Unit 2- software engineering mcq

1. Which is the first step in the software development life cycle ?
a) Analysis
b) Design
c) Problem/Opportunity Identification
d) Development and Documentation
View Answer
Answer: c
Explanation: None.

2. Which tool is use for structured designing ?
a) Program flowchart
b) Structure chart
c) Data-flow diagram
d) Module
View Answer
Answer: b
Explanation: A Structure Chart (SC) in software engineering and organizational theory, is a chart which shows the breakdown of a system to its lowest manageable levels.

3. A step by step instruction used to solve a problem is known as
a) Sequential structure
b) A List
c) A plan
d) An Algorithm
View Answer
Answer: d
Explanation: None.

4. 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
View Answer
Answer: c
Explanation: Program specification is the definition of what a computer program is expected to do.

5. 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
View Answer
Answer: d
Explanation: The developer has to find in the technical documentation enough information to start coding.

6. Who designs and implement database structures.
a) Programmers
b) Project managers
c) Technical writers
d) Database administrators
View Answer
Answer: d
Explanation: The role of database administrators includes the development and design of database strategies, system monitoring and improving database performance and capacity, and planning for future expansion requirements.

7. _____ 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
View Answer
Answer: d
Explanation: None.

8. 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
View Answer
Answer: b
Explanation: Debugging is a methodical process of finding and reducing the number of bugs, or defects, in a computer program or a piece of electronic hardware, thus making it behave as expected.

9. In Design phase, which is the primary area of concern ?
a) Architecture
b) Data
c) Interface
d) All of the mentioned
View Answer
Answer: d
Explanation: Part of the design phase is to create structural and behavioral models of the system which is covered by architecture, data and the interface of the product.

10. The importance of software design can be summarized in a single word which is:
a) Efficiency
b) Accuracy
c) Quality
d) Complexity
View Answer
Answer: c
Explanation: Software functional quality reflects how well it complies with or conforms to a given design, based on functional requirements or specifications.

11. Cohesion is a qualitative indication of the degree to which a module
a) can be written more compactly
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
View Answer
Answer: b
Explanation: Cohesion of a single module/component is the degree to which its responsibilities form a meaningful unit.

12. Coupling is a qualitative indication of the degree to which a module
a) can be written more compactly
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
View Answer
Answer: d
Explanation: Coupling between modules/components is their degree of mutual interdependence.

Q1. Amongst which of the following is / are true in terms of design concepts in software engineering. Software design encompasses,

A. Set of principles
B. Concepts and practices
C. Development of a high-quality system or product
D. All of the mentioned above

Answer: D) All of the mentioned above

Explanation:

Software design encompasses Set of principles, design concepts and practices, development of a high-quality system or product. Design principles establish design work. Design practices itself leads to the creation of various representations of the software.

Q2. Design develops a representation or ____.

A. Model
B. Testing
C. Requirements Analysis
D. None of the mentioned above

Answer: A) Model

Explanation:

Unlike requirements modelling, design modelling produces a representation or model of software. Design modelling includes a detail description about the software architecture as well as data structures, interfaces, and other components that are required to implement in the system.

Q3. Generally the software design done by ____.

A. Software engineers
B. Mechanical engineers
C. Architect
D. None of the mentioned above

Answer: A) Software engineers

Explanation:

In Software engineering, software designs done by software engineers.

Q4. Amongst which of the following is / are shows the key significances of software designs,

A. Design allows us to build the blue print of the system or product
B. The model gives clarity of proposed system and can be improved before code is generated
C. Tests can be carried out, and end users involves during the process
D. All of the mentioned above

Answer: D) All of the mentioned above

Explanation:

The key significances of software designs are; design allows us to build the blue print of the system or product, the model gives clarity of proposed system and can be improved before code is generated and tests can be carried out, and end users involves during the process.

Q5. Amongst which of the following is / are the key steps of software designs?

A. Representation of architecture of the system or product
B. Representation of the interfaces that connect the software to end users
C. Construction and representation of the software components
D. All of the mentioned above

Answer: D) All of the mentioned above

Explanation:

The architecture of the system or product must be represented; the interfaces that connect to the software to end users, to other systems and the software components that are used to construct the system are designed.

Q6. The primary work product produced during software design is / are,

A. Architectural design
B. Interface design
C. Creation of components and deployment
D. All of the mentioned above

Answer: D) All of the mentioned above

Explanation:

The primary work products produced during software design are architectural design, Interface design and creation of components and deployment.

Q7. The design model is assessed by the software team to determine; and the that have been established.

A. Errors, inconsistencies, or omissions
B. Alternatives existence
C. Implementation of model within the constraints, schedule, and cost
D. Al of the mentioned above

Answer: B) Alternatives existence

Explanation:

The software team evaluates the design model to identify whether there are any flaws, inconsistencies, or omissions; whether there are any alternatives; and whether the model can be implemented within the restrictions, schedule, and budget that have been specified.

Q8. The architectural design defines the relationship between major structural elements of the software,

A. True
B. False

Answer: A) True

Explanation:

The architectural design represents the framework of a computer-based system which is derived from the requirements model. The architectural design of a software system specifies the link between the primary structural aspects of the system under consideration.

Q9. Amongst which of the following is / are the key aspects of interface design,

A. Smooth communication between the system and the users who use it
B. This implies a flow of information
C. Both A and B
D. None of the mentioned above

Answer: C) Both A and B

Explanation:

The key aspects of interface design are to keep Smooth communication between the system and the users who use it. An Interface design implies a flow of information.

Q10. The component-level design transforms structural elements of the software architecture,

A. True
B. False

Answer: A) True

Explanation:

Structures in the software architecture are transformed into procedures for describing how the components of the software work at the component level by using component-level design.

Q11. Component design is prepared with the information obtained from ____.

A. The class-based models
B. Behavioural models
C. Both A and B
D. None of the mentioned above

Answer: C) Both A and B

Explanation:

The information gathered from the class-based models and behavioural models is used to make the component design. During the design phase, we make decisions that will have an impact on the overall success of the software creation process.

Q12. Design provides the representations of software that can be assessed for ____.

A. Quality
B. Testing
C. Analysis

D. All of the mentioned above

Answer: A) Quality

Explanation:

Design provides the representations of software that can be assessed for quality. Essentially, design is a method of accurately translating the requirements of stakeholders into a finished software product or system.

Q13. Software design is a process of,

A. Translating requirements into a blueprint for software construction
B. A holistic view of software
C. Detailed data, functional, and behavioural requirements
D. All of the mentioned above

Answer: D) All of the mentioned above

Explanation:

Software design is a process of translating requirements into a blueprint for software construction; a holistic view of software; and a detailed data, functional, and behavioural requirements.

Q14. Amongst which of the following is / are shows the software quality,

A. Implicit & explicit requirements
B. A readable, understandable
C. A complete picture from an implementation perspective
D. All of the mentioned above

Answer: D) All of the mentioned above

Explanation:

The key aspects of software quality and attributes are; the design should implement implicit & explicit requirements, the design should a readable, and

understandable, and the design should have a complete picture from an implementation perspective.

Q15. Amongst which of the following is / are the key attributes of software quality.

A. Functionality & Usability
B. Reliability & Performance
C. Supportability
D. None of the mentioned above

Answer: B) Reliability & Performance

Explanation:

The key attributes of software quality are functionality, usability, reliability, performance and supportability.

Q16. The process of abstraction can also be referred to as ____.

A. Modelling
B. Analysis
C. Implementation
D. None of the mentioned above

Answer: A) Modelling

Explanation:

The process of abstraction can also be referred to as modeling. It is all about hiding complexity in building various parts of application.

Q17. Software modularity is a,

A. Design approach to divide entire software into smaller units
B. Modularity facilitates a developer to identify issues quickly
C. Modularity helps developer to enhance software and its quality easily

D. All of the mentioned above

Answer: D) All of the mentioned above

Explanation:

Software modularity is a design approach to divide entire software into smaller units; modularity facilitates a developer to identify issues quickly; and helps developer to enhance software and its quality easily.

Q18. Cohesion is a functional strength of a module.

A. True
B. False

Answer: A) True

Explanation:

Cohesion is a functional strength of a module. Unlike other modules, a cohesive module is focused on a single purpose and requires little interaction with other components in other part of a program to complete.

Q19. Coupling indicates the interdependence among modules.

A. True
B. False

Answer: A) True

Explanation:

The term "coupling" refers to the connectivity of modules in a software framework. Coupling indicates the interdependence among modules. The degree of coupling is determined by the intricacy of the interfaces between modules.

Q20. Deployment-level design elements allocate the architecture, its components, and the interfaces to the physical configuration of a system.

A. True
B. False

Answer: A) True

Explanation:

The architecture, its components, and its interfaces are allocated to the physical configuration of a system through the use of deployment-level design elements.

1. Java packages and Fortran subroutine are examples of_____
a) Functions
b) Modules
c) Classes
d) Sub procedures
View Answer
Answer: b
Explanation: A modular system consist of well defined manageable units with well defined interfaces among the units.

2. Which of the property of software modularity is incorrect with respect to benefits software modularity?
a) Modules are robust
b) Module can use other modules
c) Modules Can be separately compiled and stored in a library
d) Modules are mostly dependent
View Answer
Answer: d
Explanation: Modularity cannot bring benefits unless the modules are autonomous or independent.

3. _____ is a measure of the degree of interdependence between modules.
a) Cohesion
b) Coupling
c) None of the mentioned
d) All of the mentioned
View Answer
Answer: b
Explanation: Coupling or dependency is the degree to which each program module relies on each one of the other modules.

4. Which of the following is the best type of module coupling?
a) Control Coupling
b) Stamp Coupling
c) Data Coupling

d) Content Coupling
View Answer
Answer: c
Explanation: The dependency between module A and B is said to be data coupled if their dependency is based on the fact they communicate by only passing of data.

5. Which of the following is the worst type of module coupling?
a) Control Coupling
b) Stamp Coupling
c) External Coupling
d) Content Coupling
View Answer
Answer: c
Explanation: Content coupling occurs when module A changes data of module B or when control is passed from one module to the middle of anot

6. Which of the following is the worst type of module cohesion?
a) Logical Cohesion
b) Temporal Cohesion
c) Functional Cohesion
d) Coincidental Cohesion
View Answer
Answer: d
Explanation: Coincidental cohesion exists in modules that contain instructions that have little or no relationship to one another.

7. Which of the following is the best type of module cohesion?
a) Functional Cohesion
b) Temporal Cohesion
c) Functional Cohesion
d) Sequential Cohesion
View Answer
Answer: a
Explanation: Functional Cohesion is a type of cohesion in which the tasks performed by a software module all contribute to the performance of a single function.

8. A software engineer must design the modules with the goal of high cohesion and low coupling.
a) True
b) False
View Answer
Answer: a
Explanation: If the software is not properly modularized, a host of seemingly trivial enhancement or changes will result into death of the project.

9. In what type of coupling, the complete data structure is passed from one module to another?
a) Control Coupling
b) Stamp Coupling
c) External Coupling
d) Content Coupling
View Answer
Answer: b
Explanation: None.

10. If all tasks must be executed in the same time-span, what type of cohesion is being exhibited?
a) Functional Cohesion
b) Temporal Cohesion
c) Functional Cohesion
d) Sequential Cohesion
View Answer
Answer: b
Explanation: A Module exhibits temporal cohesion when it contains tasks that are related by the fact that all tasks must be executed in the same time-span.

1. Which of the following fall under constructive design principles?
a) Modularity principles
b) Implementary principles
c) Aesthetic principles
d) All of the mentioned
View Answer
Answer: d
Explanation: All of the mentioned principles are known as constructive design principles.

2. What is the Aesthetic principle among the following?
a) High quality programs can be constructed from self contained, understandable parts or modules
b) A design will be more or less easy to be build
c) Beauty is one of the important factor to be acknowledged as design principle
d) None of the mentioned
View Answer
Answer: c
Explanation: Aesthetic principle states Beauty as one of the most important factor to be acknowledged.

3. Which of these distinctions of modular programs over non modular are true?
a) They are not that easier to understand and explain
b) They are not easier to document
c) They are easier to change
d) Testing and Debugging is complex comparatively
View Answer
Answer: c
Explanation: Modular programs are easier to explain and understand, easier to document, easier to change and also easier to test and debug.

4. Which of these comes under the Modularity principle?
a) Small modules
b) Coupling
c) Cohesion
d) All of the mentioned
View Answer
Answer: d
Explanation: All the mentioned follows the modularity principle.

5. What does Coupling mean?
a) Coupling is the degree of connection between pair of module
b) Coupling is the degree to which a module's part are related to one another
c) All of the mentioned
d) None of the mentioned
View Answer
Answer: a
Explanation: Coupling is the degree of connection between pair of module.

6. Which of the following is true?
a) Module coupling should be maximized
b) Module cohesion should be minimized
c) Modules should not have access to unneeded resources
d) Design with small modules are not better
View Answer
Answer: c
Explanation: Module coupling should be minimized, module cohesion should be maximized, design with small modules are always better, modules should not access unneeded resources(principle of least privilege).

7. Which of the following information should be kept hidden?
a) Internal data representation such as data types and structures
b) Volatile design decisions such as size, capacities, waiting time etc
c) Names, parameters, return types of operations provided by module
d) Internal data representation and volatile design decisions should be kept hidden
View Answer
Answer: d
Explanation: Names, parameters, return type are public information need not be hidden whereas internal data representation and volatile design decisions should be kept hidden.

8. Which of the following violates principle of least privilege?
a) Modules that import packages
b) Modules with unneeded access to files
c) Classes with reference to Objects
d) All of the mentioned
View Answer
Answer: d
Explanation: All of the mentioned statements violated principle of least privilege.

9. Which of these is correct with context to coupling?
a) Failure to hide information leads to loose coupling and cannot be avoided
b) Modules that communicate using special data types and structures are less tightly coupled than modules with simple values
c) When modules communicate only through public module interface, their coupling strength is proportional to the number of messages and number of data passed in between
d) All of the mentioned
View Answer
Answer: c
Explanation: Failure to hide information leads to tight coupling, Modules with special data types are more tightly coupled.

10. Which of these is correct with the context of cohesion?
a) Cohesion is least in modules that have a single clear, logically independent responsibility or role
b) Cohesion can not be achieved by forming modules that implement data types
c) One way to increase cohesion is to build a module hierarchy reflecting the level of abstraction in a program
d) All of the mentioned
View Answer
Answer: c
Explanation: Cohesion is highest in modules that have a single clear, logically independent responsibility or role, Cohesion can be easily achieved by forming modules that implement data types are the correct statements.

1. Choose the option that does not define Function Oriented Software Design.
a) It consists of module definitions
b) Modules represent data abstraction
c) Modules support functional abstraction
d) None of the mentioned
View Answer
Answer:b
Explanation: Option b defines an Object Oriented Design.

2. Which of the following is a complementary approach to function-oriented approach ?
a) Object oriented analysis
b) Object oriented design
c) Structured approach
d) Both Object oriented analysis and design
View Answer
Answer:d
Explanation: None.

3. Function-oriented design techniques starts with functional requirements specified in
a) SDD
b) SRS
c) All of the mentioned
d) None of the mentioned
View Answer
Answer:b
Explanation: None.

4. Structured Analysis is based on the principles of
a) Top-down decomposition approach
b) Divide and conquer principle
c) Graphical representation of results using DFDs
d) All of the mentioned
View Answer
Answer:d
Explanation: None.

5. Which of the following is/are true with respect to functions ?
a) A function such as “search-book” is represented using a circle
b) Functions represent some activity

c) Function symbol is known as a process symbol or a bubble in DFD
d) All of the mentioned
View Answer
Answer:d
Explanation: All the options are correct with respect to Function Oriented Software Design.

6. Which of the following is not a use of a CASE tool ?
a) Support structured analysis and design (SA/SD)
b) Maintains the data dictionary
c) Checks whether DFDs are balanced or not
d) It complies with the available system
View Answer
Answer: d
Explanation: It takes long time to establish the system in order to comply with the available system.

7. What DFD notation is represented by the Rectangle?
a) Transform
b) Data Store
c) Function
d) None of the mentioned
View Answer
Answer: b
Explanation: None.

8. Structural decomposition is concerned with function calls.
a) True
b) False
View Answer
Answer: a
Explanation: Structural decomposition is concerned with developing a model of the design which shows the dynamic structure.

9. A function-oriented design focuses on the entities in the system rather than the data processing activities.
a) True
b) False
View Answer
Answer b
Explanation: It is an object oriented design which focus on entities.

10. In DFDs, user interactions with the system is denoted by
a) Circle
b) Arrow
c) Rectangle
d) Triangle
View Answer
Answer:a
Explanation: None.

1.

Choose the option that does not define Function Oriented Software Design.

- **A.)** It consists of module definitions
- **B.)** Modules represent data abstraction
- **C.)** Modules support functional abstraction
- **D.)** None of these

Show Answer
Answer: Option 'B'
Modules represent data abstraction

2.
Which of the following is a complementary approach to function-oriented approach ?

- **A.)** Object oriented analysis
- **B.)** Object oriented design
- **C.)** Structured approach
- **D.)** Both Object oriented analysis and design

Show Answer
Answer: Option 'D'
Both Object oriented analysis and design

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Function-oriented design techniques starts with functional requirements specified in

- **A.)** SDD
- **B.)** SRS
- **C.)** All of the mentioned
- **D.)** None of these

Show Answer
Answer: Option 'B'
SRS

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Structured Analysis is based on the principles of

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- **B.)** Divide and conquer principle
- **C.)** Graphical representation of results using DFDs
- **D.)** All of these

Show Answer

Answer: Option 'D'
All of these

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Which of the following is/are true with respect to functions?

- **A.)** A function such as “search-book” is represented using a circle
- **B.)** Functions represent some activity
- **C.)** Function symbol is known as a process symbol or a bubble in DFD
- [x] **D.)** All of these

Show Answer
Answer: Option 'D'
All the options are correct with respect to Function Oriented Software Design.

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Which of the following is not a use of a CASE tool?

- **A.)** Support structured analysis and design (SA/SD)
- **B.)** Maintains the data dictionary
- **C.)** Checks whether DFDs are balanced or not
- [x] **D.)** It complies with the available system

Show Answer
Answer: Option 'D'
It takes long time to establish the system in order to comply with the available system.

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What DFD notation is represented by the Rectangle?

- **A.)** Transform
- [x] **B.)** Data Store
- **C.)** Function
- **D.)** None of these

Show Answer
Answer: Option 'B'
Data Store

8.
In DFDs, user interactions with the system is denoted by

- [x] **A.)** Circle
- **B.)** Arrow
- **C.)** Rectangle
- **D.)** Triangle

Show Answer

Answer: Option 'A'
Circle

1. Which of the following is not the primary objectives in the analysis model?
a) describing the customer complaints
b) establishing a basis for the creation of a software design
c) defining a set of requirements that can be validated once the software is built
d) none of the mentioned
View Answer

2. A description of each function presented in the DFD is contained in a _____
a) data flow
b) process specification
c) control specification
d) data store
View Answer
Answer: b
Explanation: None.

3. Which diagram indicates the behaviour of the system as a consequence of external events?
a) data flow diagram
b) state transition diagram
c) control specification diagram
d) workflow diagram
View Answer
Answer: b
Explanation: The state transition diagram represents the various modes of behavior (called states) of the system and the manner in which transitions are made from state to state

4. A data model contains
a) data object
b) attributes
c) relationships
d) all of the mentioned
View Answer
Answer: d
Explanation: The data model consists of three interrelated pieces of information: the data object,
the attributes that describe the data object, and the relationships that connect data objects to one another.

5. _____ defines the properties of a data object and take on one of the three different characteristics.
a) data object
b) attributes
c) relationships
d) data object and attributes
View Answer
Answer: b
Explanation: They can be used to name an instance of the data object, describe the instance, or make reference to another instance in another table.

6. The _____ of a relationship is 0 if there is no explicit need for the relationship to occur or the relationship is optional.
a) modality
b) cardinality
c) entity
d) structured analysis
View Answer
7. A _____ is a graphical representation that depicts information flow and the transforms that are applied as data moves from input to output.
a) data flow diagram
b) state transition diagram
c) control specification
d) workflow diagram
View Answer
8. A data condition occurs whenever a data is passed to an input element followed by a processing element and the result in control output.
a) True
b) False
View Answer
9. The _____ enables the software engineer to develop models of the information domain and functional domain at the same time
a) data flow diagram
b) state transition diagram
c) control specification
d) activity diagram
View Answer
10. The _____ contains a state transition diagram that is a sequential specification of behaviour.
a) data flow diagram
b) state transition diagram
c) control specification
d) workflow diagram
View Answer