

SOFTWARE ENGINEERING

1. What is a Software ?
 - a) Software is set of programs
 - b) Software is documentation and configuration of data
 - c) Software is set of programs, documentation & configuration of data
 - d) None of the mentioned
2. What are attributes of good software ?
 - a) Software maintainability
 - b) Software functionality
 - c) Software development
 - d) Software maintainability & functionality
3. Which of these software engineering activities are not a part of software processes ?
 - a) Software dependence
 - b) Software development
 - c) Software validation
 - d) Software specification
4. Which of these is incorrect ?
 - a) Software engineering belongs to Computer science
 - b) Software engineering is a part of more general form of System Engineering
 - c) Computer science belongs to Software engineering
 - d) Software engineering is concerned with the practicalities of developing and delivering useful software
5. RAD stands for
 - a) Relative Application Development
 - b) Rapid Application Development
 - c) Rapid Application Document
 - d) None of the mentioned
6. Which one of the following models is not suitable for accommodating any change?
 - a) Build & Fix Model
 - b) Prototyping Model
 - c) RAD Model
 - d) Waterfall Model
7. SDLC stands for
 - a) Software Development Life Cycle
 - b) System Development Life cycle
 - c) Software Design Life Cycle
 - d) System Design Life Cycle
8. What is the major advantage of using Incremental Model?
 - a) Customer can respond to each increment
 - b) Easier to test and debug
 - c) It is used when there is a need to get a product to the market early

- d) Easier to test and debug & It is used when there is a need to get a product to the market early
9. The spiral model was originally proposed by
- IBM
 - Barry Boehm
 - Pressman
 - Royce
10. Selection of a model is based on
- Requirements
 - Development team & Users
 - Project type and associated risk
 - All of the mentioned
11. Which one of the following is not a software process quality?
- Productivity
 - Portability
 - Timeliness
 - Visibility
12. _____ & _____ are two kinds of software products.
- CAD, CAM
 - Firmware, Embedded
 - Generic, Customised
 - None of the mentioned
13. RUP stands for _____ created by a division of _____
- Rational Unified Program, IBM
 - Rational Unified Process, Infosys
 - Rational Unified Process, Microsoft
 - Rational Unified Process, IBM
14. Which one of the following is not a fundamental activity for software processes in software engineering ?
- Software Verification
 - Software Validation
 - Software design and implementation
 - Software evolution
15. Agile Software Development is based on
- Incremental Development
 - Iterative Development
 - Linear Development
 - Both Incremental and Iterative Development
16. How many phases are there in Scrum ?
- Two
 - Three
 - Four
 - Scrum is an agile method which means it does not have phases
17. Which four framework activities are found in the Extreme Programming(XP) ?
- analysis, design, coding, testing
 - planning, analysis, design, coding

- c) planning, design, coding, testing
 - d) planning, analysis, coding, testing
18. The user system requirements are the parts of which document ?
- a) SDD
 - b) SRS
 - c) DDD
 - d) SRD
19. What are the types of requirements ?
- a) Availability
 - b) Reliability
 - c) Usability
 - d) All of the mentioned
20. What are the four dimensions of Dependability ?
- a) Usability, Reliability, Security, Flexibility
 - b) Availability, Reliability, Maintainability, Security
 - c) Availability, Reliability, Security, Safety
 - d) Security, Safety, Testability, Usability
21. Which one of the following is a functional requirement ?
- a) Maintainability
 - b) Portability
 - c) Robustness
 - d) None of the mentioned
22. _____ and _____ are the two issues of Requirement Analysis.
- a) Performance, Design
 - b) Stakeholder, Developer
 - c) Functional, Non-Functional
 - d) None of the mentioned
23. Which of the following property does not correspond to a good Software Requirements Specification (SRS) ?
- a) Verifiable
 - b) Ambiguous
 - c) Complete
 - d) Traceable
24. Why is Requirements Management Important ? It is due to the changes
- a) to the environment
 - b) in technology
 - c) in customer's expectations
 - d) in all of the mentioned.
25. The UML supports event-based modeling using _____ diagrams.
- a) Deployment
 - b) Collaboration
 - c) State chart
 - d) All of the mentioned
26. Which level of Entity Relationship Diagram (ERD) models all entities and relationships ?
- a) Level 1

- b) Level 2
 - c) Level 3
 - d) Level 4
27. Which of the following diagram is not supported by UML considering Data-driven modeling ?
- a) Activity
 - b) Data Flow Diagram (DFD)
 - c) State Chart
 - d) Component
28. A sociotechnical system is a system that includes
- a) people
 - b) software
 - c) hardware
 - d) all of the mentioned
29. A characteristic of a software system that can lead to a system error is known as?
- a) Human error or mistake
 - b) System fault
 - c) System error
 - d) System failure
30. An aircraft engine normally includes automatic fire extinguishers. What kind of dependability and security issue the example states?
- a) Hazard avoidance
 - b) Damage limitation
 - c) Hazard detection
 - d) Hazard detection and removal
31. Circumstances that have potential to cause loss or harm is known as
- a) Attack
 - b) Threat
 - c) Vulnerability
 - d) Control
32. Which tool is use for structured designing ?
- a) Program flowchart
 - b) Structure chart
 - c) Data-flow diagram
 - d) Module
33. 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
34. 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

35. Debugging is:
- creating program code
 - finding and correcting errors in the program code
 - identifying the task to be computerized
 - creating the algorithm
36. In Design phase, which is the primary area of concern ?
- Architecture
 - Data
 - Interface
 - All of the mentioned
37. In DFDs, user interactions with the system is denoted by
- Circle
 - Arrow
 - Rectangle
 - Triangle
38. The context diagram is also known as
- Level-0 DFD
 - Level-1 DFD
 - Level-2 DFD
 - All of the mentioned
39. A design description of an object is known as a class
- instance
 - object
 - case
 - both instance and object
40. The intent of project metrics is:
- minimization of development schedule
 - for strategic purposes
 - assessing project quality on ongoing basis
 - minimization of development schedule and assessing project quality on ongoing basis
41. In size oriented metrics, metrics are developed based on the _____
- number of Functions
 - number of user inputs
 - number of lines of code
 - amount of memory usage
42. Function Points in software engineering was first proposed by
- Booch
 - Boehm
 - Albrecht
 - Jacobson
43. COCOMO stands for
- Constructive cost model
 - Comprehensive cost model
 - Constructive cost estimation model
 - Complete cost estimation model

44. What all has to be identified as per risk identification?
- a) Threats
 - b) Vulnerabilities
 - c) Consequences
 - d) All of the mentioned
45. Risk management is one of the most important jobs for a
- a) Client
 - b) Investor
 - c) Production team
 - d) Project manager
46. Which of the following is a project scheduling method that can be applied to software development?
- a) PERT
 - b) CPM
 - c) CMM
 - d) Both PERT and CPM
47. A project usually has a timeline chart which was developed by
- a) Henry Gantt
 - b) Barry Boehm
 - c) Ivar Jacobson
 - d) None of the mentioned
48. Software Configuration Management can be administered in several ways. These include
- a) A single software configuration management team for the whole organization
 - b) A separate configuration management team for each project
 - c) Software Configuration Management distributed among the project members
 - d) All of the mentioned
49. What type of software testing is generally used in Software Maintenance?
- a) Regression Testing
 - b) System Testing
 - c) Integration Testing
 - d) Unit Testing
50. What are legacy systems?
- a) new systems
 - b) old systems
 - c) under-developed systems
 - d) none of the mentioned
51. Which of the following is a type of Architectural Model?
- a) Static structural model
 - b) Dynamic process model
 - c) Distribution model
 - d) All of the mentioned

52. What type of core-relationship is represented by the symbol in the figure below?



- a) Aggregation
- b) Dependency
- c) Generalization
- d) Association

53. COTS stands for

- a) Commercial Off-The-Shelf systems
- b) Commercial Off-The-Shelf states
- c) Commercial Off-The-System state
- d) None of the mentioned

1. Choose the correct option in terms of Issues related to professional responsibility

- a) Confidentiality
- b) Intellectual property rights
- c) Both Confidentiality & Intellectual property rights
- d) Managing Client Relationships

2. "Software engineers should not use their technical skills to *misuse* other people's computers." Here the term *misuse* refers to:

- a) Unauthorized access to computer material
- b) Unauthorized modification of computer material
- c) Dissemination of viruses or other malware
- d) All of the mentioned

3. Explain what is meant by *PRODUCT* with reference to one of the eight principles as per the ACM/IEEE Code of Ethics ?

- a) The product should be easy to use
- b) Software engineers shall ensure that their products and related modifications meet the highest professional standards possible
- c) Software engineers shall ensure that their products and related modifications satisfy the client
- d) It means that the product designed /created should be easily available

4. Identify an ethical dilemma from the situations mentioned below:

- a) Your employer releases a safety-critical system without finishing the testing of the system
- b) Refusing to undertake a project
- c) Agreement in principle with the policies of senior management
- d) All of the mentioned

5. Identify the correct statement: "Software engineers shall

- a) act in a manner that is in the best interests of his expertise and favour."
- b) act consistently with the public interest."

- c) ensure that their products only meet the SRS.”
- d) all of the mentioned

6. Select the incorrect statement: “Software engineers should
- a) not knowingly accept work that is outside your competence.”
 - b) not use your technical skills to misuse other people’s computers.”
 - c) be dependent on their colleagues.”
 - d) maintain integrity and independence in their professional judgment.”

7. Efficiency in a software product does not include _____
- a) responsiveness
 - b) licensing
 - c) memory utilization
 - d) processing time

8. As per an IBM report, “31%of the project get cancelled before they are completed, 53% overrun their cost estimates by an average of 189% and for every 100 projects, there are 94 restarts”.What is the reason for these statistics

?

- a) Lack of adequate training in software engineering
- b) Lack of software ethics and understanding
- c) Management issues in the company
- d) All of the mentioned

. *The reason for software bugs and failures is due to

- a) Software companies
- b) Software Developers
- c) Both Software companies and Developers
- d) All of the mentioned

9. Company has latest computers and state- of the- art software tools, so we shouldn’t worry about the quality of the product.

- a) True
- b) False

10. _____ Build & Fix Model is suitable for programming exercises of _____ LOC (Line of Code).

- a) 100-200
- b) 200-400
- c) 400-1000
- d) above 1000

1. RAD stands for
- a) Relative Application Development
 - b) Rapid Application Development
 - c) Rapid Application Document
 - d) None of the mentioned

2. Which one of the following models is not suitable for accommodating any change?

- a) Build & Fix Model
- b) Prototyping Model

- c) RAD Model
- d) Waterfall Model

3. Which is not one of the types of prototype of Prototyping Model?

- a) Horizontal Prototype
- b) Vertical Prototype
- c) Diagonal Prototype
- d) Domain Prototype

4. Which one of the following is not a phase of Prototyping Model?

- a) Quick Design
- b) Coding
- c) Prototype Refinement
- d) Engineer Product

5. Which of the following statements regarding Build & Fix Model is wrong?

- a) No room for structured design
- b) Code soon becomes unfixable & unchangeable
- c) Maintenance is practically not possible
- d) It scales up well to large projects

6. RAD Model has

- a) 2 phases
- b) 3 phase
- c) 5 phases
- d) 6 phases

7. What is the major drawback of using RAD Model?

- a) Highly specialized & skilled developers/designers are required
- b) Increases reusability of components
- c) Encourages customer/client feedback
- d) Increases reusability of components, Highly specialized & skilled developers/designers are required

8. SDLC stands for

- a) Software Development Life Cycle
- b) System Development Life cycle
- c) Software Design Life Cycle
- d) System Design Life Cycle

9. Which model can be selected if user is involved in all the phases of SDLC?

- a) Waterfall Model
- b) Prototyping Model
- c) RAD Model
- d) both Prototyping Model & RAD Model

1. Select the option that suits the Manifesto for Agile Software Development

- a) Individuals and interactions
- b) Working software
- c) Customer collaboration
- d) All of the mentioned

2. Agile Software Development is based on

- a) Incremental Development
- b) Iterative Development
- c) Linear Development
- d) Both Incremental and Iterative Development

3. Which one of the following is not an agile method?

- a) XP
- b) 4GT
- c) AUP
- d) All of the mentioned

4. Agility is defined as the ability of a project team to respond rapidly to a change.
a) True
b) False
5. How is plan driven development different from agile development ?
a) Outputs are decided through a process of negotiation during the software development process
b) Specification, design, implementation and testing are interleaved
c) Iteration occurs within activities
d) All of the mentioned
6. How many phases are there in Scrum ?
a) Two
b) Three
c) Four
d) Scrum is an agile method which means it does not have phases
7. Agile methods seem to work best when team members have a relatively high skill level.
a) True
b) False
8. Which of the following does not apply to agility to a software process?
a) Uses incremental product delivery strategy
b) Only essential work products are produced
c) Eliminate the use of project planning and testing
d) All of the mentioned
9. Which three framework activities are present in Adaptive Software Development(ASD) ?
a) analysis, design, coding
b) requirements gathering, adaptive cycle planning, iterative development
c) speculation, collaboration, learning
d) all of the mentioned
10. In agile development it is more important to build software that meets the customers' needs today than worry about features that might be needed in the future.
a) True
b) False
1. Incremental development in Extreme Programming (XP) is supported through a system release once every month.
a) True
b) False
2. In XP, as soon as the work on a task is complete, it is integrated into the whole system.
a) True
b) False
3. In XP Increments are delivered to customers every ____ weeks.
a) One
b) Two
c) Three

d) Four

4. User requirements are expressed as _____ in Extreme Programming.

- a) implementation tasks
- b) functionalities
- c) scenarios
- d) none of the mentioned

5. Is a customer involved test development and validation in XP ?

- a) Yes
- b) No
- c) It may vary from Customer to Customer
- d) None of the mentioned

6. Programmers prefer programming to testing and sometimes they take shortcuts when writing tests. For example, they may write incomplete tests that do not check for all possible exceptions that may occur.

- a) True
- b) False

7. Tests are automated in Extreme Programming.

- a) True
- b) False

8. In XP an automated unit test framework is used to write tests for a new piece of functionality before that functionality itself is implemented.

- a) True
- b) False

9. Developers work individually on a release and they compare their results with other developers before forwarding that release to customers.

- a) True
- b) False

10. Which four framework activities are found in the Extreme Programming(XP) ?

- a) analysis, design, coding, testing
- b) planning, analysis, design, coding
- c) planning, design, coding, testing
- d) planning, analysis, coding, testing

UNIT II REQUIREMENTS ANALYSIS AND
SPECIFICATION

1. Which one of the following is a functional requirement ?
 - a) Maintainability
 - b) Portability
 - c) Robustness
 - d) None of the mentioned

2. Which one of the following is a requirement that fits in a developer's module ?
 - a) Availability
 - b) Testability
 - c) Usability
 - d) Flexibility

3. "Consider a system where, a heat sensor detects an intrusion and alerts the security company." What kind of a requirement the system is providing ?
 - a) Functional
 - b) Non-Functional
 - c) Known Requirement
 - d) None of the mentioned

4. Functional requirements capture the intended behavior of the system.
 - a) True
 - b) False

5. Choose the incorrect statement with respect to Non-Functional Requirement(NFR).
 - a) Product-oriented Approach – Focus on system (or software) quality
 - b) Process-oriented Approach – Focus on how NFRs can be used in the design process
 - c) Quantitative Approach – Find measurable scales for the functionality attributes
 - d) Qualitative Approach – Study various relationships between quality goals

6. How many classification schemes have been developed for NFRs ?
 - a) one
 - b) Three
 - c) Four
 - d) Five.

6. According to components of FURPS+, which of the following does not belong to S ?
 - a) Testability
 - b) Speed Efficiency
 - c) Serviceability
 - d) Installability

7. Does software wear & tear by decomposition ?
 - a) Yes
 - b) No

8. What are the four dimensions of Dependability ?
 - a) Usability, Reliability, Security, Flexibility
 - b) Availability, Reliability, Maintainability, Security
 - c) Availability, Reliability, Security, Safety
 - d) Security, Safety, Testability, Usability

9. Choose the correct statement on how NFRs integrates with Rational Unified Process ?
- a) System responds within 4 seconds on average to local user requests and changes in the environment
 - b) System responds within 4 seconds on average to remote user requests and changes in the environment
 - c) All of the mentioned
 - d) None of the mentioned

10. Which of the following is not a diagram studied in Requirement Analysis ?
- a) Use Cases
 - b) Entity Relationship Diagram
 - c) State Transition Diagram
 - d) Activity Diagram

11. How many feasibility studies is conducted in Requirement Analysis ?
- a) Two
 - b) Three
 - c) Four
 - d) None of the mentioned

1. How many phases are there in Requirement Analysis ?

- a) Three
- b) Four
- c) Five
- d) Six

1. Traceability is not considered in Requirement Analysis.

- a) True
- b) False

2. Requirements analysis is critical to the success of a development project.

- a) True
- b) False
- c) Depends upon the size of project
- d) None of the mentioned

3. _____ and _____ are the two issues of Requirement Analysis.

- a) Performance, Design
- b) Stakeholder, Developer
- c) Functional, Non-Functional
- d) None of the mentioned

Answer: b

Explanation: Option a and c are the types of

4. The requirements that result from requirements analysis are typically expressed from one of three perspectives or views. What is that perspective or view ?

- a) Developer
- b) User
- c) Non-Functional
- d) Physical

5. Requirements Analysis is an Iterative Process.

- a) True
- b) False

6. Coad and Yourdon suggested _____ selection characteristics that should be used as an analyst considers each potential object for inclusion in the requirement analysis model.

- a) Three
- b) Four
- c) Five
- d) Six

7. Requirements should specify 'what' but not 'how'.

- a) True
- b) False

1. What are the types of requirements ?

- a) Availability
- b) Reliability
- c) Usability
- d) All of the mentioned

2. Select the developer-specific requirement ?

- a) Portability
- b) Maintainability
- c) Availability
- d) Both Portability and Maintainability

3. Which one of the following is not a step of requirement engineering?

- a) elicitation
- b) design
- c) analysis
- d) documentation

4. ***FAST stands for***

- a) Functional Application Specification Technique
- b) Fast Application Specification Technique
- c) Facilitated Application Specification Technique
- d) None of the mentioned

4. QFD stands for

- a) quality function design
- b) quality function development
- c) quality function deployment
- d) none of the mentioned

5. A Use-case actor is always a person having a role that different people may play.

- a) True
- b) False

6. The user system requirements are the parts of which document ?

- a) SDD
- b) SRS
- c) DDD
- d) SRD

7. A stakeholder is anyone who will purchase the completed software system under development.

- a) True
- b) False

8. Conflicting requirements are common in Requirement Engineering, with each client proposing his or her version is the right one.

- a) True
- b) False

9. Which is one of the most important stakeholder from the following ?

- a) Entry level personnel
- b) Middle level stakeholder
- c) Managers
- d) Users of the software

1. SA/SD features are obtained from which of the methodologies?
 - a) Constantine and Yourdon methodology
 - b) DeMarco and Yourdon methodology
 - c) Gane and Sarson methodology
 - d) All of the mentioned

2. Which of the following is not an activity of Structured Analysis (SA) ?
 - a) Functional decomposition
 - b) Transformation of a textual problem description into a graphic model
 - c) All the functions represented in the DFD are mapped to a module structure
 - d) All of the mentioned

3. To arrive at a form which is suitable for implementation in some programming language is the purpose of
 - a) Structured Analysis (SA)
 - b) Structured Design (SD)
 - c) Detailed Design (DD)
 - d) None of the mentioned

4. The results of structured analysis can be easily understood by ordinary customers.
 - a) True
 - b) False

5. Structured Analysis is based on the principle of Bottom-Up Approach.
 - a) True
 - b) False

6. The context diagram is also known as
 - a) Level-0 DFD
 - b) Level-1 DFD
 - c) Level-2 DFD
 - d) All of the mentioned

7. A directed arc or line in DFD represents
 - a) Data Store
 - b) Data Process
 - c) Data Flow
 - d) All of the mentioned

8. A DFD is always accompanied by a data dictionary.
 - a) True
 - b) False

9. Which of the following is a function of CASE Tool?
 - a) Supporting Structured analysis and design (SA/SD)
 - b) Maintaining the data dictionary
 - c) Checking whether DFDs are balanced or

not

d) All of the mentioned

10. Data Store Symbol in DFD represents a

a) Physical file

b) Data Structure

c) Logical file

d) All of the mentioned

U NIT III SOFTWARE

DESIGN

1. Why does architectural design occurs during product design?
 - a) Stakeholders must convinced that their needs will be met, which may be difficult without demonstrating how the engineers plan to build the product
 - b) Product designers must judge the feasibility of their designs
 - c) Project planners must have some idea about what software must be built to create schedules and allocate resources
 - d) All of the mentioned

2. What kind of investments does organization have in order to make most of by the software architects in their design?
 - a) Libraries
 - b) Standards and guidelines
 - c) Software tools
 - d) All of the mentioned

3. Which of the following is true?
 - a) The input of architectural design process is SAD
 - b) The output of architectural design process is SRS
 - c) The input of architectural design process is SRS
 - d) None of the mentioned

4. Which of these steps are followed in architectural design process?
 - a) Analyze SRS
 - b) Evaluate Candidate Architectures
 - c) Select architecture and finalize architecture
 - d) All of the mentioned

5. Which of these are the content for SAD?
 - a) Product Overview
 - b) Architectural Models
 - c) Architectural design rationale
 - d) All of the mentioned

6. Which of these are included in the product overview for SAD?
 - a) product vision, assumptions, constraints
 - b) product scope
 - c) target markets, business requirements
 - d) product vision, assumptions, constraints, target markets & business requirements

7. Which amount the following is correct?
 - a) Architectural models explains the main design decisions made in arriving the architecture
 - b) Architectural design rationale presents architecture, using variety of models to represent different aspects or views
 - c) Mapping between models says sometimes it is difficult to connect different architectural models
 - d) All of the mentioned

8. What are the categories in which quality attributes are divided in?
 - a) Development Attributes
 - b) Operational Attributes
 - c) Functional Attributes
 - d) Development & Operational Attributes

9. Which of these comes under development attribute?

- a) Maintainability
- b) Reusability
- c) Performance
- d) Maintainability & Reusability

10. Which of these comes under operational attributes?

- a) Performance
- b) Availability
- c) Reliability
- d) All of the mentioned

1. What makes a good architecture?

- a) The architecture may not be the product of a single architect or a small group
- b) The architect should have the technical requirements for the system and an articulated and prioritized list of qualitative properties
- c) The architecture may not be well documented
- d) All of the mentioned

2. What does a typical top level architecture consists of?

- a) Prop Loss Model(MOPD)
- b) Reverb Model(MODR)
- c) Control Process
- d) All of the mentioned

3. Which among the following are valid questions raised for the top level architectural model?

- a) What is the nature of components?
- b) What is the significance of the links?
- c) What is the significance of the layout?
- d) All of the mentioned

4. Which of the following are correct statements?

- a) An architecture may or may not defines components
- b) An architecture is not dependable on requirements
- c) An architecture is foremost an abstraction of a system that suppresses details of the components that do not affect how they are used
- d) All of the mentioned

5. What does “Every software system has an architecture” implies?

- a) System itself is a component
- b) Architecture an exist independently of its description or specification
- c) All the system to be stable should posses an architecture
- d) None of the mentioned

6. What is architectural style?

- a) Architectural style is a description of component types
- b) It is a pattern of run-time control
- c) It is set of constraints on architecture
- d) All of the mentioned

7. What is a Reference Model?

- a) It is a division of functionality together with data flow between the pieces

- b) It is a description of component types
- c) It is standard decomposition of a known problem into parts that cooperatively solve a problem
- d) It is a division of functionality together with data flow between the pieces, It is standard decomposition of a known problem into parts that cooperatively solve a problem

8. What is Reference architecture?

- a) It is a reference model mapped onto software components
- b) It provided data flow with comments
- c) It provides data flow with pieces
- d) It is a reference model mapped onto software components & data flow with comments

9. Which of the following is incorrect for Reference model, architectural styles and reference architecture?

- a) They are not architectures
- b) They are useful steps towards an architecture
- c) They are set of early design decisions
- d) None of the mentioned

10. Which of the following can be considered regarding client and server?

- a) Client and server is an architectural style
- b) Client and server may be considered as an architectural style
- c) Client and server is not an architectural style
- d) None of the mentioned

11. Which of the statements truly concludes client and server relation with architectural styles?

- a) They are component types and their coordination is described in terms of protocols that server uses to communicate with each of its clients
- b) Multiple client cannot exist at an instance
- c) Architecture are countless for client and server but their architectural styles are different
- d) All of the mentioned

12. Which of the following is incorrect?

- a) A reference model divides the functionality
- b) A reference architecture is the mapping

that functionality onto system decomposition

- c) All of the mentioned
- d) None of the mentioned

13. What truly describes the reference architecture decomposition?

- a) A reference architecture is the mapping of that functionality onto system decomposition may be one to one
- b) A reference architecture is the mapping of that functionality onto system decomposition is many to one
- c) A reference architecture is the mapping of that functionality onto system decomposition is many to many
- d) None of the mentioned

14. Which of the following is true?

- a) Architecture is low level design
- b) Architecture is mid level design
- c) Architecture is high level design
- d) None of the mentioned

15. What is Architecture?

- a) Architecture is components
- b) Architecture is connectors
- c) Architecture is constraints
- d) All of the mentioned

1. Which of the following is golden rule for interface design?

- a) Place the user in control
- b) Reduce the user's memory load
- c) Make the interface consistent
- d) All of the mentioned

2. Which of the following is not a design principle that allow the user to maintain control?

- a) Provide for flexible interaction
- b) Allow user interaction to be interrupt-able and undo-able
- c) Show technical internals from the casual user
- d) Design for direct interaction with objects that appear on the screen

3. Which of the following is not a user interface design process?

- a) User, task, and environment analysis and modeling
- b) Interface design
- c) Knowledgeable, frequent users
- d) Interface validation



- a) short-term memory
- b) shortcuts
- c) objects that appear on the screen
- d) all of the mentioned

4. Which of the following option is not considered by the Interface design?

- a) the design of interfaces between software components
- b) the design of interfaces between the software and human producers and consumers of information
- c) the design of the interface between two computers
- d) all of the mentioned

5. A software might allow a user to interact via

- a) keyboard commands
- b) mouse movement
- c) voice recognition commands
- d) all of the mentioned

6. A software engineer designs the user interface by applying an iterative process that draws on predefined design principles.

- a) True
- b) False

7. What incorporates data, architectural, interface, and procedural representations of the software?

- a) design model
- b) user's model
- c) mental image
- d) system image

8. What establishes the profile of end-users of the system?

- a) design model
- b) user's model
- c) mental image
- d) system image

9. What combines the outward manifestation of the computer-based system , coupled with all supporting information that describe system syntax and semantics?

- a) mental image
- b) interface design
- c) system image
- d) interface validation

1. Which of the following steps is applied to develop a decision table?
 - a) List all actions that can be associated with a specific procedure
 - b) List all conditions during execution of the procedure
 - c) Define rules by indicating what action(s) occurs for a set of conditions
 - d) All of the mentioned

2. _____ is a pidgin (simplified version of a language that develops as a means of communication between two or more groups that do not have a language in common)
 - a) program design language
 - b) structured English
 - c) pseudocode
 - d) all of the mentioned

3. Which of the following term is best defined by the statement: "The ability to represent local and global data is an essential element of component-level design."?
 - a) Data representation
 - b) Logic verification
 - c) "Code-to" ability
 - d) Automatic processing

4. A software component
 - a) Implements some functionality
 - b) Has explicit dependencies through provides and required interfaces
 - c) Communicates through its interfaces only
 - d) All of the mentioned

5. Which diagram evolved from a desire to develop a procedural design representation that would not allow violation of the structured constructs?
 - a) State transition diagram
 - b) Box diagram
 - c) ER diagram
 - d) None of the mentioned

6. A _____ executes the loop task first, then tests a condition and repeats the task until the condition fails.
 - a) repeat until
 - b) condition
 - c) do while tests
 - d) if then-else

7. Which of the following is not a characteristic of box diagram?
 - a) functional domain
 - b) arbitrary transfer of control is impossible
 - c) recursion is easy to represent
 - d) providing a notation that translates actions and conditions

8. The _____ is represented as two processing boxes connected by a line (arrow) of control.
 - a) Repetition
 - b) Sequence
 - c) Condition
 - d) None of the mentioned

9. Which of the following term is best defined by the statement "Notation that can be input directly into a computer-based development system offers significant benefits."?

- a) Machine readability
- b) Maintainability
- c) Structure enforcement
- d) Overall simplicity

U N I T I V T E S T I N G A N D
M A I N T E N A N C E

<p style="text-align: center;">TOPIC 4.1 SOFTWARE TESTING FUNDAMENTALS-INTERNAL AND EXTERNAL VIEWS OF TESTING-WHITE BOX TESTING - BASIS PATH</p>

1. Which of the following term describes testing?
 - a) Finding broken code
 - b) Evaluating deliverable to find errors
 - c) A stage of all projects
 - d) None of the mentioned

2. What is Cyclomatic complexity?
 - a) Black box testing
 - b) White box testing
 - c) Yellow box testing
 - d) Green box testing

3. Lower and upper limits are present in which chart?
 - a) Run chart
 - b) Bar chart
 - c) Control chart
 - d) None of the mentioned

- 4. Maintenance testing is performed using which methodology?***
 - a) Retesting
 - b) Sanity testing
 - c) Breadth test and depth test
 - d) Confirmation testing

4. White Box techniques are also classified as
 - a) Design based testing
 - b) Structural testing
 - c) Error guessing technique
 - d) None of the mentioned

5. Exhaustive testing is
- a) always possible
 - b) practically possible
 - c) impractical but possible
 - d) impractical and impossible

6. Which of the following is/are White box technique?
- a) Statement Testing
 - b) Decision Testing
 - c) Condition Coverage
 - d) All of the mentioned

7. What are the various Testing Levels?
- a) Unit Testing
 - b) System Testing
 - c) Integration Testing
 - d) All of the mentioned

8. Boundary value analysis belong to?
- a) White Box Testing
 - b) Black Box Testing
 - c) White Box & Black Box Testing
 - d) None of the mentioned

9. Alpha testing is done at
- a) Developer's end
 - b) User's end
 - c) Developer's & User's end
 - d) None of the mentioned

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**TOPIC 4.3 REGRESSION
TESTING UNIT TESTING ,
INTEGRATION TESTING
VALIDATION TESTING
SYSTEM TESTING AND
DEBUGGING**

1. Software Debugging is a set of activities that can be planned in advance and conducted systematically.
- a) True
 - b) False

2. Which of the following is not a software testing generic characteristics?
- a) Different testing techniques are appropriate at different points in time
 - b) Testing is conducted by the developer of the software or an independent test group
 - c) Testing and debugging are different activities, but debugging must be accommodated in any testing strategy
 - d) None of the mentioned

3. ITG stands for
- a) instantaneous test group
 - b) integration testing group
 - c) individual testing group
 - d) independent test group

By collecting _____ during software testing, it is possible to develop meaningful guidelines to halt the testing process.

- a) Failure intensity
- b) Testing time
- c) Metrics
- d) All of the mentioned

4. Which of the following issues must be addressed if a successful software testing strategy is to be implemented?
- a) Use effective formal technical reviews as a filter prior to testing

b) Develop a testing plan that emphasizes “rapid cycle testing.”

c) State testing objectives explicitly

d) All of the mentioned

5. Test cases should uncover errors like

a) Nonexistent loop termination

b) Comparison of different data types

c) Incorrect logical operators or precedence

d) All of the mentioned

6. Which of the following errors should not be tested when error handling is evaluated?

a) Error description is unintelligible

b) Error noted does not correspond to error encountered

c) Error condition causes system intervention prior to error handling

d) Error description provide enough information to assist in the location of the cause of the error

7. What is normally considered as an adjunct to the coding step

a) Integration testing

b) Unit testing

c) Completion of Testing

d) Regression Testing

8. Which of the following is not regression test case?

a) A representative sample of tests that will exercise all software functions

b) Additional tests that focus on software functions that are likely to be affected by the change

c) Tests that focus on the software components that have been changed

d) Low-level components are combined into clusters that perform a specific software sub-function

9. Which testing is an integration testing approach that is commonly used when “shrink-wrapped” software products are being developed?

a) Regression Testing

b) Integration testing

c) Smoke testing

d) Validation testing

10. In which testing level the focus is on customer usage?

a) Alpha Testing

b) Beta Testing

c) Validation Testing

d) Both Alpha and Beta

11. Validation refers to the set of tasks that ensure that software correctly implements a specific function.

a) True

b) False

1. What are the problems with re-structuring?

a) Loss of comments

b) Loss of documentation

c) Heavy computational demands

d) All of the mentioned

2. Which of the following is not a module type?

a) Object modules

- b) Hardware modules
- c) Functional modules
- d) Process support modules

3. Reverse engineering of data focuses on

- a) Internal data structures
- b) Database structures
- c) ALL of the mentioned
- d) None of the mentioned

4. Forward engineering is not necessary if an existing software product is producing the correct output.

- a) True
- b) False

5. Which of the following is not an example of a business process?

- a) designing a new product
- b) hiring an employee
- c) purchasing services
- d) testing software

6. Which of the following is a data problem?

- a) hardware problem
- b) record organisation problems
- c) heavy computational demands
- d) loss of comments

7. When does one decides to re-engineer a product?

- a) when tools to support restructuring are disabled
- b) when system crashes frequently
- c) when hardware or software support becomes obsolete
- d) subsystems of a larger system require few maintenance

8. Which of the following is not a business goal of re-engineering ?

- a) Cost reduction
- b) Time reduction
- c) Maintainability
- d) None of the mentioned

9. Which of these benefits can be achieved when software is restructured?

- a) Higher quality programs
- b) Reduced maintenance effort
- c) Software easier to test
- d) All of the mentioned

10. Data re-engineering may be part of the process of migrating from a file-based system to a DBMS-based system or changing from one DBMS to another.

- a) True
- b) False

11. BPR stands for

- a) Business process re-engineering
- b) Business product re-engineering
- c) Business process requirements

d) None of the mentioned

12. Source code translation is a part of which re-engineering technique?

a) Data re-engineering

b) Refactoring

c) Restructuring

d) None of the mentioned

1. In reverse engineering process, what refers to the sophistication of the design information that can be extracted from the source code?

a) interactivity

b) completeness

c) abstraction level

d) direction level

2. In reverse engineering, what refers to the level of detail that is provided at an abstraction level?

a) interactivity

b) completeness

c) abstraction level

d) directionality

3. The core of reverse engineering is an activity called

a) restructure code

b) directionality

c) extract abstractions

d) interactivity

4. What have become de rigueur for computer-based products and systems of every type?

a) GUIs

b) Candidate keys

c) Object model

d) All of the mentioned

5. Forward engineering is also known as

a) extract abstractions

b) renovation

c) reclamation

d) both renovation and reclamation

6. Reverse engineering is the process of deriving the system design and specification from its

a) GUI

b) Database

c) Source code

d) All of the mentioned

7. Reverse engineering techniques for internal program data focus on the definition of classes of objects.

a) True

b) False

8. Which of the following steps may not be used to define the existing data model as a precursor to re-engineering a new database model:

a) Build an initial object model

b) Determine candidate keys

- c) Refine the tentative classes
- d) Discover user interfaces

9. Much of the information necessary to create a behavioral model can be obtained by observing the external manifestation of the existing

- a) candidate keys
- b) interface
- c) database structure
- d) none of the mentioned

10. Extracting data items and objects, to get information on data flow, and to understand the existing data structures that have been implemented is sometimes called

- a) data analysis
- b) directionality
- c) data extraction
- d) client applications

11. Reverse engineering and Re-engineering are equivalent processes of software engineering

- a) True
- b) False

12. Transformation of a system from one representational form to another is known as

- a) Re-factoring
- b) Restructuring
- c) Forward engineering
- d) Both Re-factoring and Restructuring

13. Which of the following is not an objective of reverse engineering?

- a) to reduce maintenance effort
- b) to cope with complexity
- c) to avoid side effects
- d) to assist migration to a CASE environment

1. Why is decomposition technique required?

- a) Software project estimation is a form of problem solving
- b) Developing a cost and effort estimate for a software project is too complex
- c) All of the mentioned
- d) None of the mentioned

2. Cost and effort estimation of a software uses only one forms of decomposition, either decomposition of the problem or decomposition of the process.

- a) True
- b) False

3. If a Direct approach to software project sizing is taken, size can be measured in

- a) LOC
- b) FP
- c) LOC and FP
- d) None of the mentioned

4. Which software project sizing approach develop estimates of the information domain characteristics?

- a) Function point sizing
- b) Change sizing
- c) Standard component sizing
- d) Fuzzy logic sizing

5. The expected value for the estimation variable (size), S , can be computed as a weighted average of the optimistic (S_{opt}), most likely (S_m), and pessimistic (S_{pess}) estimates given

- a) $EV = (S_{opt} + 4S_m + S_{pess})/4$
- b) $EV = (S_{opt} + 4S_m + S_{pess})/6$
- c) $EV = (S_{opt} + 2S_m + S_{pess})/6$
- d) $EV = (S_{opt} + 2S_m + S_{pess})/4$

6. How many forms exist of Barry Boehm's COCOMO Model?

- a) Two
- b) Three
- c) Four
- d) No form exists

7. Who suggested the four different approaches to the sizing problem?

- a) Putnam
- b) Myers
- c) Boehm
- d) Putnam and Myers

8. In many cases, it is often more cost-effective to acquire, rather than develop, computer software.

- a) True
- b) False

9. A make-buy decision is based on whether

- a) The software may be purchased off-the-shelf
- b) "Full-experience" or "Partial-experience" software components should be used
- c) Customer-built software should be developed
- d) All of the mentioned

10. Which of the following is not one of the five information domain characteristics of Function Point (FP) decomposition?

- a) External inputs
- b) External outputs
- c) External process
- d) External inquiries

11. The project planner must reconcile the estimates based on decomposition techniques to produce a single estimate of effort.

- a) True
- b) False

12. Programming language experience is a part of which factor of COCOMO cost drivers?

- a) Personnel Factor
- b) Product Factor
- c) Platform Factor
- d) Project Factor

13. If an Indirect approach is taken, then the sizing approach is represented as

- a) LOC
- b) FP
- c) Fuzzy Logic
- d) LOC and FP

COCOMO 1 Model:

The Constructive Cost Model was first developed by Barry W. Boehm. The model is for estimating effort, cost, and schedule for software projects. It is also called as Basic COCOMO. This model is used to give an approximate estimate of the various parameters of the project. Example of projects based on this model is business system, payroll management system and inventory management systems.

COCOMO 2 Model:

The COCOMO-II is the revised version of the original Cocomo (Constructive Cost Model) and is developed at the University of Southern California. This model calculates the development time and effort taken as the total of the estimates of all the individual subsystems. In this model, whole software is divided into different modules. Example of projects based on this model is Spreadsheets and report generator.

Difference between COCOMO 1 and COCOMO 2:

COCOMO I	COCOMO II
COCOMO I is useful in the waterfall models of the software development cycle.	COCOMO II is useful in non-sequential, rapid development and reuse models of software.

COCOMO I	COCOMO II
It provides estimates of effort and schedule.	It provides estimates that represent one standard deviation around the most likely estimate.
This model is based upon the linear reuse formula.	This model is based upon the non linear reuse formula
This model is also based upon the assumption of reasonably stable requirements.	This model is also based upon reuse model which looks at effort needed to understand and estimate.
Effort equation's exponent is determined by 3 development modes.	Effort equation's exponent is determined by 5 scale factors.
Development begins with the requirements assigned to the software.	It follows a spiral type of development.
Number of submodels in COCOMO I is 3 and 15 cost drivers are assigned	In COCOMO II, Number of submodel are 4 and 17 cost drivers are assigned
Size of software stated in terms of Lines of code	Size of software stated in terms of Object points, function points and lines of code

1. Which of the following is the reason that software is delivered late?

- a) Changing customer requirements that are not reflected in schedule changes
- b) Technical difficulties that could not have been foreseen in advance
- c) Human difficulties that could not have been foreseen in advance
- d) All of the mentioned

2. Which of the following is an activity that distributes estimated effort across the planned project duration by allocating the effort to specific software engineering tasks?

- a) Software Macroscopic schedule
- b) Software Project scheduling
- c) Software Detailed schedule
- d) None of the mentioned

3. Every task that is scheduled should be assigned to a specific team member is termed as

- a) Compartmentalization
- b) Defined milestones
- c) Defined responsibilities
- d) Defined outcomes

4. What is a collection of software engineering work tasks, milestones, and deliverables that must be accomplished to complete a particular project?

- a) Task set
- b) Degree of milestone
- c) Adaptation criteria
- d) All of the mentioned

5. Ensuring that no more than the allocated number of people are allocated at any given time in Software Scheduling is known as

- a) Time Allocation
- b) Effort Validation
- c) Defined Milestone
- d) Effort Distribution

6. What is used to determine the recommended degree of rigor with which the software process should be applied on a project?

- a) Degree of Rigor
- b) Adaptation criteria
- c) Task Set
- d) Both degree of Rigor and adaptation criteria

7. What evaluates the risk associated with the technology to be implemented as part of project scope?

- a) Concept scoping
- b) Preliminary concept planning
- c) Technology risk assessment
- d) Customer reaction to the concept

8. Which of the following is not an adaptation criteria for software projects?

- a) Size of the project
- b) Customers Complaints
- c) Project staff
- d) Mission criticality

9. Which of the following is a project scheduling method that can be applied to software development?

- a) PERT
- b) CPM
- c) CMM

d) Both PERT and CPM

10. A technique for performing quantitative analysis of progress is known as

- a) BCWS
- b) EVA
- c) BAC
- d) CBSE

11. What is the recommended distribution of effort for a project?

- a) 40-20-40
- b) 50-20-30
- c) 30-40-30
- d) 50-30-20

12. A project usually has a timeline chart which was developed by

- a) Henry Gantt
- b) Barry Boehm
- c) Ivar Jacobson
- d) None of the mentioned

1. Risk management is one of the most important jobs for a

- a) Client
- b) Investor
- c) Production team
- d) Project manager

2. Which of the following risk is the failure of a purchased component to perform as expected?

- a) Product risk
- b) Project risk
- c) Business risk
- d) Programming risk

3. Which of the following term is best defined by the statement: "There will be a change of organizational management with different priorities."?

- a) Staff turnover
- b) Technology change
- c) Management change
- d) Product competition

4. Which of the following term is best defined by the statement: "The underlying technology on which the system is built is superseded by new technology."?

- a) Technology change
- b) Product competition
- c) Requirements change
- d) None of the mentioned

5. What assess the risk and your plans for risk mitigation and revise these when you learn more about the risk?

- a) Risk monitoring
- b) Risk planning
- c) Risk analysis
- d) Risk identification

6. Which of the following risks are derived from the organizational environment where the software is being developed?
- People risks
 - Technology risks
 - Estimation risks
 - Organizational risks
7. Which of the following risks are derived from the software or hardware technologies that are used to develop the system?
- Managerial risks
 - Technology risks
 - Estimation risks
 - Organizational risks
8. Which of the following term is best defined by the statement: “Derive traceability information to maximize information hiding in the design.”?
- Underestimated development time
 - Organizational restructuring
 - Requirements changes
 - None of the mentioned
9. Which of the following strategies means that the impact of the risk will be reduced?
- Avoidance strategies
 - Minimization strategies
 - Contingency plans
 - All of the mentioned
10. Risk management is now recognized as one of the most important project management tasks.
- True
 - False
1. What all has to be identified as per risk identification?
- Threats
 - Vulnerabilities
 - Consequences
 - All of the mentioned
2. Which one is not a risk management activity?
- Risk assessment
 - Risk generation
 - Risk control
 - None of the mentioned
3. What is the product of the probability of incurring a loss due to the risk and the potential magnitude of that loss?
- Risk exposure
 - Risk prioritization
 - Risk analysis
 - All of the mentioned
4. What threatens the quality and timeliness of the software to be produced?
- Known risks
 - Business risks

- c) Project risks
- d) Technical risks

5. What threatens the viability of the software to be built?

- a) Known risks
- b) Business risks
- c) Project risks
- d) Technical risks

6. Which of the following is not a business risk?

- a) building an excellent product or system that no one really wants
- b) losing the support of senior management due to a change in focus or change in people
- c) lack of documented requirements or software scope
- d) losing budgetary or personnel commitment

7. Which of the following is a systematic attempt to specify threats to the project plan?

- a) Risk identification
- b) Performance risk
- c) Support risk
- d) Risk projection

8. Which risks are associated with the overall size of the software to be built or modified?

- a) Business impact risks
- b) Process definition risks
- c) Product size risks
- d) Development environment risks

9. Which risks are associated with constraints imposed by management or the marketplace?

- a) Business impact risks
- b) Process definition risks
- c) Product size risks
- d) Development environment risks

10. Which of the following term is best defined by the statement: "the degree of uncertainty that the product will meet its

requirements and be fit for its intended use."?

- a) Performance risk
- b) Cost risk
- c) Support risk
- d) Schedule risk