Evolution of Software & Life Cycle Phases

1. **What is the primary focus of the planning phase in the software development life cycle?**

    a) Coding the software

    b) Gathering and analyzing requirements

    c) Developing a project plan

    d) Testing the software

    Answer: c) Developing a project plan

2. **In the SDLC, what is the main objective of the analysis phase?**

    a) To implement the software

    b) To gather detailed requirements

    c) To design the software architecture

    d) To write test cases

    Answer: b) To gather detailed requirements

Software Engineering & SDLC Phases

3. **Which phase of the SDLC involves creating a blueprint of the system?**

    a) Implementation

    b) Design and Prototyping

    c) Testing and Deployment

    d) Requirements Analysis

    Answer: b) Design and Prototyping

4. **What is the primary activity during the development phase of the SDLC?**

    a) Testing the system

    b) Writing and compiling code

    c) Gathering requirements

d) Designing the system architecture

Answer: b) Writing and compiling code

5. **Which phase involves verifying that the software meets the specified requirements before deployment?**

   a) Development

   b) Design

   c) Testing

   d) Analysis

   Answer: c) Testing

Project Management

6. **Which of the following is a key aspect of project management in software development?**

   a) Coding the software

   b) Maintaining documentation

   c) Managing time, cost, and resources

   d) User training

   Answer: c) Managing time, cost, and resources

7. **What is included in pre-code planning?**

   a) Writing the code

   b) Finalizing the software requirements

   c) Conducting user training

   d) Performing integration testing

   Answer: b) Finalizing the software requirements

Flow Chart and Pseudocode

8. **Which of the following best describes pseudocode?**

   a) A programming language

b) A detailed flowchart

c) An informal high-level description of the operating principle of a program

d) A type of system design

Answer: c) An informal high-level description of the operating principle of a program

9. **Why is it important to verify an algorithm?**

a) To ensure the algorithm runs quickly

b) To ensure the algorithm performs the desired task correctly

c) To reduce the lines of code

d) To simplify the algorithm

Answer: b) To ensure the algorithm performs the desired task correctly

10. **What does a flowchart represent in software engineering?**

a) The source code of a program

b) The step-by-step solution to a problem

c) The final product

d) The data model

Answer: b) The step-by-step solution to a problem

Database Management Systems (DBMS)

11. **What are the core components of a DBMS?**

a) Tables, Forms, Reports, and Queries

b) Data, Hardware, Software, Users, and Procedures

c) CPU, Memory, I/O Devices, and Software

d) Tables, Columns, Rows, and Triggers

Answer: b) Data, Hardware, Software, Users, and Procedures

12. **What is a significant advantage of using a DBMS?**

a) Increased redundancy

b) Improved data sharing

c) Manual data entry

d) Lack of security

Answer: b) Improved data sharing

Database Models

13. **Which database model organizes data in a tree-like structure?**

    a) Flat-file

    b) Hierarchical

    c) Network

    d) Relational

    Answer: b) Hierarchical

14. **What is a key characteristic of a flat-file database model?**

    a) Data is stored in a single table

    b) Data is organized in a tree-like structure

    c) Data is linked through relationships

    d) Data is stored in XML format

    Answer: a) Data is stored in a single table

15. **Which database model is best suited for representing complex data relationships?**

    a) Flat-file

    b) Hierarchical

    c) XML

    d) Relational

    Answer: d) Relational

DBMS Architecture & Constraints

16. **What are the three levels of DBMS architecture?**

    a) Physical, Logical, and View

    b) User, Application, and Data

    c) Hardware, Software, and Network

    d) Front-end, Back-end, and Middleware

    Answer: a) Physical, Logical, and View

17. **Which type of constraint ensures that each row in a table is unique?**

    a) Foreign key

    b) Primary key

    c) Check

    d) Default

    Answer: b) Primary key

Database Normalization

18. **What is the main goal of database normalization?**

    a) To increase data redundancy

    b) To reduce data redundancy and improve data integrity

    c) To enhance query performance

    d) To simplify database design

    Answer: b) To reduce data redundancy and improve data integrity

19. **Which of the following is a requirement for a table to be in First Normal Form (1NF)?**

    a) No duplicate columns

    b) No repeating groups or arrays

    c) Every column must be a foreign key

    d) All columns must have unique values

    Answer: b) No repeating groups or arrays

20. **What additional requirement must be met for a table to be in Second Normal Form (2NF)?**

    a) It must be in 1NF and have no partial dependencies

    b) It must have a primary key

    c) It must have a foreign key

    d) It must have no transitive dependencies

    Answer: a) It must be in 1NF and have no partial dependencies

21. **What is required for a table to achieve Third Normal Form (3NF)?**

    a) It must be in 2NF and have no transitive dependencies

    b) It must have a composite key

    c) It must have only one column

    d) It must be in 1NF

    Answer: a) It must be in 2NF and have no transitive dependencies

22. **What is the main requirement for a table to be in Boyce-Codd Normal Form (BCNF)?**

    a) It must be in 2NF

    b) It must be in 3NF

    c) Every determinant must be a candidate key

    d) It must have only atomic values

    Answer: c) Every determinant must be a candidate key