the following statements accurately describes an Information System?
(a) An Information System is an arrangement of people, data processes, information representation and information technology that interact to support day-to-day operations in a business
(b) An Information System is a contemporary term that describes the combination of computer technology with telecommunication technology
(c) An Information System is an arrangement of information representation and information technology that interacts to support day-to-day operations in a business.

(d) An Information System is an arrangement of data processes, information representation and information technology that interacts to support day-to-day operations in a business.

(e) An Information System is a contemporary term that describes the combination of information technology with telecommunication technology.

4. Which of the following is not a step in the linear system development cycle?
   (a) Testing design
   (b) Prototyping
   (c) Requirements definition
   (d) Development
   (e) Post-installation.

5. Which of the following statement is true?
   (a) The problem definition phase produces a document written using technical terminology of the system analyst
   (b) The problem statement is a document that contains the problems faced by the organization
   (c) The problem definition phase produces a document that is a broad statement of user requirements
   (d) The problem definition phase does not specify the resources allocated to the project
   (e) The direction of the project is set by the problem definition phase.

6. Which of the following is not considered during the cost-benefit analysis of an information system development project?
   (a) Personnel costs
   (b) Computer usage
7. Which of the following is not a fact finding method?
   (a) Site visits
   (b) Prototyping
   (c) Study of similar systems
   (d) Business analysis
   (e) Joint requirement planning.

8. Which of the following skill may not be required by a systems analyst?
   (a) Programming Language skills
   (b) Communication skills
   (c) Technical skills
   (d) Business process re-engineering skills
   (e) Management skills.

9. How data store is represented in a data flow diagram?
   (a) Circle
   (b) Full Open rectangle
   (c) Half open rectangle
   (d) Full open triangle
   (e) Half open triangle.
10. Which of the following statements associated with data flow diagrams is true?

(a) Data flows in a DFD may be bidirectional
(b) The level 0 DFD only consists of the main process
(c) The level 0 DFD is the same as the level 1 diagram
(d) Data can flow directly from a data store to an external agent
(e) Every process in a DFD must connect to two other processes.

**Answer of MCQ**

1-a 2-b 3-a 4-b 5-c 6-d 7-d 8-a 9-c 10-a

1. Which of the following are considered usual steps in systems development life cycle?

(a) Systems Analysis
(b) Systems Design
(c) Testing
(d) Implementation
(e) All of the above.

2. _________ is the basic objective of systems analysis.

(a) Train managers in mathematical analysis
(b) Understand a complex system and design it in some way
(c) Understand computer hardware by opening the system unit
(d) Implement the system
(e) Run simulation programs.
3. Which one of the following fact-finding techniques is most useful in collecting quantitative data?
(a) Interviews
(b) Record reviews
(c) Questionnaires
(d) Observations
(e) Workshops.

4. Which of the following tool sketches the logical structure of the system based on some criteria?
(a) Decision Table
(b) Data Flow Diagram
(c) Decision Tree
(d) Structured English
(e) Structured chart.

5. The data dictionary in SDLC contains descriptions of
(a) DFD elements
(b) E-R Diagram
(c) Use case
(d) Class Diagram
(e) Decision table.

6. Application prototyping follows an organized process or steps that begins with ____________.
(a) Use prototype
(b) Review prototype
(c) Develop working model
(d) Identify known requirements
(e) Design a prototype.

7. CASE tools are used
   (a) To maintain
   (b) To get routine work in a development project done
   (c) To train users of the system
   (d) As a productivity tool in systems development
   (e) Not to automate the implementation phase of a development project.

8. Which of the following is a combination of data and logic that represents some real world entity?
   (a) Relationship
   (b) Object
   (c) Attributes
   (d) Method
   (e) Class.

9. During project inception the intent of the task is
   (a) Implementing the project
   (b) Designing a solution
   (c) Analysis of the problem
   (d) Programming
   (e) Maintenance of the project.
10. Cohesion is a qualitative indication of the degree to which a module

(a) Interact with other modules
(b) Focuses on just one thing
(c) Is able to complete its function in a timely manner
(d) Is connected to other modules and the outside world
(e) None of the above.

**Answer of MCQ**

1-e  2-b  3-c  4-c  5-a  6-d  7-d  8-b  9-c  10-b