

Q1. Ability to deal with exceptional conditions e.g. invalid input, improper handling, power failure, disk crash etc.

1. Efficiency

**2. Robustness**

3. Reliability

4. Correctness

Q2. Maintainability is the ease with which a software can

1. be corrected if an error is encountered

2. adapted if its environment changes

3. enhanced if the customer desires a change in requirements

**4. all of above**

Q3. The following are the steps of SDLC

1. Analysis

2. Design

3. Testing

**4. All of the above**

Q4. The type of software maintainence which is done to remove bugs or defects in the software is called

**1. Corrective Maintainence**

2. Adaptive Maintainence

3. Regressive Maintainence

4. Perfective Maintainence

Q5. The SDLC Model most suitable for large projects with clear knowledge & priority of requirements is

1. Spiral Model

**2. Incremental Model**

3. Waterfall Model

**4. Prototyping Model**

Q6. Pick up the odd one out of the following process models

1. Component assembly model
2. Prototyping Model
3. Spiral model

**4. Waterfall Model**

Q7. Which of the following is not true about the Waterfall Model?

1. It is suited for small projects
2. It does not consider risk handling
- 3. It gives efficient staff utilization**
4. It needs clarity of requirements at start.

Q8. Prototyping in software process may involve \_\_\_\_\_.

1. throw - away prototyping
2. evolutionary
- 3. Both a and b options**
4. None of these

Q9. RAD stands for

- 1. Rapid Application Development**
2. Random Access Disc
3. Random Application Driver
4. Rapid Alignment Disc

Q10. Which of the following model may require largest deployment of manpower

1. Incremental Model
2. Waterfall Model
3. Component Assembly Model
- 4. RAD Model**

Q11. The majority of the lifetime of a program is spent in the \_\_\_\_\_ phase

- 1. Maintenance**
2. Analysis
3. Design
4. Testing

Q12. In Boehm's spiral model, each loop in the spiral represents \_\_\_\_\_ of the software process

- 1. phase**
2. design
3. documentation
4. none of the above

Q13. Which of the following is seen in the DFD but not in the Context Diagram

1. Data Sources
2. Data Flows
- 3. Data Stores**
4. Users

Q14. Data flow cannot take place between

1. a store & a process
2. external entity & process

**3. store & an external entity**

4. process & process

Q15. "Balancing of DFD" is means

**1. conservation of inputs & outputs at various levels**

2. Sub dividing a process into smaller subprocesses
3. Labelling of all data items
4. Allowing data flows to take place only to or from processes

Q16. A data flow diagram is not a

1. logical model of a system
2. good guide to a system
- 3. representation of the physical system**
4. All of these options

Q17. DFDs, decision tables, decision trees are tools of

1. Requirements analysis
2. Requirements modelling
3. Software Design
- 4. All of the above**

Q18. Which model used to show data processing at different levels of abstraction from fairly abstract to fairly detailed

1. Semantic Data Models
2. Object Model
- 3. Data Flow Models**
4. Service Usage Models

Q19. \_\_\_\_\_ models describe the logical structure of the data which is imported to and exported by the system.

1. Object
  - 2. Semantic data**
  3. Data flow
  4. None of the above
- Q20. Which of the following is true about E-R Diagrams?
1. They consist of object-relationship pairs
  2. It indicates cardinality of relationships
  3. It indicates modality of relationships
  - 4. all of the above**

Q21. Which of the following is not a characteristic of a good SRS document?

1. Unambiguous
2. Verifiable
- 3. Redundant**
4. Consistent

Q22. The ways of describing specifications at different levels of detail include

1. requirements definition
2. requirements specification
- 3. both a and b options**
4. None of these options

Q23. Find the odd one out

1. Axiomatic Specification
2. Algebraic Specification
3. Z Specification
- 4. Data Flow Diagram**

Q24. If two modules are coupled without exchange of data or control information then they exhibit

- 1. Normal Coupling**
2. Stamp Coupling
3. Control Coupling
4. Common Coupling

Q25. Which is the most undesirable form of cohesion from the following options

1. Sequential
- 2. Coincidental**
3. Temporal
4. Communicational

Q26. The external interface design process should be \_\_\_\_\_

1. developer centered
- 2. user centered**
3. administrator centered
4. management centered

Q27. Which of the following is true with respect to function oriented & object oriented design methodologies

1. They vary in the basic abstractions they use
2. They vary in the way state information is maintained
3. They vary in the way functions are grouped
- 4. All of the above**

Q29. Which of the following is NOT true about comments

1. Comments should use problem domain terminology
2. They should explain the code at crucial places only
3. They should be used to document changes to the code
- 4. They add up to the LOC size of the software**

Q30. Use of coding standards

1. eases the task of integration of software modules
2. enhances the maintainability of the software
3. enhances reusability of the software
- 4. All of these options**

Q31. \_\_\_\_\_ is a programming method which combines data and instructions for processing that data into a self-sufficient block that can be used in other programs.

1. modular programming
2. top down design
- 3. object oriented programming**
4. structured programming

Q32. A test case design technique that makes use of a knowledge of the internal program logic

1. Black Box Testing
- 2. White Box Testing**
3. Unit Testing
4. None of these

Q33. Black box test cases can be derived from

1. source code
2. flowchart
- 3. SRS Document**
4. pseudocode

Q34. Which of the following is true about Boundary Value Analysis?

1. It is an approach to designing black box test cases
2. It is complementary to Equivalence Class Partitioning
3. It gives test cases based on the boundaries of the equivalence classes
- 4. All of the above**

Q35. Cyclomatic complexity is calculated from

1. Data Flow Graph
2. Structure Chart
- 3. Control Flow Graph**
4. All of the above

Q36. Which of the following is true about McCabe's Cyclomatic Complexity of a Program

1. It is an indicator of the structural complexity of a program
2. It gives the maximum no of independent paths in a program
3. It is calculated from the no. of edges & nodes in the Control Flow diagram

**4. All of the above**

Q37. Effective Software Project Management focusses on

1. People
2. Problem
3. Process

**4. all of above**

Q38. Which of the following is generally not a part of the SPMP document?

1. Configuration Management Plan
  2. Quality Assurance Plan
  3. Risk Management Plan
- 4. Requirements Elicitation Plan**

Q39. Conversion of Adjusted Function Point Count to LOC count is dependent on

1. Team Size
  2. Project Duration
- 3. Programming Language**
4. Cost Drivers

Q40. The crtical path of PERT/CPM chart cannot be

1. the path with the longest duration
  2. more than one unique path
- 3. path on which any delays are allowed**
4. path with same earliest and latest starts for all activites

Q41. The total float for an activity is

1. the total duration of the activity
2. the difference between the earliest finish time and earliest start time

**3. the difference between the latest finish time and the earliest finish time**

4. the difference between the latest finish time and the earliest start time

Q42. According to Putnam the staffing pattern of a software project follows the Rayleigh-Norden curve and peaks during the \_\_\_\_\_

1. Detailed design

**2. Coding & Unit testing**

3. Integration Testing

4. System Testing

Q43. Which of the following are Software Risk Components

1. Performance

2. Cost

3. Schedule

**4. all of the above**

Q44. Arrange the following activities in Risk Assessment in the correct sequence a. Prioritization b. Identification c. Analysis

1. b, a, c

**2. b, c, a**

3. a, b, c

4. c, a, b

Q45. Risk of unrealistic estimates & schedules can be overcome by

1. Using objective methods of estimation rather than judgemental methods

2. Developing a culture of software reuse

3. Performing multisource estimations

**4. all of the above**

Q46. Under SCM the various SCIs are strictly maintained

1. by their respective authors
2. by the appropriate team
- 3. in a central project database**
4. all of the above

Q47. Cleanroom Software Development process is based on

1. Formal Specification
2. Static Verification
3. Statistical Testing
- 4. All of the above**

Q48. Which one of the following is method is not used in describing complex system process

1. Decision table
2. Structure English
3. Finite automata
- 4. Binary tree**

Q49. Productivity can measure from the relationship

- 1. Productivity=KLOC/person-month**
2. Productivity=KLOC/defects
3. Productivity=KLOC/LOC
4. Productivity=KLOC\*person-month

Q50. The goal of coding is

1. To reduce the cost of testing
2. To reduce the cost of maintenance
- 3. Both a & b**
4. None

Q1. Broad design of modules & their relationships is called

1. external design
2. detailed design
- 3. architectural design**
4. process design

Q2. The choice of the Software Development Life Cycle Model to be followed for a project depends on

A) Initial Clarity of Requirements B) Size of the Project C) Time Frame of the Project D) Clarity on Technical Issues

1. A, B & C only
2. A, B & D only
- 3. A, B, C & D**
4. A & D only

Q3. The SDLC Model most suitable for small projects with clear requirements is

1. Spiral Model
2. Incremental Model
- 3. Waterfall Model**
4. Prototyping Model

Q4. Pick up the odd one out of the following process models

1. Component assembly model
2. Prototyping Model
3. Spiral model
- 4. Waterfall Model**

Q5. The Linear Sequential or Classic Life Cycle is also called

- 1. Waterfall Model**
2. Incremental Model
3. Spiral model

#### 4. Prototyping Model

Q6. The waterfall model of the software process considers each process activity as a \_\_\_\_\_ phase

1. separate
2. discrete
- 3. Both a and b options**
4. None of the above

Q7. Prototyping in software process may involve \_\_\_\_\_.

1. throw - away prototyping
2. evolutionary
- 3. Both a and b options**
4. None of these

Q8. Which of the following is not a feature of RAD

1. Well understood, constrained & modularizable requirements
2. Component based construction & use of 4 GL
3. Use of multiple teams each developing separate function
- 4. Project has high technical risks**

Q9. In Boehm's spiral model, each loop in the spiral represents \_\_\_\_\_ of the software process

- 1. phase**
2. design
3. documentation
4. none of the above

Q10. In the Spiral model the radius of the spiral at any point represents

1. the level of risk
2. the progress made in the current phase
- 3. the cost incurred in the project till then**

4. None of these

Q11. \_\_\_\_\_ uses powerful development software and small, highly trained teams of programmers.

1. Prototyping

**2. RAD**

3. Coding

4. Modeling

Q12. Which of the following is true about E-R Diagrams?

1. They consist of object-relationship pairs

2. It indicates cardinality of relationships

3. It indicates modality of relationships

**4. all of the above**

Q13. Planning the modular program structure & control relationships between modules is called

1. Architectural Design

2. High Level Design

3. System Design

**4. all of the above**

Q14. Designers should aim to produce strongly \_\_\_\_\_ and weakly \_\_\_\_\_ designs

1. coupled, functional

2. maintainable, cohesive

**3. cohesive, coupled**

4. coupled, cohesive

Q15. If two modules are coupled without exchange of data or control information then they exhibit

**1. Normal Coupling**

2. Stamp Coupling

3. Control Coupling

**4. Common Coupling**

Q16. Use of global data areas or global variables may lead to

1. Stamp Coupling

**2. Common Coupling**

3. Content Coupling

4. Control Coupling

Q17. Which of the following is a graphical tool for software design?

1. Data Flow Diagram

2. Structure Chart

3. Decision Tree

**4. all of the above**

Q18. Function oriented design process consists of

1. Data Flow Design

2. Structural decomposition

3. Detailed Design

**4. all of the above**

Q19. Transform Analysis performed on a DFD identifies the

1. Afferent Branch

2. Efferent Branch

3. Central Transform

**4. all of the above**

Q21. Which of the following is NOT true about comments?

1. Comments should use problem domain terminology

2. They should explain the code at crucial places only

3. They should be used to document changes to the code

**4. They add up to the LOC size of the software**

Q22. The two questions "Are we building the right product?" & "Are we building the product right?" correspond to

1. Verification only
2. Validation only
- 3. Validation & Verification respectively**
4. Verification & Validation respectively

Q23. A test case design technique that makes use of a knowledge of the internal program logic

1. Black Box Testing
- 2. White Box Testing**
3. Unit Testing
4. None of these

Q24. Which of the following is not a White box testing method?

1. Statement coverage
- 2. Error guessing**
3. Path coverage
4. Condition Coverage

Q25. A Test case includes

1. Input
2. Expected output
3. information of function under test
- 4. All of these options**

Q26. A stub is a dummy verion of the \_\_\_\_\_ module of the module under testing

1. superordinate
- 2. subordinate**
3. coordinate

4. All of the above

Q27. A driver is a dummy version of the \_\_\_\_\_ module of the module under testing

**1. superordinate**

2. subordinate

3. coordinate

4. All of the above

Q28. Which of the following is true about McCabe's Cyclomatic Complexity of a Program

1. It is an indicator of the structural complexity of a program

2. It gives the maximum no of independent paths in a program

3. It is calculated from the no. of edges & nodes in the Control Flow diagram

**4. All of the above**

Q29. \_\_\_\_\_ exercises the system beyond its maximum design load

1. Thread testing

**2. Stress Testing**

3. Back to back testing

4. all of the above

Q30. Presenting the same tests to different versions of the system and compare outputs is called

1. Thread testing

2. Stress Testing

**3. Back to back testing**

4. all of the above

Q31. Effective Software Project Management focusses on

1. People
2. Problem
3. Process
- 4. all of above**

Q32. Which of the following is not a part of Project Plan?

1. Risk Management Plan
2. Personnel Plan
3. Project Monitoring Plan
- 4. Software Architecture Planning**

Q33. Arrange the following in the correct sequence of software estimation a. Schedule Estimation b. Effort Estimation c. Cost Estimation d. Size estimation

1. b, c, a, d
2. c, a, b, d
- 3. d, b, a, c**
4. a, c, d, b

Q34. Which of the following is true for two projects of same category with the same estimated LOC size and using COCOMO for estimation A) The initial effort estimate for both projects will be same as both have same LOC B) The Effort Adjustment Factor will always be the same for both projects C) The final effort estimate will always be the same for both projects

- 1. Only A is true.**
2. Only A & B are true
3. Only C is true
4. Neither A, B or C are true.

Q35. Conversion of Adjusted Function Point Count to LOC count is dependent on

1. Team Size
2. Project Duration
- 3. Programming Language**
4. Cost Drivers

Q36. In COCOMO terminology a project with software being strongly coupled to complex hardware & stringent regulations on operating procedures is categorised as

1. Organic
2. Semidetached
- 3. Embedded**
4. Application

Q37. Which version of COCOMO develops estimates for large projects as sum of estimates of its various subsystems by considering the differences in the complexities of its various subsystems

1. Basic COCOMO
2. Intermediate COCOMO
- 3. Complete COCOMO**
4. None of the above

Q38. Project schedule can be illustrated using

1. DFD and ERD
2. Bar chart
3. Activity chart
- 4. Both b and c options**

Q39. The minimum time required to finish the project can be estimated by considering the \_\_\_\_\_ path in the activity graph

1. Shortest
- 2. Longest**

3. Average

4. SPT

Q40. PERT/CPM cannot be used for

1. Scheduling of projects
2. Monitoring & Control of projects
3. Optimising Resource Utilization
- 4. Quality control of products**

Q41. Democratic team structure is suitable for projects

1. with strict deadlines
2. with clearly known requirements
- 3. with research orientation**
4. None of these

Q42. Arrange the following activities in Risk Assessment in the correct sequence a. Prioritization b. Identification c. Analysis

1. b, a, c
- 2. b, c, a**
3. a, b, c
4. c, a, b

Q43. \_\_\_\_\_ ensures that a set procedure is followed to make any changes to the software

1. Configuration Identification
- 2. Configuration Control**
3. Baselineing
4. all of the above

Q44. Configuration Management is

1. framework activity
2. umbrella activity
- 3. one time activity**
4. None of the above

Q45. CASE stands for

1. Computing Advanced System Engineering
- 2. Computer Aided Software Engineering**
3. Calculating Arithmetic System Engineering
4. None of the above

Q46. Requirement phase is usually done by

- 1. System Analyst**
2. System Administrator
3. System Engineer
4. All

Q47. Which one of the following is not considered as parameter of function point

1. Number of input
2. Number of interface
3. Number of file
- 4. Number of output data**

Q48. CASE is expanded as

1. Computer Analysis Software Engineering
- 2. Computer Aided Software Engineering**
3. Computer Aided System Engineering

4. Computer Analysis System Engineering

Q49. Cohesion is the concept which tries to capture this -----

**1. Intra-Module**

2. Extra-Module

3. Inner-Module

4. Outer-Module

Q50. Functional approach is also known as

1. Glass box testing

**2. Black box testing**

3. Input box testing

4. Output box testing

Q1. Object oriented technology's use of \_\_\_\_\_ facilitates reuse of the code and architecture while its \_\_\_\_\_ feature provides systems with stability, as a small change in requirements doesn't require massive changes in the system.

**1. Inheritance, Encapsulation**

2. Inheritance, Polymorphism
3. Encapsulation, Polymorphism
4. Polymorphism, Abstraction

Q2. Which of the following steps do you think developers should take to create efficient compact applications?

- a. Clearly define initial requirements of the system
- b. concentrate earlt development efforts on modeling implementation mechanisms
- c. Analyze and manage risk throughout the development process
- d. Leave all software testing until after system has been implemented

**1. a, c**

2. a, b
3. a, b, d
4. a, b, c

Q3. Which of the following elements combine to form OOAD method

- a. Notation
- b. Diagram
- c. Process
- d. View

**1. a, c**

2. a, b
3. a, b, d
4. a, b, c

Q4. Which of the following are aims of UML?

- a. To model system using OO concepts
  - b. To provide a process for software development
  - c. To support small-scale and large-scale analysis and design
  - d. To provide an insight into implementation mechanism
- 1. a, c
  - 2. a, b
  - 3. a, b, d
  - 4. a, c, d**

Q5. Towards end of the design phase, \_\_\_\_\_ should be allocated to source code components.

- 1. use cases
- 2. relationships
- 3. models
- 4. classes**

Q6. What do you think is the first step you should take in designing any project?

- 1. design a prototype
- 2. create the test cases
- 3. define problem domain and produce problem statement**
- 4. draw up a plan for entire project

Q7. Which of the following best describes what the problem domain is?

- 1. kinds of resources available to development team
- 2. surroundings in which system operate**
- 3. set of all functionality required of a system
- 4. list of technical details needed to implement project

Q8. If you are finding hard to identify the name of class and to write definition for it. What thing you should do?

1. ignore class completely
- 2. do more analysis to get a better understanding of what is involved in the class**
3. write a definition for the class even if it is not very good
4. make it a friend class of some other main class

Q9. Which of the following statements are true of use cases and use case models?

- a. functionality of a use-case has to be complete from start to finish
  - b. use case provide developers with classes and operations
  - c. use cases outline functionality of the system
  - d. use case models can be used to test the system
1. a, b, c
  2. a, b, c, d
  - 3. a, c, d**
  4. a, c

Q10. class diagram represents

- 1. conceptual design**
2. organization of objects
3. set of actions
4. state machine

Q11. collaboration diagram represents

- 1. organization of objects**
2. messages on time scale
3. conceptual design
4. set of actions

Q12. state chart diagram

1. organization of objects
2. conceptual design
3. set of actions

**4. state machine**

Q13. In OOD primary abstraction mechanism is \_\_\_\_\_

1. function
- 2. class**
3. object
4. hierarchy

Q14. requirement analysis \_\_\_\_\_

1. delivers a system in a series of versions
2. organizes abstraction
- 3. builds a bridge between user and developer**
4. uses experimental software to better understand user requirements

Q15. incremental model \_\_\_\_\_

- 1. delivers a system in a series of versions**
2. works with encapsulation and inheritance to simplify flow of control
3. builds a bridge between user and developer
4. uses experimental software to better understand user requirements

Q16. prototyping model \_\_\_\_\_

1. delivers a system in a series of versions
2. builds a bridge between user and developer
- 3. uses experimental software to better understand user requirements**
4. works with encapsulation and inheritance to simplify flow of control

Q17. software re-engineering actually means reverse engineering

Correct Answer : F

Q18. re-engineering is a type of software maintenance

Correct Answer : T

Q19. elements of software architecture of a computing systems include

- a. software components
  - b. class diagrams
  - c. connectors expressing relationships between software components
  - d. E-R diagram
1. a, b
  - 2. a, c**
  3. a, c, d
  4. a, b, c, d

Q20. Project milestones are mainly divided in these two parts

1. DFD and SRS
2. interface design and implementation
3. feasibility study and detailed design
- 4. requirements and design**

Q21. Which is not part of testing?

1. white box testing
2. black box testing
- 3. inner testing**
4. gorilla testing

Q22. Which is not part of phases of software development

1. high level design
2. low level design
- 3. mid level design**
4. replication, delivery, installation

Q23. Which software development model incorporates risk management?

1. water fall model
- 2. spiral model**
3. incremental model
4. object model

Q24. largest time is spent on which of the software development phase?

1. testing
- 2. enhancement**
3. bug fixing
4. analysis and design

Q25. Simple SDLC contain

- 1. requirements, analysis, design, implementation, testing**
2. analysis, design, implementation, testing, deployment
3. analysis, design, implementation, testing, maintainence
4. requirements, analysis, design, implementation, deployment

Q26. DFD is not a

- 1. logical model of system**
2. good guide to a system
3. representation of physical stream
4. all of the above

Q27. Productivity metrics

- 1. focuses on the output of the development process.**
2. focuses on the characteristics of the software.
3. provide indirect measure.
4. All.

Q28. Which is not a type of maintenance?

1. Adaptive
2. Corrective
3. Perfective
- 4. Obsolescence**

Q29. Adaptive Maintenance is

1. To improve the system in some way by changing its basic functionality
- 2. The maintenance due to changes in the environment**
3. The correction of undiscovered system errors
4. None of the above

Q30. \_\_\_\_\_ is a method for estimating the software

1. COCOMO

2. Function Point Analysis

3. Use Case Estimation

**4. All of the above**

Q31. Which of the following activities involves choosing a system structure capable of satisfying the requirement specification?

1. Requirements Analysis

**2. Design**

3. Coding

4. Testing

Q32. Reliability in a software system can be achieved using the following strategies, EXCEPT

1. Fault avoidance

2. Fault tolerance

**3. Fault detection**

4. Fault rectification

Q33. The Software Development Life Cycle covers activities from

1. Feasibility Study to Installation

**2. Requirements Phase to Testing**

3. Requirements Phase to Maintenance

4. Project Initiation to Software Retirement

Q34. Identify the true statements about using a process for software development.

- a) Processes usually divide software development into phases
- b) Processes provide guidelines for what to do at each phase of development
- c) Processes are used o
  - 1. a and c
  - 2. a and b
  - 3. a, b and d**
  - 4. a, c and d

Q35. Process visibility is enhanced by

- 1. Defining clear cut phases
- 2. Producing documents related to each phase
- 3. Conducting reviews & checks
- 4. all of the above**

Q36. Which of the following activities is not considered as "Umbrella Activity"

- 1. S/W Quality assurance
- 2. Software Design**
- 3. S/W configuration management
- 4. S/W Project Monitoring & Control

Q37. What is the primary purpose of the first stage of software analysis and design?

- 1. Determining system deployment
- 2. Writing code
- 3. Capturing requirements**
- 4. Building GUIs

Q38. Broad design of modules & their relationships is called

1. external design
2. detailed design
- 3. architectural design**
4. process design

Q39. SDLC starts with \_\_\_\_\_ stage

- 1. User Requirement and Analysis**
2. Deployment
3. Testing
4. Design

Q40. The following are the steps of SDLC

1. Analysis
2. Design
3. Testing
- 4. All of the above**

Q41. The analysis phase takes a \_\_\_\_\_ approach to the system, ignoring its inner workings whereas the design phase takes a \_\_\_\_\_ approach, making decisions on how the model will be implemented in code

1. White box & Black box
- 2. Black box & White box**
3. Top-Down & Bottom-Up
4. Bottom-Up & Top-Down

Q42. The goal of \_\_\_\_\_ is to obtain a clear understanding of the system and its shortcomings and to determine opportunities for improvement

1. Feasibility study

**2. systems analysis**

3. systems definition

4. systems study

Q43. The last step in System Development Life Cycle is \_\_\_\_\_

1. Analysis

2. Implementation

**3. Testing**

4. Maintenance

Q44. The \_\_\_\_\_ phase of the systems life cycle contains periodic evaluations and updates of the system

1. preliminary investigation

2. Systems analysis

3. Systems implementation

**4. Systems maintenance**

Q45. During the \_\_\_\_\_ phase, the application is verified against the requirements

1. Analysis

2. Design

**3. Testing**

4. Implementation

Q46. The type of software maintainence which is done to add new features to the product is called

1. Corrective Maintainence
2. Adaptive Maintainence
3. Regressive Maintainence
4. Perfective Maintainence

Q47. The choice of the Software Development Life Cycle Model to be followed for a project depends on

A) Initial Clarity of Requirements B) Size of the Project C) Time Frame of the Project D) Clarity on Technical Issues

1. A, B & C only
2. A, B & D only
- 3. A, B, C & D**
4. A & D only

Q48. Because of the cascade from one phase to another, the model of software development process is known as

1. Evolutionary model
2. Formal model
- 3. Waterfall model**
4. None of the above

Q49. The Linear Sequential or Classic Life Cycle is also called

- 1. Waterfall Model**
2. Incremental Model
3. Spiral model
4. Prototyping Model

Q50. Prototyping in software process may involve \_\_\_\_\_.

1. throw - away prototyping

2. evolutionary

**3. Both a and b options**

4. None of these

Q51. Prototype may be used for

1. Risk Reduction

2. Requirements Elicitation

3. User Interface Design

**4. all of the above**

Q52. RAD Model is high speed implementation of

**1. Waterfall Model**

2. Spiral Model

3. Prototyping model

4. Component Assembly model

Q53. Which of the following is not a feature of RAD

1. Well understood, constrained & modularizable requirements

2. Component based construction & use of 4 GL

3. Use of multiple teams each developing separate function

**4. Project has high technical risks**

Q54. Which of the following model may require largest deployment of manpower

1. Incremental Model
2. Waterfall Model
3. Component Assembly Model
- 4. RAD Model**

Q55. The majority of the lifetime of a program is spent in the \_\_\_\_\_ phase

- 1. Maintenance**
2. Analysis
3. Design
4. Testing

Q56. Pick up the odd one out of the following process models

1. Component assembly model
2. Prototypiong Model
3. Spiral model
- 4. Waterfall Model**

Q57. In Boehm's spiral model, each loop in the spiral represents \_\_\_\_\_ of the software process

- 1. phase**
2. design
3. documentation
4. none of the above

Q58. \_\_\_\_\_ means to build a model that can be modified before the actual system is installed

1. Maintenance
- 2. Prototyping**
3. Implementation
4. None of the above

Q59. A requirement may be a description of

1. functionality to be provided
2. constraint on the software
3. external interface
- 4. all of the above**

Q60. Which of the following is not true about the context diagram?

1. It does not show details of the functioning
2. It shows major inputs & outputs of the system
3. It shows the external entities of the system
- 4. It shows the datastores of the system**

Q61. Which of the following is seen in the DFD but not in the Context Diagram

1. Data Sources
2. Data Flows
- 3. Data Stores**
4. Users

Q62. Data flow cannot take place between

1. a store & a process
2. external entity & process
- 3. store & an external entity**
4. process & process

Q63. DFD gives idea about flow of \_\_\_\_\_ & flowchart gives idea of the flow of \_\_\_\_\_

1. processes, decisions
2. control, data
3. logic, control
- 4. data, control**

Q64. Data Models do not consider

1. Attributes of the data object
2. Relationships between data objects
- 3. Operations that act on the data**
4. Any of the above

Q65. Which of the following is not a characteristic of a good SRS document?

1. Unambiguous
2. Verifiable
- 3. Redundant**
4. Consistent

Q66. Notations used to specify the external characteristics, architectural structure, and processing details of a software system include I. Data Flow Diagrams II. HIPO diagrams III. Structure Charts

1. I and II Only
2. III Only
- 3. I, II and III**
4. None of the above

Q67. Formal specification language consists of

1. syntax
2. semantics
3. set of relations
- 4. all of the above**

Q68. The software architecture is best represented by

1. Context Diagram
2. Flow Chart
- 3. Structure Chart**
4. Data Flow Diagram

Q69. Designers should aim to produce strongly \_\_\_\_\_ and weakly \_\_\_\_\_ designs

1. coupled, functional
2. maintainable, cohesive
- 3. cohesive, coupled**
4. coupled, cohesive

Q70. Which is the most undesirable form of cohesion from the following options

1. Sequential
- 2. Coincidental**
3. Temporal
4. Communicational

Q71. Using \_\_\_\_\_ a programmer can detail the logic of the program

- 1. pseudocode**
2. software
3. context diagram
4. data flow diagram

Q72. Which of the following is not true about a flow chart?

1. It shows the flow of control of a program
2. It is a tool for detailed design
3. Data interchange is not represented
- 4. It clearly separates various modules of the software**

Q73. The external interface design process should be \_\_\_\_\_

1. developer centered
- 2. user centered**
3. administrator centered
4. management centered

Q74. \_\_\_\_\_ involves modeling a system as a set of interacting functional units.

1. Object oriented decomposition
2. Procedural decomposition
- 3. Functional decomposition**
4. None of the above

Q75. Typographical errors and/or incorrect use of the programming language is referred to as

1. logic errors
- 2. syntax errors**
3. run time errors
4. A bug

Q76. Testing of software falls after \_\_\_\_\_ stage.

1. Designing
2. Implementation
3. Deployment
- 4. Coding**

Q77. Changes made to the software to accommodate changes to its environment is called

1. perfective maintainence
2. regressive maintainence
- 3. adaptive maintainence**
4. corrective maintainence

Q78. Major changes made to software after long periods is also called software reengineering or

1. perfective maintainence
- 2. regressive maintainence**
3. adaptive maintainence
4. corrective maintainence

Q79. Which of the following is not a part of Project Plan?

1. Risk Management Plan

2. Personnel Plan

3. Project Monitoring Plan

**4. Software Architecture Planning**

Q80. Function Point Count is dependent on

1. Platform & Technology

2. Team Size

3. H/W & Software Resources

**4. Features & Functionalities**

Q81. In COCOMO terminology a project with mixed level of staff experience & part familiarity with the system being developed is categorized as

1. Organic

**2. Semidetached**

3. Embedded

4. Application

Q82. In COCOMO terminology a project with software being strongly coupled to complex hardware & stringent regulations on operating procedures is categorised as

1. Organic

2. Semidetached

**3. Embedded**

4. Application

Q83. The value of COCOMO cost driver attribute for higher than average Programmer Ability will be

1. Greater than 1

2. Equal to 1

**3. Less than 1**

4. None of these

Q84. \_\_\_\_ and \_\_\_\_ are graphical notations which are used to illustrate the project schedule.

1. Bar chart and DFD
2. ERD and Bar chart
3. Class diagram and activity networks
- 4. Bar char and activity networks**

Q85. The total float for an activity is

1. the total duration of the activity
2. the difference between the earliest finish time and earliest start time
- 3. the difference between the latest finish time and the earliest finish time**
4. the difference between the latest finish time and the earliest start time

Q86. Most of the project plans should include

1. Risk analysis

2. Project organization

3. Project schedule

**4. All of the above**

Q87. The minimum time required to finish the project can be estimated by considering the \_\_\_\_\_ path in the activity graph

1. Shortest

**2. Longest**

3. Average

4. SPT

Q88. According to Putnam the staffing pattern of a software project follows the Rayleigh-Norden curve and peaks during the \_\_\_\_\_

1. Detailed design
- 2. Coding & Unit testing**
3. Integration Testing
4. System Testing

Q89. Chief Programmer Teams are suitable for projects

1. with research orientation
- 2. with high modularity**
3. with high creativity
4. None of these

Q90. Arrange the following activities in Risk Assesment in the correct sequence a. Prioritization b. Identification c. Analysis

1. b, a, c
- 2. b, c, a**
3. a, b, c
4. c, a, b

Q91. Risk Assesment Table is based on categorization by

1. Risk Components
2. Risk Impact
- 3. Both a and b options**
4. None of the above

Q92. The RMMM plan is generally included in the

1. Feasibility Study
- 2. Project Plan**
3. SRS Document

#### 4. Project Legacy

Q93. Risks arising out of frequent change requests are best mitigated by

1. User characterization
- 2. Strong SCM**
3. Multisource estimations
4. Prescheduling key personnel

Q94. Risk of unrealistic estimates & schedules can be overcome by

1. Using objective methods of estimation rather than judgemental methods
2. Developing a culture of software reuse
3. Performing multisource estimations
- 4. all of the above**

Q95. Automated SCM tools help solve problem of

1. Inconsistencies of SCIs
2. concurrent access to SCI
3. instability of development environment
- 4. All of these options**

Q96. \_\_\_\_\_ ensures that a set procedure is followed to make any changes to the software

1. Configuration Identification
- 2. Configuration Control**
3. Baselining
4. all of the above

Q97. Configuration Management is

1. framework activity
2. umbrella activity
- 3. one time activity**
4. None of the above

Q98. Under SCM the various SCIs are strictly maintained

1. by their respective authors
2. by the appropriate team
- 3. in a central project database**
4. all of the above

Q100. As per SEI CMM organizations which do not have any KPAs present & stable are considered at

- 1. Level 1**
2. Level 2
3. Level 3
4. Level 4

Q1. Which of the following steps do you think developers should take to create efficient compact applications?

- a. Clearly define initial requirements of the system
- b. concentrate earlt development efforts on modeling implementation mechanisms
- c. Analyze and manage risk throughout the development process
- d. Leave all software testing until after system has been implemented

**1. a, c**

2. a, b

3. a, b, d

4. a, b, c

Q2. Towards end of the design phase, \_\_\_\_\_ should be allocated to source code components.

1. use cases

2. relationships

3. models

**4. classes**

Q3. What do you think is the first step you should take in designing any project?

1. design a prototype

2. create the test cases

**3. define problem domain and produce problem statement**

4. draw up a plan for entire project

Q4. Which of the following best describes what the problem domain is?

1. kinds of resources available to development team

**2. surroundings in which system operate**

3. set of all functionality required of a system
4. list of technical details needed to implement project

Q5. In which of the following phases of use-case driven process do you think use cases have a role?

a. requirement capture

b. analysis

c. design

d. implementation

e. test

1. a, b, c

2. a, b, c, d

3. b, d

**4. a, b, c, e**

Q6. All models of a system shuold have same precision

Correct Answer : F

Q7. collaboration diagram represents

**1. organization of objects**

2. messages on time scale

3. conceptual design

4. set of actions

Q8. sequence diagram represents

1. organization of objects

**2. messages on time scale**

3. conceptual design

4. set of actions

Q9. UML supports \_\_\_\_\_ phases of software development

1. earlier

2. final

3. middle

**4. all**

Q10. Analysis takes place from \_\_\_\_\_ perspective and design takes place from \_\_\_\_\_ perspective

1. user, user

**2. user, developer**

3. developer, user

4. developer, developer

Q11. The \_\_\_\_\_ phase of SDLC aims at ensuring software product is as per requirements.

1. design

2. development

**3. testing**

4. deployment

Q12. polymorphism \_\_\_\_\_

1. organizes abstraction

2. builds a bridge between user and developer

3. delivers a system in a series of versions

**4. works with encapsulation and inheritance to simplify flow of control**

Q13. spiral model incorporates risk management

Correct Answer : T

Q14. storage management is not a part of version management

Correct Answer : F

Q15. data flow diagrams are part of design phase of SDLC

Correct Answer : T

Q16. Which is an iterative process through which the requirements are translated to "blueprint" for constructing software

1. testing
2. requirement analysis
- 3. design**
4. maintenance

Q17. An adaptive maintenance is

1. to improve system in some way without changing its basic functionality
- 2. the maintenance due to changes in environment**
3. correlation of undiscovered system errors
4. none of the above

Q18. What manifests in the patterns of choices made among alternative ways of expressing an algorithm is

1. a data flow diagram
2. coding style
3. a data dictionary
- 4. a flow chart**

Q19. quality control

- 1. focuses on inspections, testing and removal of defects before release**

2. is a set of planned and strictly and strategic actions to provide confidence that the product or service will satisfy given requirements for quality
3. is to check system for its internal errors
4. all of the above

Q20. elements of software architecture of a computing systems include

- a. software components
- b. class diagrams
- c. connectors expressing relationships between software components
- d. E-R diagram
  1. a, b
  - 2. a, c**
  3. a, c, d
  4. a, b, c, d

Q21. which of the following types of test plans is most likely to arise from requirement specification process?

1. system integration testing plan
- 2. acceptance test plan**
3. sub-system integration test plan
4. module test plan

Q22. pick up the odd one out of the following

1. data flow diagram
- 2. object identification**
3. structural decomposition
4. E-R diagrams

Q23. In project planning first thing is

- 1. set objectiv or goal**
2. develop strategies and policies
3. decision making
4. find out requirement

Q24. Which is not part of phases of software development

1. high level design
2. low level design
- 3. mid level design**
4. replication, delivery, installation

Q25. Which of the following is not part of spiral model?

1. planning
2. customer communication
- 3. project documentation**
4. engineering

Q26. DFD is not a

- 1. logical model of system**
2. good guide to a system
3. representation of physical stream
4. all of the above

Q27. Pick up one of the testing methods given below that is part of white-box testing

1. equivalence partitioning
2. boundary value analysis
- 3. basis and testing**
4. debugging

Q28. Productivity metrics

- 1. focuses on the output of the development process.**
2. focuses on the characteristics of the software.
3. provide indirect measure.
4. All.

Q29. The requirement phase consist of

- a) Problem analysis b) Requirement specification
- c) Requirement validation d) Problem validation

1. a, b, c

**2. a, b, c, d**

3. a, b, d

4. a, c, d

Q30. Following are the different steps that is to be followed

in design methodology arrange them in an order.

- a) First level factoring b) factoring of input
- c) Restate the problem d) Identifying the input and output

1. a, b, c, d

**2. c, d, a, b**

3. a, d, c, b

4. a, c, b ,d

Q31. Which is not a type of maintenance?

1. Adaptive
2. Corrective
3. Perfective
- 4. Obsolescence**

Q32. COCOMO is an effort estimation model in terms of \_\_\_\_\_

1. Cost
- 2. Person- Months**
3. Both
4. None of the above

Q33. Pick the odd one out

- 1. Component assembly model**
2. Spiral Model
3. Incremental Model
4. Iterative Model

Q34. Pick the odd one out

1. Data Flow Diagrams
- 2. Object Identification**
3. Structural Decomposition
4. E-R Diagrams

Q35. Maintainability is the ease with which a software can

1. be corrected if an error is encountered
2. adapted if its environment changes
3. enhanced if the customer desires a change in requirements
- 4. all of above**

Q36. Which of the following factors of a Software Product may not contribute much directly to its maintainability?

1. Understandability

2. Flexibility

**3. Security**

4. Testability

Q37. Which of the following activities is not considered as "Umbrella Activity"

1. S/W Quality assurance

**2. Software Design**

3. S/W configuration management

4. S/W Project Monitoring & Control

Q38. What is the primary purpose of the first stage of software analysis and design?

1. Determining system deployment

2. Writing code

**3. Capturing requirements**

4. Building GUIs

Q39. The type of testing carried out along with coding is called

1. system testing

**2. unit testing**

3. pretesting

4. stress testing

Q40. SDLC starts with \_\_\_\_\_ stage

**1. User Requirement and Analysis**

2. Deployment

3. Testing

4. Design

Q41. The following are the steps of SDLC

1. Analysis
2. Design
3. Testing
- 4. All of the above**

Q42. The analysis phase takes a \_\_\_\_\_ approach to the system, ignoring its inner workings whereas the design phase takes a \_\_\_\_\_ approach, making decisions on how the model will be implemented in code

1. White box & Black box
- 2. Black box & White box**
3. Top-Down & Bottom-Up
4. Bottom-Up & Top-Down

Q43. During the \_\_\_\_\_ phase, the application is verified against the requirements

1. Analysis
2. Design
- 3. Testing**
4. Implementation

Q44. The type of software maintainence which is done to remove bugs or defects in the software is called

- 1. Corrective Maintainence**
2. Adaptive Maintainence
3. Regressive Maintainence
4. Perfective Maintainence

Q45. Pick up the odd one out of the following process models

1. Component assembly model
2. Prototyping Model
3. Spiral model

**4. Waterfall Model**

Q46. Prototype may be used for

1. Risk Reduction
  2. Requirements Elicitation
  3. User Interface Design
- 4. all of the above**

Q47. RAD Model is high speed implementation of

- 1. Waterfall Model**
2. Spiral Model
3. Prototyping model
4. Component Assembly model

Q48. Pick up the odd one out of the following process models

1. Component assembly model
  2. Prototypiong Model
  3. Spiral model
- 4. Waterfall Model**

Q49. In the Spiral model the radius of the spiral at any point represents

1. the level of risk
  2. the progress made in the current phase
- 3. the cost incurred in the project till then**
4. None of these

Q50. A requirement may be a description of

1. functionality to be provided
2. constraint on the software
3. external interface
- 4. all of the above**

Q51. During Requirements Phase recording interface requirements of a software system does not include which of the following interfaces

1. User Interfaces
2. Software Interfaces
3. Hardware Interfaces
- 4. Module Interfaces**

Q52. Which of the following is not true about the context diagram?

1. It does not show details of the functioning
2. It shows major inputs & outputs of the system
3. It shows the external entities of the system
- 4. It shows the datastores of the system**

Q53. External Entities in a Context Diagram may be A) People B) Other Software Systems C) Hardware D) Databases

1. Only A & D
2. Only B & C
3. Only A, B & D
- 4. A,B, C & D**

Q54. \_\_\_\_\_ models describe the logical structure of the data which is imported to and exported by the system.

1. Object
- 2. Semantic data**
3. Data flow

4. None of the above

Q55. Example of a Semantic Data model is

1. data flow diagram

2. Context Diagram

**3. Entity Relationship Diagram**

4. all of the above

Q56. Data Models do not consider

1. Attributes of the data object

2. Relationships between data objects

**3. Operations that act on the data**

4. Any of the above

Q57. Which of the following is true about E-R Diagrams?

1. They consist of object-relationship pairs

2. It indicates cardinality of relationships

3. It indicates modality of relationships

**4. all of the above**

Q58. Which of the following is not a characteristic of a good SRS document?

1. Unambiguous

2. Verifiable

**3. Redundant**

4. Consistent

Q59. The ways of describing specifications at different levels of detail include

1. requirements definition

2. requirements specification

**3. both a and b options**

4. None of these options

Q60. A system developed to give end users a concrete impression of the system capabilities is called

1. Semantics

2. model

**3. prototype**

4. abstraction

Q61. Formal specification language consists of

1. syntax

2. semantics

3. set of relations

**4. all of the above**

Q62. Planning the solution to a programming problem using a structured technique is called program

1. coding

2. compiling

3. moduling

**4. design**

Q63. The software architechture is best represented by

1. Context Diagram

2. Flow Chart

**3. Structure Chart**

4. Data Flow Diagram

Q64. Conception & planning out of externally observable characteristics of a software is called

1. External Design

2. User Interface Design

**3. Both a and b options**

4. None of the above

Q65. A way of indicating the desired effect without establishing the actual mechanism

1. Procedural Abstraction

2. Data Abstraction

**3. Control Abstraction**

4. None of the above

Q66. The number & complexity of interconnections between two modules is an indicator of

1. Modularity

2. Cohesion

**3. Coupling**

4. Abstraction

Q67. Use of global data areas or global variables may lead to

1. Stamp Coupling

**2. Common Coupling**

3. Content Coupling

4. Control Coupling

Q68. Which of the following is a graphical tool for software design?

1. Data Flow Diagram

2. Structure Chart

3. Decision Tree

**4. all of the above**

Q69. The method of deriving the structure chart from the DFD is called

1. Factoring

2. Factor Analysis

**3. Transform Analysis**

- 4. all of the above

Q70. Transform Analysis performed on a DFD identifies the

- 1. Afferent Branch
- 2. Efferent Branch
- 3. Central Transform
- 4. all of the above**

Q71. Which of the following is true about structure chart notations?

- 1. There should be only one module at the top
- 2. There should be at most one control arrow between two modules
- 3. The sequence or order of tasks is not represented
- 4. All of the above**

Q72. Which of the following is not true about a flow chart?

- 1. It shows the flow of control of a program
- 2. It is a tool for detailed design
- 3. Data interchange is not represented
- 4. It clearly separates various modules of the software**

Q73. Which of the following is true with respect to function oriented & object oriented design methodologies

- 1. They vary in the basic abstractions they use
- 2. They vary in the way state information is maintained
- 3. They vary in the way functions are grouped
- 4. All of the above**

Q74. What manifests in the patterns of choices made among alternatives ways of expressing an algorithm is

1. a data flow diagram
- 2. coding style**
3. a data dictionary
4. None of these options

Q75. A programmer must follow the rules for coding a particular programming language. These rules are called:

1. pseudocode
2. iteration
- 3. syntax**
4. documentation

Q76. Typographical errors and/or incorrect use of the programming language is referred to as

1. logic errors
- 2. syntax errors**
3. run time errors
4. A bug

Q77. A test case design technique that makes use of a knowledge of the internal program logic

1. Black Box Testing
- 2. White Box Testing**
3. Unit Testing
4. None of these

Q78. \_\_\_\_\_ is the process of locating and eliminating program errors.

1. editing
- 2. correcting**

3. debugging

4. testing

Q79. Changes made to the software to correct defects uncovered after delivery is called

1. perfective maintainence

2. regressive maintainence

3. adaptive maintainence

**4. corrective maintainence**

Q80. Changes made to the software to accommodate changes to its environment is called

1. perfective maintainence

2. regressive maintainence

**3. adaptive maintainence**

4. corrective maintainence

Q81. Changes made to the software to extend it beyond its original functionality is called

**1. perfective maintainence**

2. regressive maintainence

3. adaptive maintainence

4. corrective maintainence

Q82. Major changes made to software after long periods is also called software reengineering or

1. perfective maintainence

**2. regressive maintainence**

3. adaptive maintainence

4. corrective maintainence

Q83. COCOMO is categorized as a \_\_\_\_\_ estimation technique

- 1. Heuristic**
2. Empirical
3. Analytical
4. None of the above

Q84. Final Function point count calculated for project will result in the smallest LOC if implemented in

1. Assembly
2. C
3. C++
- 4. Visual Basic**

Q85. The value of COCOMO cost driver attribute for higher than average Programmer Ability will be

1. Greater than 1
2. Equal to 1
- 3. Less than 1**
4. None of these

Q86. \_\_\_\_ and \_\_\_\_ are graphical notations which are used to illustrate the project schedule.

1. Bar chart and DFD
2. ERD and Bar chart
3. Class diagram and activity networks
- 4. Bar char and activity networks**

Q87. Most of the project plans should include

1. Risk analysis
2. Project organization
3. Project schedule
- 4. All of the above**

Q88. \_\_\_\_\_ shows the dependencies between the different activities making up a project.

**1. PERT chart**

2. Bar chart
3. Staffing Plan
4. Pi chart

Q89. Which of the following is true as per Putnam model

1. Staffing Pattern peaks at Coding & Unit testing
2. Schedule compression increases effort in proportion to fourth power
3. Expanding the schedule gives extreme saving in effort
- 4. all of the above**

Q90. Democratic team structure is suitable for projects

1. with strict deadlines
2. with clearly known requirements
- 3. with research orientation**
4. None of these

Q91. Chief Programmer Teams are suitable for projects

1. with research orientation
- 2. with high modularity**
3. with high creativity
4. None of these

Q92. Which of the following are Software Risk Components

1. Performance
2. Cost
3. Schedule

**4. all of the above**

Q93. The RMMM plan is generally included in the

1. Feasibility Study

**2. Project Plan**

3. SRS Document

4. Project Legacy

Q94. RMMM is a Risk Management methodology which focusses on

1. Risk avoidance by developing a risk mitigation plan

2. Continous risk monitoring throughout the project

3. Actually managing the risks when they become a reality by contingency planning

**4. all of the above**

Q95. Risks arising out of frequent change requests are best mitigated by

1. User characterization

**2. Strong SCM**

3. Multisource estimations

4. Prescheduling key personnel

Q96. Risk of unrealistic estimates & schedules can be overcome by

1. Using objective methods of estimation rather than judgemental methods

2. Developing a culture of software reuse

3. Performing multisource estimations

**4. all of the above**

Q97. A change request has to be evaluated for

1. its technical merit

2. cost & schedule impacts

3. side effects

**4. All of these options**

Q98. Under SCM the various SCIs are strictly maintained

1. by their respective authors
2. by the appropriate team
- 3. in a central project database**
4. all of the above

Q99. Software quality managers are responsible for \_\_\_\_.

1. Quality assurance
2. Quality planning
3. Quality control
- 4. All of the above**

Q100. As per SEI CMM organizations which do not have any KPAs present & stable are considered at

- 1. Level 1**
2. Level 2
3. Level 3
4. Level 4

Q1. Which of the following are aims of UML?

- a. To model system using OO concepts
  - b. To provide a process for software development
  - c. To support small-scale and large-scale analysis and design
  - d. To provide an insight into implementation mechanism
- 1. a, c
  - 2. a, b
  - 3. a, b, d
- 4. a, c, d**

Q2. In which of the following phases of use-case driven process do you think use cases have a role?

- a. requirement capture
  - b. analysis
  - c. design
  - d. implementation
  - e. test
- 1. a, b, c
  - 2. a, b, c, d
  - 3. b, d
- 4. a, b, c, e**

Q3. If you are finding hard to identify the name of class and to write definition for it. What thing you should do?

- 1. ignore class completely
- 2. do more analysis to get a better understanding of what is involved in the class**
- 3. write a definition for the class even if it is not very good
- 4. make it a friend class of some other main class

Q4. Which of the following are possible actors?

- a. data inputter
  - b. GUI component
  - c. Another system
  - d. A printer
1. a, b, c
  2. a, b, c, d
  - 3. a, b, d**
  4. a, c

Q5. In use-case diagram, what is system illustrated by?

1. oval
- 2. box**
3. circle
4. triangle

Q6. UML can be used as a way to represent only OO software systems

Correct Answer : F

Q7. Use cases can be included in any type of collaboration diagrams.

Correct Answer : F

Q8. collaboration diagram represents

- 1. organization of objects**
2. messages on time scale
3. conceptual design
4. set of actions

Q9. In OOD primary abstraction mechanism is \_\_\_\_\_

1. function
- 2. class**
3. object
4. hierarchy

Q10. requirement analysis \_\_\_\_\_

1. delivers a system in a series of versions
2. organizes abstraction
- 3. builds a bridge between user and developer**
4. uses experimental software to better understand user requirements

Q11. polymorphism \_\_\_\_\_

1. organizes abstraction
2. builds a bridge between user and developer
3. delivers a system in a series of versions
- 4. works with encapsulation and inheritance to simplify flow of control**

Q12. prototyping model \_\_\_\_\_

1. delivers a system in a series of versions
2. builds a bridge between user and developer
- 3. uses experimental software to better understand user requirements**
4. works with encapsulation and inheritance to simplify flow of control

Q13. storage management is not a part of version management

Correct Answer : F

Q14. data flow diagrams are part of design phase of SDLC

Correct Answer : T

Q15. Which of the following is reason of project failure?

1. finite resources
- 2. inaccurate estimates of cost and time**
3. others are competing to do the job cheaper and faster
4. none of the above

Q16. What manifests in the patterns of choices made among alternative ways of expressing an algorithm is

1. a data flow diagram
2. coding style
3. a data dictionary
- 4. a flow chart**

Q17. \_\_\_\_\_ is method for estimating software

1. COCOMO
2. function point analysis
3. use case estimation
- 4. all of the above**

Q18. pickup odd one out of the following

- 1. component assembly model**
2. spiral model
3. incremental model
4. iterative model

Q19. which of the following types of test plans is most likely to arise from requirement specification process?

1. system integration testing plan
- 2. acceptance test plan**
3. sub-system integration test plan
4. module test plan

Q20. pick up the odd one out of the following

1. data flow diagram
- 2. object identification**
3. structural decomposition
4. E-R diagrams

Q21. Parts of design principle are

1. correctness, robustness, efficiency, flexibility, understandable
- 2. correctness, robustness, efficiency, flexibility, reusability**
3. flexibility, correctness, robustness, efficiency, standard
4. flexibility, correctness, robustness, efficiency, security

Q22. largest time is spent on which of the software development phase?

1. testing
- 2. enhancement**
3. bug fixing
4. analysis and design

Q23. Which of the following can be a reason for project failure?

1. Finite resources
- 2. Inaccurate estimates of cost & time**
3. Others competing to do the job cheaper & faster.
4. None of the above

Q24. \_\_\_\_\_ is a method for estimating the software

1. COCOMO
2. Function Point Analysis
3. Use Case Estimation
- 4. All of the above**

Q25. Quality control

- 1. focuses on inspections, testing & removal of defects before release**
2. is a set of planned & strategic actions to provide confidence that a product or service will satisfy requirements of quality
3. is to check system for internal errors.
4. All of the above.

Q26. The elements of the software architecture of a computing system include

1. software components
2. class diagrams
3. connectors expressing relationships between software components
4. entity relationship diagrams

1. 1 & 2

**2. 1 & 3**

3. 1, 3 & 4
4. 1, 2, 3 & 4

Q27. Pick the odd one out

- 1. Component assembly model**
2. Spiral Model
3. Incremental Model
4. Iterative Model

Q28. Software Engineering is concerned with \_\_\_\_.

1. process
2. methods
3. tools
- 4. all of the above**

Q29. Ability to deal with exceptional conditions e.g. invalid input, improper handling, power failure, disk crash etc.

1. Efficiency

**2. Robustness**

3. Reliability

4. Correctness

Q30. Maintainability is the ease with which a software can

1. be corrected if an error is encountered

2. adapted if its environment changes

3. enhanced if the customer desires a change in requirements

**4. all of above**

Q31. Which of the following factors of a Software Product may not contribute much directly to its maintainability?

1. Understandability

2. Flexibility

**3. Security**

4. Testability

Q32. The Software Development Life Cycle covers activities from

1. Feasibility Study to Installation

**2. Requirements Phase to Testing**

3. Requirements Phase to Maintenance

4. Project Initiation to Software Retirement

Q33. An approved feasibility study is a deliverable out of

1. Systems design
- 2. Preliminary investigation**
3. Systems development
4. Systems analysis

Q34. The type of testing carried out along with coding is called

1. system testing
- 2. unit testing**
3. pretesting
4. stress testing

Q35. Checklists, grid charts, and decision tables are all tools used in the \_\_\_\_\_ step

1. preliminary investigation
- 2. systems analysis**
3. systems development
4. systems implementation

Q36. The present system is studied in depth during the \_\_\_\_\_ phase of the systems life cycle.

1. preliminary investigation
- 2. systems analysis**
3. systems design
4. systems development

Q37. The type of software maintainence which is done to remove bugs or defects in the software is called

**1. Corrective Maintainence**

2. Adaptive Maintainence
3. Regressive Maintainence
4. Perfective Maintainence

Q38. The SDLC Model most suitable for small projects with clear requirements is

1. Spiral Model

2. Incremental Model

**3. Waterfall Model**

4. Prototyping Model

Q39. The SDLC Model most suitable for small projects with unclear requirements is but not many technical risks is

1. Spiral Model

2. Incremental Model

3. Waterfall Model

**4. Prototyping Model**

Q40. Because of the cascade from one phase to another, the model of software development process is known as

1. Evolutionary model

2. Formal model

**3. Waterfall model**

4. None of the above

Q41. RAD Model is high speed implementation of

- 1. Waterfall Model**
2. Spiral Model
3. Prototyping model
4. Component Assembly model

Q42. Which of the following is not a feature of RAD

1. Well understood, constrained & modularizable requirements
2. Component based construction & use of 4 GL
3. Use of multiple teams each developing separate function
- 4. Project has high technical risks**

Q43. The majority of the lifetime of a program is spent in the \_\_\_\_\_ phase

- 1. Maintenance**
2. Analysis
3. Design
4. Testing

Q44. Pick up the odd one out of the following process models

1. Component assembly model
2. Prototypiong Model
3. Spiral model
- 4. Waterfall Model**

Q45. \_\_\_\_\_ uses powerful development software and small, highly trained teams of programmers.

1. Prototyping
- 2. RAD**
3. Coding
4. Modeling

Q46. Arrange the following Requirements subphases in the correct order a.Documentation b. Analysis c. Validation d. Elicitation

1. a, b, c, d

**2. d, b, a, c**

3. d, c, a, b

4. b,a, d c

Q47. External Entities in a Context Diagram may be A) People B) Other Software Systems C) Hardware D) Databases

1. Only A & D

2. Only B & C

3. Only A, B & D

**4. A,B, C & D**

Q48. Which of the following is seen in the DFD but not in the Context Diagram

1. Data Sources

2. Data Flows

**3. Data Stores**

4. Users

Q49. DFD gives idea about flow of \_\_\_\_\_ & flowchart gives idea of the flow of \_\_\_\_\_

1. processes, decisions

2. control, data

3. logic, control

**4. data, control**

Q50. A data flow diagram is not a

1. logical model of a system

2. good guide to a system

**3. representation of the physical system**

4. All of these options

Q51. Example of a Semantic Data model is

1. data flow diagram

2. Context Diagram

**3. Entity Relationship Diagram**

4. all of the above

Q52. Automated CASE tools like PSL/PSA do not help in

1. Requirements Documentation

2. Requirements Validation

3. Requirements Analysis

**4. Requirements Elicitation**

Q53. Which of the following is not a characteristic of a good SRS document?

1. Unambiguous

2. Verifiable

**3. Redundant**

4. Consistent

Q54. The ways of describing specifications at different levels of detail include

1. requirements definition

2. requirements specification

**3. both a and b options**

4. None of these options

Q55. A system developed to give end users a concrete impression of the system capabilities is called

1. Semantics
2. model
- 3. prototype**
4. abstraction

Q56. The requirement engineering process has the following stages, Except

1. Feasibility study
2. Requirement analysis
- 3. Implementation**
4. Requirement definition

Q57. Notations used to specify the external characteristics, architectural structure, and processing details of a software system include I. Data Flow Diagrams II. HIPO diagrams III. Structure Charts

1. I and II Only
2. III Only
- 3. I, II and III**
4. None of the above

Q58. Find the odd one out

1. Axiomatic Specification
2. Algebraic Specification
3. Z Specification
- 4. Data Flow Diagram**

Q59. Planning the modular program structure & control relationships between modules is called

1. Architectural Design

2. High Level Design

3. System Design

**4. all of the above**

Q60. Conception & planning out of externally observable characteristics of a software is called

1. External Design

2. User Interface Design

**3. Both a and b options**

4. None of the above

Q61. Concept of Abstraction is used in

1. Requirements phase

2. Design Phase

3. Testing Phase

**4. all of the above**

Q62. Providing a logical reference to the data object without concern for the underlying representation is

1. Procedural Abstraction

**2. Data Abstraction**

3. Control Abstraction

4. None of the above

Q63. The number of subordinate modules controlled by a module is called its

1. control range

**2. fan out**

3. fan in

4. width

Q64. Functional Independence is not achieved by

**1. Coupling**

2. Modularity

3. Information Hiding

4. Any of the above

Q65. If two modules pass a data structure across their interface they exhibit

**1. Stamp Coupling**

2. Data Coupling

3. Content Coupling

4. Control Coupling

Q66. Use of global data areas or global variables may lead to

1. Stamp Coupling

**2. Common Coupling**

3. Content Coupling

4. Control Coupling

Q67. The strength of relationship between which of the following elements of a module is examined to evaluate module cohesion

1. function declarations, function definitions & calls

2. variable declarations

3. data definitions

**4. all of the above**

Q68. Which is the most undesirable form of cohesion from the following options

1. Sequential
- 2. Coincidental**
3. Temporal
4. Communicational

Q69. The graphical tool commonly used to represent the system architecture is called

1. Context Diagram
- 2. Structure Chart**
3. Architectural Plan
4. Event Table

Q70. The method of deriving the structure chart from the DFD is called

1. Factoring
2. Factor Analysis
- 3. Transform Analysis**
4. all of the above

Q71. Which of the following is true about structure chart notations?

1. There should be only one module at the top
2. There should be at most one control arrow between two modules
3. The sequence or order of tasks is not represented
- 4. All of the above**

Q72. Using \_\_\_\_\_ a programmer can detail the logic of the program

1. **pseudocode**
2. software
3. context diagram
4. data flow diagram

Q73. The external interface design process should be \_\_\_\_\_

1. developer centered
2. **user centered**
3. administrator centered
4. management centered

Q74. Typographical errors and/or incorrect use of the programming language is referred to as

1. logic errors
2. **syntax errors**
3. run time errors
4. A bug

Q75. \_\_\_\_\_ is a programming method which combines data and instructions for processing that data into a self-sufficient block that can be used in other programs.

1. modular programming
2. top down design
3. **object oriented programming**
4. structured programming

Q76. \_\_\_\_\_ is the process of locating and eliminating program errors.

1. editing
2. correcting
- 3. debugging**
4. testing

Q77. Changes made to the software to accommodate changes to its environment is called

1. perfective maintainence
2. regressive maintainence
- 3. adaptive maintainence**
4. corrective maintainence

Q78. Changes made to the software to extend it beyond its original functionality is called

- 1. perfective maintainence**
2. regressive maintainence
3. adaptive maintainence
4. corrective maintainence

Q79. Major changes made to software after long periods is also called software reengineering or

1. perfective maintainence
- 2. regressive maintainence**
3. adaptive maintainence
4. corrective maintainence

Q80. Effective Software Project Management focusses on

1. People
2. Problem
3. Process
- 4. all of above**

Q81. Arrang the following in the correct sequence of software estimation a. Schedule Estimation b. Effort Estimation c. Cost Estimation d. Size estimation

1. b, c, a, d
2. c, a, b, d
- 3. d, b, a, c**
4. a, c, d, b

Q82. Final Function point count calculated for project will result in the smallest LOC if implemented in

1. Assembly
2. C
3. C++
- 4. Visual Basic**

Q83. The value of COCOMO cost driver attribute for lower than average Reliability requirement will be

1. Greater than 1
2. Equal to 1
- 3. Less than 1**
4. None of these

Q84. The crtical path of PERT/CPM chart cannot be

1. the path with the longest duration
2. more than one unique path
- 3. path on which any delays are allowed**

4. path with same earliest and latest starts for all activites

Q85. Project schedule can be illustrated using

1. DFD and ERD
2. Bar chart
3. Activity chart
- 4. Both b and c options**

Q86. The total float for an activity is

1. the total duration of the activity
2. the difference between the earliest finish time and earliest start time
- 3. the difference between the latest finish time and the earliest finish time**
4. the difference between the latest finish time and the earliest start time

Q87. \_\_\_\_\_ shows the dependencies between the different activities making up a project.

- 1. PERT chart**
2. Bar chart
3. Staffing Plan
4. Pi chart

Q88. The minimum time required to finish the project can be estimated by considering the \_\_\_\_\_ path in the activity graph

1. Shortest
- 2. Longest**
3. Average
4. SPT

Q89. Which of the following is true as per Putnam model

1. Staffing Pattern peaks at Coding & Unit testing
2. Schedule compression increases effort in proportion to fourth power
3. Expanding the schedule gives extreme saving in effort
- 4. all of the above**

Q90. Chief Programmer Teams are suitable for projects

1. with research orientation
- 2. with high modularity**
3. with high creativity
4. None of these

Q91. Which of the following are Software Risk Components

1. Performance
2. Cost
3. Schedule
- 4. all of the above**

Q92. Arrange the following activities in Risk Assessment in the correct sequence a. Prioritization b. Identification c. Analysis

1. b, a, c
- 2. b, c, a**
3. a, b, c
4. c, a, b

Q93. Risk Assessment Table is based on categorization by

1. Risk Components
2. Risk Impact
- 3. Both a and b options**
4. None of the above

Q94. Judging the seriousness of a risk by evaluating its probability along with its consequences is called

1. Risk analysis
2. Risk Projection
3. Risk Estimation
- 4. all of the above**

Q95. The RMMM plan is generally included in the

1. Feasibility Study
- 2. Project Plan**
3. SRS Document
4. Project Legacy

Q96. Example of Software Configuration Items (SCI) is

1. SRS
2. Code
3. User manual
- 4. all of the above**

Q97. A change request has to be evaluated for

1. its technical merit
2. cost & schedule impacts
3. side effects
- 4. All of these options**

Q98. \_\_\_\_\_ ensures that a set procedure is followed to make any changes to the software

1. Configuration Identification

**2. Configuration Control**

3. Baselining

4. all of the above

Q99. Configuration Management is

1. framework activity

2. umbrella activity

**3. one time activity**

4. None of the above

Q100. As per SEI CMM organizations which do not have any KPAs present & stable are considered at

**1. Level 1**

2. Level 2

3. Level 3

4. Level 4

Q1. Which of the following factors of a Software Product may not contribute much to its maintainability?

1. Understandability
2. Flexibility
- 3. Security**
4. Testability

Q2. The Software Life Cycle covers activities from

1. Feasibility Study to Installation
2. Requirements Phase to Testing
3. Requirements Phase to Maintenance
- 4. Project Initiation to Software Retirement**

Q3. The Software Development Life Cycle covers activities from

1. Feasibility Study to Installation
- 2. Requirements Phase to Testing**
3. Requirements Phase to Maintenance
4. Project Initiation to Software Retirement

Q4. Identify the true statements about using a process for software development. a) Processes usually divide software development into phases b) Processes provide guidelines for what to do at each phase of development c) Processes are used only during the analysis phase of a project d) Processes make it easier to measure the progress of a project

1. a and c
2. a and b
- 3. a, b and d**
4. a, c and d

Q5. Process visibility is enhanced by

1. Defining clear cut phases
2. Producing documents related to each phase
3. Conducting reviews & checks
- 4. all of the above**

Q6. Which of the following activities is not considered as "Umbrella Activity"

1. S/W Quality assurance
- 2. Software Design**
3. S/W configuration management
4. S/W Project Monitoring & Control

Q7. Broad design of modules & their relationships is called

1. external design
2. detailed design
- 3. architectural design**
4. process design

Q8. Any activity designed to keep programs in working condition, error free, and up-to-date, is referred to as \_\_\_\_\_

- 1. maintenance**
2. testing
3. debugging
4. coding

Q9. Checklists, grid charts, and decision tables are all tools used in the \_\_\_\_\_ step

1. preliminary investigation
- 2. systems analysis**
3. systems development
4. systems implementation

Q10. During the \_\_\_\_\_ phase, the application is verified against the requirements

1. Analysis
2. Design
- 3. Testing**
4. Implementation

Q11. The SDLC Model most suitable for small projects with clear requirements is

1. Spiral Model
2. Incremental Model
- 3. Waterfall Model**
4. Prototyping Model

Q12. The SDLC Model most suitable for large projects with clear knowledge & priority of requirements is

1. Spiral Model
- 2. Incremental Model**
3. Waterfall Model
4. Prototyping Model

Q13. The SDLC Model most suitable for small projects with unclear requirements is but not many technical risks is

1. Spiral Model
2. Incremental Model
3. Waterfall Model
- 4. Prototyping Model**

Q14. Prototyping in software process may involve \_\_\_\_\_.

1. throw - away prototyping

2. evolutionary

**3. Both a and b options**

4. None of these

Q15. Prototype may be used for

1. Risk Reduction

2. Requirements Elicitation

3. User Interface Design

**4. all of the above**

Q16. RAD stands for

**1. Rapid Application Development**

2. Random Access Disc

3. Random Application Driver

4. Rapid Alignment Disc

Q17. Which of the following is not true about Component Assembly Model

1. It is similar to the Spiral Model

2. The technical framework for this model is provided by object technologies

3. Candidate classes are extracted from class library or developed

**4. Its productivity is low**

Q18. \_\_\_\_\_ uses powerful development software and small, highly trained teams of programmers.

1. Prototyping

**2. RAD**

3. Coding

4. Modeling

Correct Answer : 2

Your Answer :

QuestionID : 15100      Subject Name SE

Q19. During the \_\_\_\_\_ phase of the systems life cycle, the new hardware and software are acquired and tested

1. design

2. development

3. implementation

4. maintenance

Correct Answer : 3

Your Answer :

QuestionID : 15103      Subject Name SE

Q20. During Requirements Phase recording interface requirements of a software system does not include which of the following interfaces

1. User Interfaces

2. Software Interfaces

3. Hardware Interfaces

4. Module Interfaces

Correct Answer : 4

Your Answer :

QuestionID : 15106      Subject Name SE

Q21. Which of the following is not true about the context diagram?

1. It does not show details of the functioning
2. It shows major inputs & outputs of the system
3. It shows the external entities of the system
4. It shows the datastores of the system

Correct Answer : 4

Your Answer :

QuestionID : 15110      Subject Name SE

Q22. "Balancing of DFD" is means

1. conservation of inputs & outputs at various levels
2. Sub dividing a process into smaller subprocesses
3. Labelling of all data items
4. Allowing data flows to take place only to or from processes

Correct Answer : 1

Your Answer :

QuestionID : 15116      Subject Name SE

Q23. \_\_\_\_\_ models describe the logical structure of the data which is imported to and exported by the system.

1. Object
2. Semantic data
3. Data flow
4. None of the above

Correct Answer : 2

Your Answer :

QuestionID : 15120      Subject Name SE

Q24. E-R diagrams are used in

1. Database design
2. Data Dictionary compilation
3. Architectural design
4. Functional Design

Correct Answer : 1

Your Answer :

QuestionID : 15122      Subject Name SE

Q25. Which of the following is not a characteristic of a good SRS document?

1. Unambiguous
2. Verifiable
3. Redundant
4. Consistent

Correct Answer : 3

Your Answer :

QuestionID : 15123      Subject Name SE

Q26. The ways of describing specifications at different levels of detail include

1. requirements definition
2. requirements specification
3. both a and b options
4. None of these options

Correct Answer : 3

Your Answer :

QuestionID : 15124      Subject Name SE

Q27. The flow of data within a system is described by a \_\_\_\_\_

1. data flow diagram

2. top-down analysis
3. system flowchart
4. decision table

Correct Answer : 1

Your Answer :

QuestionID : 15125      Subject Name SE

Q28. A system developed to give end users a concrete impression of the system capabilities is called

1. Semantics
2. model
3. prototype
4. abstraction

Correct Answer : 3

Your Answer :

QuestionID : 15128      Subject Name SE

Q29. Notations used to specify the external characteristics, architectural structure, and processing details of a software system include I. Data Flow Diagrams II. HIPO diagrams III. Structure Charts

1. I and II Only
2. III Only
3. I, II and III
4. None of the above

Correct Answer : 3

Your Answer :

QuestionID : 15129      Subject Name SE

Q30. Formal specification techniques are based on

1. set theory
2. logic

- 3. sequence
- 4. all of the above

Correct Answer : 4

Your Answer :

QuestionID : 15131      Subject Name SE

Q31. Find the odd one out

- 1. Axiomatic Specification
- 2. Algebraic Specification
- 3. Z Specification
- 4. Data Flow Diagram

Correct Answer : 4

Your Answer :

QuestionID : 15137      Subject Name SE

Q32. Using the name of a sequence of instructions in place of the sequence of instructions is an example of

- 1. Procedural Abstraction
- 2. Data Abstraction
- 3. Control Abstraction
- 4. None of the above

Correct Answer : 1

Your Answer :

QuestionID : 15138      Subject Name SE

Q33. Providing a logical reference to the data object without concern for the underlying representation is

- 1. Procedural Abstraction
- 2. Data Abstraction

- 3. Control Abstraction
- 4. None of the above

Correct Answer : 2

Your Answer :

QuestionID : 15139      Subject Name SE

Q34. A way of indicating the desired effect without establishing the actual mechanism

- 1. Procedural Abstraction
- 2. Data Abstraction
- 3. Control Abstraction
- 4. None of the above

Correct Answer : 3

Your Answer :

QuestionID : 15143      Subject Name SE

Q35. Designers should aim to produce strongly \_\_\_\_\_ and weakly \_\_\_\_\_ designs

- 1. coupled, functional
- 2. maintainable, cohesive
- 3. cohesive, coupled
- 4. coupled, cohesive

Correct Answer : 3

Your Answer :

QuestionID : 15144      Subject Name SE

Q36. If two modules are coupled without exchange of data or control information then they exhibit

- 1. Normal Coupling
- 2. Stamp Coupling
- 3. Control Coupling

**4. Common Coupling**

Correct Answer : 1

Your Answer :

QuestionID : 15145      Subject Name SE

Q37. If two modules pass a data structure across their interface they exhibit

1. Stamp Coupling
2. Data Coupling
3. Content Coupling
4. Control Coupling

Correct Answer : 1

Your Answer :

QuestionID : 15148      Subject Name SE

Q38. The strength of relationship between which of the following elements of a module is examined to evaluate module cohesion

1. function declarations, function definitions & calls
2. variable declarations
3. data definitions
4. all of the above

Correct Answer : 4

Your Answer :

QuestionID : 15149      Subject Name SE

Q39. Which is the most undesirable form of cohesion from the following options

1. Sequential
2. Coincidental
3. Temporal
4. Communicational

Correct Answer : 2

Your Answer :

QuestionID : 15150      Subject Name SE

Q40. Which is the most undesirable form of cohesion from the following options

1. Functional
2. Communicational
3. Temporal
4. Logical

Correct Answer : 4

Your Answer :

QuestionID : 15151      Subject Name SE

Q41. A module whose all elements exhibit relationship which involves both data and control flow is said to be \_\_\_\_\_ cohesive

1. Sequentially
2. Communicationally
3. Temporally
4. Procedurally

Correct Answer : 1

Your Answer :

QuestionID : 15157      Subject Name SE

Q42. The afferent branch of the DFD ends at the

1. Most Abstract Input
2. Most Abstract Output
3. middle of the central transform
4. all of the above

Correct Answer : 1

Your Answer :

QuestionID : 15161      Subject Name SE

Q43. Which of the following is not true about a flow chart?

1. It shows the flow of control of a program
2. It is a tool for detailed design
3. Data interchange is not represented
4. It clearly separates various modules of the software

Correct Answer : 4

Your Answer :

QuestionID : 15166      Subject Name SE

Q44. In which of the following phases of a use-case driven process do you think use cases have a role? a) Requirements capture b) Analysis c) Design d) Implementation e) Test

1. a, b and c
2. a, b, c and d
3. b and d
4. a, b, c, d and e

Correct Answer : 0

Your Answer :

QuestionID : 15167      Subject Name SE

Q45. I. Object-oriented software development creates better programs but is less efficient to use II. Object-oriented software development is more efficient than traditional methods. III. OOP is a process that organizes a program into objects that contain both data and the processing operations necessary to perform a task

1. I and II are correct
2. II and III are correct
3. I and III are correct
4. I, II and III are correct

Correct Answer : 3

Your Answer :

QuestionID : 15170      Subject Name SE

Q46. Typographical errors and/or incorrect use of the programming language is referred to as

1. logic errors
2. syntax errors
3. run time errors
4. A bug

Correct Answer : 2

Your Answer :

QuestionID : 15172      Subject Name SE

Q47. The if-then-else construct is an example of the

1. sequencing
2. selection
3. iteration
4. all of the above

Correct Answer : 2

Your Answer :

QuestionID : 15173      Subject Name SE

Q48. Proper program layout by proper usage of proper use of indentation, blank spaces, blank lines, parentheses improves

1. Efficiency of the program
2. size of the program
3. maintainability of the program
4. reliability of the program

Correct Answer : 3

Your Answer :

QuestionID : 15182      Subject Name SE

Q49. Static verification & validation is applied to

1. SRS
2. Design
3. Code
4. all of the above

Correct Answer : 4

Your Answer :

QuestionID : 15184      Subject Name SE

Q50. Static testing involves

1. Code Analysis
2. Structural Analysis
3. Data Flow Analysis
4. all of the above

Correct Answer : 4

Your Answer :

QuestionID : 15185      Subject Name SE

Q51. Statistical Testing is used for

1. For statistical softwares only
2. Only uncovering defects
3. Reliability estimation
4. efficiency estimation

Correct Answer : 3

Your Answer :

QuestionID : 15186      Subject Name SE

Q52. Which of the following is NOT true about software testing

1. It follows a bottom up approach
2. Testing is planned after the coding phase
3. Complete testing is not possible
4. Testing only establishes presence of defects

Correct Answer : 2

Your Answer :

QuestionID : 15187      Subject Name SE

Q53. Which of the following is NOT true with regard to Testing & Debugging

1. Testing includes debugging
2. Debugging includes retesting
3. Testing only establishes presence of defects
4. Debugging repairs the program defects

Correct Answer : 1

Your Answer :

QuestionID : 15193      Subject Name SE

Q54. Which of the following is not a White box testing method

1. Statement coverage
2. Error guessing
3. Path coverage
4. Condition Coverage

Correct Answer : 2

Your Answer :

QuestionID : 15194      Subject Name SE

Q55. Black box test cases can be derived from

1. source code
2. flowchart
3. SRS Document
4. pseudocode

Correct Answer : 3

Your Answer :

QuestionID : 15195      Subject Name SE

Q56. Purely black box testing would be used at which of the following levels?

1. Unit testing
2. Module testing
3. Integration Testing
4. Acceptance Testing

Correct Answer : 4

Your Answer :

QuestionID : 15197      Subject Name SE

Q57. Black box testing is more useful in locating

1. Functional Errors
2. Performance Errors
3. Interface Errors
4. All of these options

Correct Answer : 4

Your Answer :

QuestionID : 15201      Subject Name SE

Q58. Testing of software falls after \_\_\_\_\_ stage.

1. Designing
2. Implementation
3. Deployment
4. Coding

Correct Answer : 4

Your Answer :

QuestionID : 15202      Subject Name SE

Q59. Test Data includes

1. Set of inputs
2. set of expected outputs
3. information of function under test
4. All of these options

Correct Answer : 1

Your Answer :

QuestionID : 15203      Subject Name SE

Q60. A Test case includes

1. Input
2. Expected output
3. information of function under test
4. All of these options

Correct Answer : 4

Your Answer :

QuestionID : 15205      Subject Name SE

Q61. Testing strategies can be \_\_\_\_\_.

1. Top – down testing, Bottom – up testing

2. Thread testing, Stress testing
3. Back – to – back testing
4. all of above

Correct Answer : 4

Your Answer :

QuestionID : 15206      Subject Name SE

Q62. A stub is a dummy verion of the \_\_\_\_\_ module of the module under testing

1. superordinate
2. subordinate
3. coordinate
4. All of the above

Correct Answer : 2

Your Answer :

QuestionID : 15207      Subject Name SE

Q63. A driver is a dummy verion of the \_\_\_\_\_ module of the module under testing

1. superordinate
2. subordinate
3. coordinate
4. All of the above

Correct Answer : 1

Your Answer :

QuestionID : 15208      Subject Name SE

Q64. Which of the following is true about Boundary Value Analysis?

1. It is an approach to designing black box test cases
2. It is complementary to Equivalence Class Partitioning

- 3. It gives test cases based on the boundaries of the equivalence classes
- 4. All of the above

Correct Answer : 4

Your Answer :

QuestionID : 15210      Subject Name SE

Q65. Cyclomatic complexity is calculated from

- 1. Data Flow Graph
- 2. Structure Chart
- 3. Control Flow Graph
- 4. All of the above

Correct Answer : 3

Your Answer :

QuestionID : 15211      Subject Name SE

Q66. Which of the following is true about McCabe's Cyclomatic Complexity of a Program

- 1. It is an indicator of the structural complexity of a program
- 2. It gives the maximum no of independent paths in a program
- 3. It is calculated from the no. of edges & nodes in the Control Flow diagram
- 4. All of the above

Correct Answer : 4

Your Answer :

QuestionID : 15214      Subject Name SE

Q67. \_\_\_\_\_ exercises the system beyond its maximum design load

- 1. Thread testing
- 2. Stress Testing
- 3. Back to back testing

4. all of the above

Correct Answer : 2

Your Answer :

QuestionID : 15215      Subject Name SE

Q68. Presenting the same tests to different versions of the system and compare outputs is called

1. Thread testing
2. Stress Testing
3. Back to back testing
4. all of the above

Correct Answer : 3

Your Answer :

QuestionID : 15216      Subject Name SE

Q69. Testing done with real data is called \_\_\_\_\_.

1. Data testing
2. Unified testing
3. Alpha testing
4. Beta testing

Correct Answer : 4

Your Answer :

QuestionID : 15217      Subject Name SE

Q70. The following are the testing strategies except

1. Top-down testing
2. Thread testing
3. Stress testing
4. Verification testing

Correct Answer : 3

Your Answer :

QuestionID : 15219      Subject Name SE

Q71. Changes made to the software to accommodate changes to its environment is called

1. perfective maintainence
2. regressive maintainence
3. adaptive maintainence
4. corrective maintainence

Correct Answer : 3

Your Answer :

QuestionID : 15220      Subject Name SE

Q72. Changes made to the software to extend it beyond its original functionality is called

1. perfective maintainence
2. regressive maintainence
3. adaptive maintainence
4. corrective maintainence

Correct Answer : 1

Your Answer :

QuestionID : 15221      Subject Name SE

Q73. Major changes made to software after long periods is also called software reengineering or

1. perfective maintainence
2. regressive maintainence
3. adaptive maintainence
4. corrective maintainence

Correct Answer : 2

Your Answer :

QuestionID : 15222      Subject Name SE

Q74. Effective Software Project Management focusses on

1. People
2. Problem
3. Process
4. all of above

Correct Answer : 4

Your Answer :

QuestionID : 15224      Subject Name SE

Q75. Which of the following is not a part of Project Plan?

1. Risk Management Plan
2. Personnel Plan
3. Project Monitoring Plan
4. Software Architecture Planning

Correct Answer : 4

Your Answer :

QuestionID : 15228      Subject Name SE

Q76. An example of an Empirical Software estimation technique is

1. COCOMO
2. FPA
3. Delphi
4. Halstead's Software Science

Correct Answer : 3

Your Answer :

QuestionID : 15230      Subject Name SE

Q77. The Lines of Code (LOC) size do not include

1. Compiler Directives
2. Declarations
3. Comments
4. all of the above

Correct Answer : 3

Your Answer :

QuestionID : 15232      Subject Name SE

Q78. Conversion of Adjusted Function Point Count to LOC count is dependent on

1. Team Size
2. Project Duration
3. Programming Language
4. Cost Drivers

Correct Answer : 3

Your Answer :

QuestionID : 15235      Subject Name SE

Q79. In COCOMO terminology a project with software being strongly coupled to complex hardware & stringent regulations on operating procedures is categorised as

1. Organic
2. Semidetached
3. Embedded
4. Application

Correct Answer : 3

Your Answer :

QuestionID : 15238      Subject Name SE

Q80. The value of COCOMO cost driver attribute for lower than average Reliability requirement will be

1. Greater than 1
2. Equal to 1
3. Less than 1
4. None of these

Correct Answer : 3

Your Answer :

QuestionID : 15239      Subject Name SE

Q81. The critical path of PERT/CPM chart cannot be

1. the path with the longest duration
2. more than one unique path
3. path on which any delays are allowed
4. path with same earliest and latest starts for all activities

Correct Answer : 3

Your Answer :

QuestionID : 15240      Subject Name SE

Q82. \_\_\_\_ and \_\_\_\_ are graphical notations which are used to illustrate the project schedule.

1. Bar chart and DFD
2. ERD and Bar chart
3. Class diagram and activity networks
4. Bar chart and activity networks

Correct Answer : 4

Your Answer :

QuestionID : 15241      Subject Name SE

Q83. Project schedule can be illustrated using

1. DFD and ERD
2. Bar chart
3. Activity chart
4. Both b and c options

Correct Answer : 4

Your Answer :

QuestionID : 15245      Subject Name SE

Q84. The minimum time required to finish the project can be estimated by considering the \_\_\_\_\_ path in the activity graph

1. Shortest
2. Longest
3. Average
4. SPT

Correct Answer : 2

Your Answer :

QuestionID : 15246      Subject Name SE

Q85. PERT/CPM cannot be used for

1. Scheduling of projects
2. Monitoring & Control of projects
3. Optimising Resource Utilization
4. Quality control of products

Correct Answer : 4

Your Answer :

QuestionID : 15248      Subject Name SE

Q86. Which of the following is true as per Putnam model

1. Staffing Pattern peaks at Coding & Unit testing

2. Schedule compression increases effort in proportion to fourth power
3. Expanding the schedule gives extreme saving in effort
4. all of the above

Correct Answer : 4

Your Answer :

QuestionID : 15253      Subject Name SE

Q87. Risk Assessment Table is based on categorization by

1. Risk Components
2. Risk Impact
3. Both a and b options
4. None of the above

Correct Answer : 3

Your Answer :

QuestionID : 15255      Subject Name SE

Q88. The RMMM plan is generally included in the

1. Feasibility Study
2. Project Plan
3. SRS Document
4. Project Legacy

Correct Answer : 2

Your Answer :

QuestionID : 15258      Subject Name SE

Q89. Risk of unrealistic estimates & schedules can be overcome by

1. Using objective methods of estimation rather than judgemental methods
2. Developing a culture of software reuse

- 3. Performing multisource estimations
- 4. all of the above

Correct Answer : 4

Your Answer :

QuestionID : 15260      Subject Name SE

Q90. A change request has to be evaluated for

- 1. its technical merit
- 2. cost & schedule impacts
- 3. side effects
- 4. All of these options

Correct Answer : 4

Your Answer :

QuestionID : 15263      Subject Name SE

Q91. Configuration Management is

- 1. framework activity
- 2. umbrella activity
- 3. one time activity
- 4. None of the above

Correct Answer : 3

Your Answer :

QuestionID : 15269      Subject Name SE

Q92. Repeatable level as per CMM model is

- 1. Level 1
- 2. Level 2
- 3. Level 3

4. Level 4

Correct Answer : 2

Your Answer :

QuestionID : 15970      Subject Name SE

Q93. The collection of computer programs, procedures ,rules and associated document and data is called -----

1. Software
2. Hardware
3. Both
4. None

Correct Answer : 1

Your Answer :

QuestionID : 15976      Subject Name SE

Q94. The goal of coding is

1. To reduce the cost of testing
2. To reduce the cost of maintenance
3. Both a & b
4. None

Correct Answer : 3

Your Answer :

QuestionID : 15977      Subject Name SE

Q95. A context diagram contain

1. Only one process
2. More than one process
3. At least one process
4. None

Correct Answer : 1

Your Answer :

QuestionID : 15979      Subject Name SE

Q96. The spiral model is both suitable for

1. Development type projects
2. Enhancement type project
3. Both
4. None

Correct Answer : 3

Your Answer :

QuestionID : 15981      Subject Name SE

Q97. CASE is expanded as

1. Computer Analysis Software Engineering
2. Computer Aided Software Engineering
3. Computer Aided System Engineering
4. Computer Analysis System Engineering

Correct Answer : 2

Your Answer :

QuestionID : 15985      Subject Name SE

Q98. Three major factor of software engineering are

1. Cost , Correctness , Reliability
2. Cost , Schedule , Reliability
3. Cost , Quality ,Correctness
4. Cost , Portability , Reliability

Correct Answer : 2

Your Answer :

QuestionID : 15986      Subject Name SE

Q99. Data flow can take place between

- a) Process to Process b) File to File
- c) Process to File d) External Entity to Process

1. a ,b ,c

2. b ,c ,d

3. a ,c, d

4. a ,b, d

Correct Answer : 3

Your Answer :

QuestionID : 15989      Subject Name SE

Q100. Match the level testing can work on

1) Acceptance Testing 2) System Testing 3) Integration Testing 4) Unit Testing

- a) Client Needs b) Requirements c) Design d)Code

1. 1-a, 2-b, 3-c, 4-d

2. 1-d, 2-b, 3-c, 4-a

3. 1-a, 2-b, 3-d, 4-c

4. 1-a, 2-c, 3-b, 4-d

Correct Answer : 1

Your Answer :

Q1. Software Engineering is concerned with\_\_\_\_\_.

1. process
2. methods
3. tools
- 4. all of the above**

Correct Answer : 4

Your Answer :

QuestionID : 15056      Subject Name SE

Q2. Reliability in a software system can be achieved using the following strategies, EXCEPT

1. Fault avoidance
2. Fault tolerance
3. Fault detection
4. Fault rectification

Correct Answer : 3

Your Answer :

QuestionID : 15059      Subject Name SE

Q3. Identify the true statements about using a process for software development. a) Processes usually divide software development into phases b) Processes provide guidelines for what to do at each phase of development c) Processes are used only during the analysis phase of a project d) Processes make it easier to measure the progress of a project

1. a and c
2. a and b
3. a, b and d
4. a, c and d

Correct Answer : 3

Your Answer :

QuestionID : 15062      Subject Name SE

Q4. What is the primary purpose of the first stage of software analysis and design?

1. Determining system deployment
2. Writing code
3. Capturing requirements
4. Building GUIs

Correct Answer : 3

Your Answer :

QuestionID : 15063      Subject Name SE

Q5. An approved feasibility study is a deliverable out of

1. Systems design
2. Preliminary investigation
3. Systems development
4. Systems analysis

Correct Answer : 2

Your Answer :

QuestionID : 15071      Subject Name SE

Q6. Any activity designed to keep programs in working condition, error free, and up-to-date, is referred to as \_\_\_\_\_

1. maintenance
2. testing
3. debugging
4. coding

Correct Answer : 1

Your Answer :

QuestionID : 15072      Subject Name SE

Q7. Checklists, grid charts, and decision tables are all tools used in the \_\_\_\_\_ step

1. preliminary investigation
2. systems analysis
3. systems development
4. systems implementation

Correct Answer : 2

Your Answer :

QuestionID : 15076      Subject Name SE

Q8. During the \_\_\_\_\_ phase, the application is verified against the requirements

1. Analysis
2. Design
3. Testing
4. Implementation

Correct Answer : 3

Your Answer :

QuestionID : 15079      Subject Name SE

Q9. The choice of the Software Development Life Cycle Model to be followed for a project depends on  
A) Initial Clarity of Requirements B) Size of the Project C) Time Frame of the Project D) Clarity on  
Technical Issues

1. A, B & C only
2. A, B & D only
3. A, B, C & D
4. A & D only

Correct Answer : 3

Your Answer :

QuestionID : 15087      Subject Name SE

Q10. The waterfall model of the software process considers each process activity as a \_\_\_\_\_ phase

1. separate
2. discrete
3. Both a and b options
4. None of the above

Correct Answer : 3

Your Answer :

QuestionID : 15089      Subject Name SE

Q11. Prototype may be used for

1. Risk Reduction
2. Requirements Elicitation
3. User Interface Design
4. all of the above

Correct Answer : 4

Your Answer :

QuestionID : 15090      Subject Name SE

Q12. RAD stands for

1. Rapid Application Development
2. Random Access Disc
3. Random Application Driver
4. Rapid Alignment Disc

Correct Answer : 1

Your Answer :

QuestionID : 15100      Subject Name SE

Q13. During the \_\_\_\_\_ phase of the systems life cycle, the new hardware and software are acquired and tested

1. design

2. development
3. implementation
4. maintenance

Correct Answer : 3

Your Answer :

QuestionID : 15108      Subject Name SE

Q14. Which of the following is seen in the DFD but not in the Context Diagram

1. Data Sources
2. Data Flows
3. Data Stores
4. Users

Correct Answer : 3

Your Answer :

QuestionID : 15110      Subject Name SE

Q15. "Balancing of DFD" is means

1. conservation of inputs & outputs at various levels
2. Sub dividing a process into smaller subprocesses
3. Labelling of all data items
4. Allowing data flows to take place only to or from processes

Correct Answer : 1

Your Answer :

QuestionID : 15111      Subject Name SE

Q16. DFD gives idea about flow of \_\_\_\_\_ & flowchart gives idea of the flow of \_\_\_\_\_

1. processes, decisions
2. control, data

3. logic, control

4. data, control

Correct Answer : 4

Your Answer :

QuestionID : 15117      Subject Name SE

Q17. Example of a Semantic Data model is

1. data flow diagram
2. Context Diagram
3. Entity Relationship Diagram
4. all of the above

Correct Answer : 3

Your Answer :

QuestionID : 15123      Subject Name SE

Q18. The ways of describing specifications at different levels of detail include

1. requirements definition
2. requirements specification
3. both a and b options
4. None of these options

Correct Answer : 3

Your Answer :

QuestionID : 15125      Subject Name SE

Q19. A system developed to give end users a concrete impression of the system capabilities is called

1. Semantics
2. model
3. prototype

4. abstraction

Correct Answer : 3

Your Answer :

QuestionID : 15127      Subject Name SE

Q20. The requirement engineering process has the following stages, Except

1. Feasibility study
2. Requirement analysis
3. Implementation
4. Requirement definition

Correct Answer : 3

Your Answer :

QuestionID : 15131      Subject Name SE

Q21. Find the odd one out

1. Axiomatic Specification
2. Algebraic Specification
3. Z Specification
4. Data Flow Diagram

Correct Answer : 4

Your Answer :

QuestionID : 15132      Subject Name SE

Q22. Planning the solution to a programming problem using a structured technique is called program

1. coding
2. compiling
3. moduling
4. design

Correct Answer : 4

Your Answer :

QuestionID : 15135      Subject Name SE

Q23. Conception & planning out of externally observable characteristics of a software is called

1. External Design
2. User Interface Design
3. Both a and b options
4. None of the above

Correct Answer : 3

Your Answer :

QuestionID : 15157      Subject Name SE

Q24. The afferent branch of the DFD ends at the

1. Most Abstract Input
2. Most Abstract Output
3. middle of the central transform
4. all of the above

Correct Answer : 1

Your Answer :

QuestionID : 15169      Subject Name SE

Q25. A programmer must follow the rules for coding a particular programming language. These rules are called:

1. pseudocode
2. iteration
3. syntax
4. documentation

Correct Answer : 3

Your Answer :

QuestionID : 15176      Subject Name SE

Q26. Use of coding standards

1. eases the task of integration of software modules
2. enhances the maintainability of the software
3. enhances reusability of the software
4. All of these options

Correct Answer : 4

Your Answer :

QuestionID : 15183      Subject Name SE

Q27. Static verification of code is not likely to reveal

1. logic errors
2. syntax errors
3. performance errors
4. coding standard violations

Correct Answer : 3

Your Answer :

QuestionID : 15187      Subject Name SE

Q28. Which of the following is NOT true with regard to Testing & Debugging

1. Testing includes debugging
2. Debugging includes retesting
3. Testing only establishes presence of defects
4. Debugging repairs the program defects

Correct Answer : 1

Your Answer :

QuestionID : 15188      Subject Name SE

Q29. Which factor among the following has least effect on the testability of a software ?

1. Decomposability
2. Efficiency
3. Understandability
4. Observability

Correct Answer : 2

Your Answer :

QuestionID : 15189      Subject Name SE

Q30. Identification of inputs which cause anomalous behavior in the outputs indicating the existence of defects is

1. Static Testing
2. White Box Testing
3. Black Box Testing
4. Interface testing

Correct Answer : 3

Your Answer :

QuestionID : 15195      Subject Name SE

Q31. Purely black box testing would be used at which of the following levels?

1. Unit testing
2. Module testing
3. Integration Testing
4. Acceptance Testing

Correct Answer : 4

Your Answer :

QuestionID : 15203      Subject Name SE

Q32. A Test case includes

1. Input
2. Expected output
3. information of function under test
4. All of these options

Correct Answer : 4

Your Answer :

QuestionID : 15209      Subject Name SE

Q33. In unit testing which of the following is the strongest testing strategy?

1. Statement coverage
2. Branch Coverage
3. Condition Coverage
4. Path coverage

Correct Answer : 4

Your Answer :

QuestionID : 15212      Subject Name SE

Q34. Selection of test paths according to definition & usage of different variables in the program is called

1. Path coverage testing
2. Condition Coverage testing
3. Data Flow Testing
4. Branch Coverage Testing

Correct Answer : 3

Your Answer :

QuestionID : 15214      Subject Name SE

Q35. \_\_\_\_\_ exercises the system beyond its maximum design load

1. Thread testing
2. Stress Testing
3. Back to back testing
4. all of the above

Correct Answer : 2

Your Answer :

QuestionID : 15225      Subject Name SE

Q36. Compared to small team projects large team projects are

1. more sensitive to programmer ability
2. less sensitive to programmer ability
3. not sensitive to programmer ability
4. None of these

Correct Answer : 2

Your Answer :

QuestionID : 15229      Subject Name SE

Q37. COCOMO is categorizes as a \_\_\_\_\_ estimation technique

1. Heuristic
2. Empirical
3. Analytical
4. None of the above

Correct Answer : 1

Your Answer :

QuestionID : 15235      Subject Name SE

Q38. In COCOMO terminology a project with software being strongly coupled to complex hardware & stringent regulations on operating procedures is categorised as

1. Organic

2. Semidetached
3. Embedded
4. Application

Correct Answer : 3

Your Answer :

QuestionID : 15236      Subject Name SE

Q39. Which version of COCOMO develops estimates for large projects as sum of estimates of its various subsystems by considering the differences in the complexities of its various subsystems

1. Basic COCOMO
2. Intermediate COCOMO
3. Complete COCOMO
4. None of the above

Correct Answer : 3

Your Answer :

QuestionID : 15244      Subject Name SE

Q40. \_\_\_\_\_ shows the dependencies between the different activities making up a project.

1. PERT chart
2. Bar chart
3. Staffing Plan
4. Pi chart

Correct Answer : 1

Your Answer :

QuestionID : 15248      Subject Name SE

Q41. Which of the following is true as per Putnam model

1. Staffing Pattern peaks at Coding & Unit testing
2. Schedule compression increases effort in proportion to fourth power

- 3. Expanding the schedule gives extreme saving in effort
- 4. all of the above

Correct Answer : 4

Your Answer :

QuestionID : 15253      Subject Name SE

Q42. Risk Assesment Table is based on categorization by

- 1. Risk Components
- 2. Risk Impact
- 3. Both a and b options
- 4. None of the above

Correct Answer : 3

Your Answer :

QuestionID : 15257      Subject Name SE

Q43. Risks arising out of frequent change requests are best mitigated by

- 1. User characterization
- 2. Strong SCM
- 3. Multisource estimations
- 4. Prescheduling key personnel

Correct Answer : 2

Your Answer :

QuestionID : 15260      Subject Name SE

Q44. A change request has to be evaluated for

- 1. its technical merit
- 2. cost & schedule impacts
- 3. side effects

4. All of these options

Correct Answer : 4

Your Answer :

QuestionID : 15971      Subject Name SE

Q45. Requirement phase is usually done by

1. System Analyst
2. System Administrator
3. System Engineer
4. All

Correct Answer : 1

Your Answer :

QuestionID : 15975      Subject Name SE

Q46. Productivity can measure from the relationship

1. Productivity=KLOC/person-month
2. Productivity=KLOC/defects
3. Productivity=KLOC/LOC
4. Productivity=KLOC\*person-month

Correct Answer : 1

Your Answer :

QuestionID : 15976      Subject Name SE

Q47. The goal of coding is

1. To reduce the cost of testing
2. To reduce the cost of maintenance
3. Both a & b
4. None

Correct Answer : 3

Your Answer :

QuestionID : 15981      Subject Name SE

Q48. CASE is expanded as

1. Computer Analysis Software Engineering
2. Computer Aided Software Engineering
3. Computer Aided System Engineering
4. Computer Analysis System Engineering

Correct Answer : 2

Your Answer :

QuestionID : 15983      Subject Name SE

Q49. Structural approach is also known as

1. Glass box testing
2. Black box testing
3. Input box testing
4. Output box testing

Correct Answer : 1

Your Answer :

QuestionID : 15985      Subject Name SE

Q50. Three major factor of software engineering are

1. Cost , Correctness , Reliability
2. Cost , Schedule , Reliability
3. Cost , Quality ,Correctness
4. Cost , Portability , Reliability

Correct Answer : 2

Your Answer :

Q1. In use-case diagram, what is system illustrated by?

1. oval
2. box
3. circle
4. triangle

Correct Answer : 2

Your Answer :

QuestionID : 16010      Subject Name SE Spl.

Q2. All models of a system shuould have same precision

Correct Answer : F

Your Answer :

QuestionID : 16016      Subject Name SE Spl.

Q3. UML supports \_\_\_\_\_ phases of software development

1. earlier
2. final
3. middle
4. all

Correct Answer : 4

Your Answer :

QuestionID : 16023      Subject Name SE Spl.

Q4. requirement analysis \_\_\_\_\_

1. delivers a system in a series of versions
2. organizes abstraction
3. builds a bridge between user and developer

4. uses experimental software to better understand user requirements

Correct Answer : 3

Your Answer :

QuestionID : 16033     Subject Name SE Spl.

Q5. What is type of software maintainance?

1. adaptive
2. corrective
3. perfective
4. obsolescence

Correct Answer : 4

Your Answer :

QuestionID : 16034     Subject Name SE Spl.

Q6. Which is an iterative process through which the requirements are translated to "blueprint" for constructing software

1. testing
2. requirement analysis
3. design
4. maintenance

Correct Answer : 3

Your Answer :

QuestionID : 16043     Subject Name SE Spl.

Q7. which of the following activities of SDLC involves choosing a system structure capable of satisfying requirement specification?

1. requirement analysis
2. design
3. coding

4. testing

Correct Answer : 2

Your Answer :

QuestionID : 16046      Subject Name SE Spl.

Q8. pick up the odd one out of the following

1. data flow diagram
2. object identification
3. structural decomposition
4. E-R diagrams

Correct Answer : 2

Your Answer :

QuestionID : 16060      Subject Name SE Spl.

Q9. Pick up one of the testing methods given below that is part of white-box testing

1. equivalence partitioning
2. boundary value analysis
3. basis and testing
4. debugging

Correct Answer : 3

Your Answer :

QuestionID : 16063      Subject Name SE Spl.

Q10. ----- Lifecycle model describe how software system should be developed and describe how software are actually developed.

1. Prescriptive & Descriptive
2. Prescriptive & Definitive
3. Descriptive & Prescriptive
4. Descriptive & Intuitive

Correct Answer : 1

Your Answer :

QuestionID : 16064      Subject Name SE Spl.

Q11. The requirement phase consist of

- a) Problem analysis b) Requirement specification
- c) Requirement validation d) Problem validation

1. a, b, c

2. a, b, c, d

3. a, b, d

4. a, c, d

Correct Answer : 2

Your Answer :

QuestionID : 16067      Subject Name SE Spl.

Q12. Which is not a type of maintenance?

- 1. Adaptive
- 2. Corrective
- 3. Perfective
- 4. Obsolescence

Correct Answer : 4

Your Answer :

QuestionID : 16071      Subject Name SE Spl.

Q13. COCOMO is an effort estimation model in terms of \_\_\_\_\_

- 1. Cost
- 2. Person- Months

- 3. Both
- 4. None of the above

Correct Answer : 2

Your Answer :

QuestionID : 16072      Subject Name SE Spl.

Q14. \_\_\_\_\_ is a method for estimating the software

- 1. COCOMO
- 2. Function Point Analysis
- 3. Use Case Estimation
- 4. All of the above

Correct Answer : 4

Your Answer :

QuestionID : 16074      Subject Name SE Spl.

Q15. The elements of the software architecture of a computing system include

- 1. software components
- 2. class diagrams
- 3. connectors expressing relationships between software components
- 4. entity relationship diagrams

- 1. 1 & 2
- 2. 1 & 3
- 3. 1, 3 & 4
- 4. 1, 2, 3 & 4

Correct Answer : 2

Your Answer :

QuestionID : 17618      Subject Name SE Spl.

Q16. Ability of a software to perform stated function under stated condition for a stated period of time

1. Effeciency
2. Robustness
3. Reliability
4. Correctness

Correct Answer : 3

Your Answer :

QuestionID : 17619      Subject Name SE Spl.

Q17. Ability of a software to perform intended function with minimum consumption of computing resources

1. Effeciency
2. Robustness
3. Reliability
4. Correctness

Correct Answer : 1

Your Answer :

QuestionID : 17620      Subject Name SE Spl.

Q18. Ability to deal with exceptional conditions e.g. invalid input, improper handling, power failure, disk crash etc.

1. Effeciency
2. Robustness
3. Reliability
4. Correctness

Correct Answer : 2

Your Answer :

QuestionID : 17621      Subject Name SE Spl.

Q19. Maintainability is the ease with which a software can

1. be corrected if an error is encountered
2. adapted if its environment changes
3. enhanced if the customer desires a change in requirements
4. all of above

Correct Answer : 4

Your Answer :

QuestionID : 17633      Subject Name SE Spl.

Q20. The type of testing carried out along with coding is called

1. system testing
2. unit testing
3. pretesting
4. stress testing

Correct Answer : 2

Your Answer :

QuestionID : 17637      Subject Name SE Spl.

Q21. The goal of \_\_\_\_\_ is to obtain a clear understanding of the system and its shortcomings and to determine opportunities for improvement

1. Feasibility study
2. systems analysis
3. systems definition
4. systems study

Correct Answer : 2

Your Answer :

QuestionID : 17639      Subject Name SE Spl.

Q22. Any activity designed to keep programs in working condition, error free, and up-to-date, is referred to as \_\_\_\_\_

1. maintenance
2. testing
3. debugging
4. coding

Correct Answer : 1

Your Answer :

QuestionID : 17645      Subject Name SE Spl.

Q23. The type of software maintainence which is done to remove bugs or defects in the software is called

1. Corrective Maintainence
2. Adaptive Maintainence
3. Regressive Maintainence
4. Perfective Maintainence

Correct Answer : 1

Your Answer :

QuestionID : 17650      Subject Name SE Spl.

Q24. Pick up the odd one out of the following process models

1. Component assembly model
2. Prototyping Model
3. Spiral model
4. Waterfall Model

Correct Answer : 4

Your Answer :

QuestionID : 17657      Subject Name SE Spl.

Q25. RAD stands for

1. Rapid Application Development
2. Random Access Disc
3. Random Application Driver
4. Rapid Alignment Disc

Correct Answer : 1

Your Answer :

QuestionID : 17660      Subject Name SE Spl.

Q26. Which of the following is not true about Component Assembly Model

1. It is similar to the Spiral Model
2. The technical framework for this model is provided by object technologies
3. Candidate classes are extracted from class library or developed
4. Its productivity is low

Correct Answer : 4

Your Answer :

QuestionID : 17672      Subject Name SE Spl.

Q27. Which of the following is not true about the context diagram?

1. It does not show details of the functioning
2. It shows major inputs & outputs of the system
3. It shows the external entities of the system
4. It shows the datastores of the system

Correct Answer : 4

Your Answer :

QuestionID : 17679      Subject Name SE Spl.

**Q28.** Which model used to show data processing at different levels of abstraction from fairly abstract to fairly detailed

1. Semantic Data Models
2. Object Model
3. Data Flow Models
4. Service Usage Models

Correct Answer : 3

Your Answer :

QuestionID : 17680      Subject Name SE Spl.

**Q29.** Data Items in a data dictionary are description of

1. Input data
2. data flows
3. data stores
4. All of the above

Correct Answer : 4

Your Answer :

QuestionID : 17688      Subject Name SE Spl.

**Q30.** The ways of describing specifications at different levels of detail include

1. requirements definition
2. requirements specification
3. both a and b options
4. None of these options

Correct Answer : 3

Your Answer :

QuestionID : 17691      Subject Name SE Spl.

**Q31.** Stable requirements are

1. Requirements related to the core activities of software customer
2. Requirements which are dependent on the environment where the delivered system is to be used
3. both a and b options
4. none of these options

Correct Answer : 1

Your Answer :

QuestionID : 17703      Subject Name SE Spl.

Q32. Providing a logical reference to the data object without concern for the underlying representation is

1. Procedural Abstraction
2. Data Abstraction
3. Control Abstraction
4. None of the above

Correct Answer : 2

Your Answer :

QuestionID : 17706      Subject Name SE Spl.

Q33. Functional Independence is not achieved by

1. Coupling
2. Modularity
3. Information Hiding
4. Any of the above

Correct Answer : 1

Your Answer :

QuestionID : 17709      Subject Name SE Spl.

Q34. If two modules are coupled without exchange of data or control information then they exhibit

1. Normal Coupling

- 2. Stamp Coupling
- 3. Control Coupling
- 4. Common Coupling

Correct Answer : 1

Your Answer :

QuestionID : 17712      Subject Name SE Spl.

Q35. Use of global data areas or global variables may lead to

- 1. Stamp Coupling
- 2. Common Coupling
- 3. Content Coupling
- 4. Control Coupling

Correct Answer : 2

Your Answer :

QuestionID : 17717      Subject Name SE Spl.

Q36. Which of the following is a graphical tool for software design?

- 1. Data Flow Diagram
- 2. Structure Chart
- 3. Decision Tree
- 4. all of the above

Correct Answer : 4

Your Answer :

QuestionID : 17728      Subject Name SE Spl.

Q37. Which of the following is true with respect to function oriented & object oriented design methodologies

- 1. They vary in the basic abstractions they use
- 2. They vary in the way state information is maintained

- 3. They vary in the way functions are grouped
- 4. All of the above

Correct Answer : 4

Your Answer :

QuestionID : 17729      Subject Name SE Spl.

Q38. \_\_\_\_\_ involves modeling a system as a set of interacting functional units.

- 1. Object oriented decomposition
- 2. Procedural decomposition
- 3. Functional decomposition
- 4. None of the above

Correct Answer : 3

Your Answer :

QuestionID : 17730      Subject Name SE Spl.

Q39. What manifests in the patterns of choices made among alternatives ways of expressing an algorithm is

- 1. a data flow diagram
- 2. coding style
- 3. a data dictionary
- 4. None of these options

Correct Answer : 2

Your Answer :

QuestionID : 17739      Subject Name SE Spl.

Q40. Changes made to the software to correct defects uncovered after delivery is called

- 1. perfective maintainence
- 2. regressive maintainence
- 3. adaptive maintainence

4. corrective maintainence

Correct Answer : 4

Your Answer :

QuestionID : 17742      Subject Name SE Spl.

Q41. Major changes made to software after long periods is also called software reengineering or

1. perfective maintainence
2. regressive maintainence
3. adaptive maintainence
4. corrective maintainence

Correct Answer : 2

Your Answer :

QuestionID : 17747      Subject Name SE Spl.

Q42. Arrang the following in the correct sequence of software estimation a. Schedule Estimation b. Effort Estimation c. Cost Estimation d. Size estimation

1. b, c, a, d
2. c, a, b, d
3. d, b, a, c
4. a, c, d, b

Correct Answer : 3

Your Answer :

QuestionID : 17753      Subject Name SE Spl.

Q43. Final Function point count calculated for project will result in the smallest LOC if implemented in

1. Assembly
2. C
3. C++
4. Visual Basic

Correct Answer : 4

Your Answer :

QuestionID : 17761      Subject Name SE Spl.

Q44. Project schedule can be illustrated using

1. DFD and ERD
2. Bar chart
3. Activity chart
4. Both b and c options

Correct Answer : 4

Your Answer :

QuestionID : 17763      Subject Name SE Spl.

Q45. Most of the project plans should include

1. Risk analysis
2. Project organization
3. Project schedule
4. All of the above

Correct Answer : 4

Your Answer :

QuestionID : 17764      Subject Name SE Spl.

Q46. \_\_\_\_\_ shows the dependencies between the different activities making up a project.

1. PERT chart
2. Bar chart
3. Staffing Plan
4. Pi chart

Correct Answer : 1

Your Answer :

QuestionID : 17770      Subject Name SE Spl.

Q47. Chief Programmer Teams are suitable for projects

1. with research orientation
2. with high modularity
3. with high creativity
4. None of these

Correct Answer : 2

Your Answer :

QuestionID : 17772      Subject Name SE Spl.

Q48. Arrange the following activities in Risk Assesment in the correct sequence a. Prioritization b. Identification c. Analysis

1. b, a, c
2. b, c, a
3. a, b, c
4. c, a, b

Correct Answer : 2

Your Answer :

QuestionID : 17774      Subject Name SE Spl.

Q49. Judging the seriousness of a risk by evaluating its probability along with its consequences is called

1. Risk analysis
2. Risk Projection
3. Risk Estimation
4. all of the above

Correct Answer : 4

Your Answer :

QuestionID : 17775      Subject Name SE Spl.

Q50. The RMMM plan is generally included in the

1. Feasibility Study
2. Project Plan
3. SRS Document
4. Project Legacy

Correct Answer : 2

Your Answer :



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## Hi DAC You have scored :

**0** QuestionID : 15995 Subject Name SE Spl.

Q1. Towards end of the design phase, \_\_\_\_\_ should be allocated to source code components.

1. use cases
2. relationships
3. models
4. classes

**Correct Answer : 4**

Your Answer :

QuestionID : 15996 Subject Name SE Spl.

Q2. Identify the true statements about using a process for software development

- a. process usually divide software development into phases
- b. processes provide guidelines for what to do at each phase of development
- c. processes are used only during analysis phase of a project
- d. processes make it easier to measure progress of a project

1. a, c
2. a, b
3. a, b, d
4. a, c, d

**Correct Answer : 3**

Your Answer :

QuestionID : 15997 Subject Name SE Spl.

Q3. What do you think is the first step you should take in designing any project?

1. design a prototype
2. create the test cases
3. define problem domain and produce problem statement
4. draw up a plan for entire project

**Correct Answer : 3**

Your Answer :

QuestionID : 15998 Subject Name SE Spl.

Q4. Which of the following best describes what the problem domain is?

1. kinds of resources available to development team
2. surroundings in which system operate
3. set of all functionality required of a system
4. list of technical details needed to implement project

**Correct Answer : 2**

Your Answer :

QuestionID : 16017 Subject Name SE Spl.

Q5. Analysis takes place from \_\_\_\_\_ perspective and design takes place from \_\_\_\_\_ perspective

1. user, user
2. user, developer
3. developer, user
4. developer, developer

**Correct Answer : 2**

Your Answer :

QuestionID : 16019 Subject Name SE Spl.

Q6. An effective way to understand a complex process is to break it in smaller pieces using process called as \_\_\_\_\_

1. integration
2. composition

- 3. decomposition
- 4. abstraction

**Correct Answer : 3**

Your Answer :

QuestionID : 16020 Subject Name SE Spl.

Q7. In OOD primary abstraction mechanism is \_\_\_\_\_

- 1. function
- 2. class
- 3. object
- 4. hierarchy

**Correct Answer : 2**

Your Answer :

QuestionID : 16021 Subject Name SE Spl.

Q8. The \_\_\_\_\_ phase of SDLC aims at ensuring software product is as per requirements.

- 1. design
- 2. development
- 3. testing
- 4. deployment

**Correct Answer : 3**

Your Answer :

QuestionID : 16027 Subject Name SE Spl.

Q9. prototyping model \_\_\_\_\_

- 1. delivers a system in a series of versions
- 2. builds a bridge between user and developer
- 3. uses experimental software to better understand user requirements
- 4. works with encapsulation and inheritance to simplify flow of control

**Correct Answer : 3**

Your Answer :

QuestionID : 16033 Subject Name SE Spl.

Q10. What is type of software maintenance?

- 1. adaptive
- 2. corrective
- 3. perfective
- 4. obsolescence

**Correct Answer : 4**

Your Answer :

QuestionID : 16039 Subject Name SE Spl.

Q11. COCOMO is an Effort Estimation model in terms of

- 1. cost
- 2. person months
- 3. both of the above
- 4. none of the above

**Correct Answer : 3**

Your Answer :

QuestionID : 16052 Subject Name SE Spl.

Q12. Which is not part of testing?

- 1. white box testing
- 2. black box testing
- 3. inner testing
- 4. gorilla testing

**Correct Answer : 3**

Your Answer :

QuestionID : 16057 Subject Name SE Spl.

Q13. largest time is spent on which of the software development phase?

- 1. testing
- 2. enhancement
- 3. bug fixing

4. analysis and design

**Correct Answer : 2**

Your Answer :

QuestionID : 16059      Subject Name SE Spl.

**Q14. DFD is not a**

1. logical model of system
2. good guide to a system
3. representation of physical stream
4. all of the above

**Correct Answer : 1**

Your Answer :

QuestionID : 16064      Subject Name SE Spl.

**Q15. The requirement phase consist of**

- a) Problem analysis b) Requirement specification
- c) Requirement validation d) Problem validation

1. a, b, c
2. a, b, c, d
3. a, b, d
4. a, c, d

**Correct Answer : 2**

Your Answer :

QuestionID : 17628      Subject Name SE Spl.

**Q16. Process visibility is enhanced by**

1. Defining clear cut phases
2. Producing documents related to each phase
3. Conducting reviews & checks
4. all of the above

**Correct Answer : 4**

Your Answer :

QuestionID : 17633      Subject Name SE Spl.

**Q17. The type of testing carried out along with coding is called**

1. system testing
2. unit testing
3. pretesting
4. stress testing

**Correct Answer : 2**

Your Answer :

QuestionID : 17639      Subject Name SE Spl.

**Q18. Any activity designed to keep programs in working condition, error free, and up-to-date, is referred to as \_\_\_\_\_**

1. maintenance
2. testing
3. debugging
4. coding

**Correct Answer : 1**

Your Answer :

QuestionID : 17641      Subject Name SE Spl.

**Q19. The present system is studied in depth during the \_\_\_\_\_ phase of the systems life cycle.**

1. preliminary investigation
2. systems analysis
3. systems design
4. systems development

**Correct Answer : 2**

Your Answer :

QuestionID : 17648      Subject Name SE Spl.

**Q20. The SDLC Model most suitable for large projects with clear knowledge & priority of requirements is**

1. Spiral Model
2. Incremental Model
3. Waterfall Model

4. Prototyping Model

**Correct Answer : 2**

Your Answer :

QuestionID : 17657      Subject Name SE Spl.

**Q21. RAD stands for**

1. Rapid Application Development
2. Random Access Disc
3. Random Application Driver
4. Rapid Alignment Disc

**Correct Answer : 1**

Your Answer :

QuestionID : 17662      Subject Name SE Spl.

**Q22. The majority of the lifetime of a program is spent in the \_\_\_\_\_ phase**

1. Maintenance
2. Analysis
3. Design
4. Testing

**Correct Answer : 1**

Your Answer :

QuestionID : 17664      Subject Name SE Spl.

**Q23. In Boehm's spiral model, each loop in the spiral represents \_\_\_\_\_ of the software process**

1. phase
2. design
3. documentation
4. none of the above

**Correct Answer : 1**

Your Answer :

QuestionID : 17679      Subject Name SE Spl.

**Q24. Which model used to show data processing at different levels of abstraction from fairly abstract to fairly detailed**

1. Semantic Data Models
2. Object Model
3. Data Flow Models
4. Service Usage Models

**Correct Answer : 3**

Your Answer :

QuestionID : 17680      Subject Name SE Spl.

**Q25. Data Items in a data dictionary are description of**

1. Input data
2. data flows
3. data stores
4. All of the above

**Correct Answer : 4**

Your Answer :

QuestionID : 17688      Subject Name SE Spl.

**Q26. The ways of describing specifications at different levels of detail include**

1. requirements definition
2. requirements specification
3. both a and b options
4. None of these options

**Correct Answer : 3**

Your Answer :

QuestionID : 17689      Subject Name SE Spl.

**Q27. The flow of data within a system is described by a**

1. data flow diagram
2. top-down analysis
3. system flowchart
4. decision table

4. decision table

**Correct Answer : 1**

Your Answer :

QuestionID : 17690 Subject Name SE Spl.

Q28. A system developed to give end users a concrete impression of the system capabilities is called

1. Semantics
2. model
3. prototype
4. abstraction

**Correct Answer : 3**

Your Answer :

QuestionID : 17705 Subject Name SE Spl.

Q29. The number of subordinate modules controlled by a module is called its

1. control range
2. fan out
3. fan in
4. width

**Correct Answer : 2**

Your Answer :

QuestionID : 17706 Subject Name SE Spl.

Q30. Functional Independence is not achieved by

1. Coupling
2. Modularity
3. Information Hiding
4. Any of the above

**Correct Answer : 1**

Your Answer :

QuestionID : 17710 Subject Name SE Spl.

Q31. If two modules pass a data structure across their interface they exhibit

1. Stamp Coupling
2. Data Coupling
3. Content Coupling
4. Control Coupling

**Correct Answer : 1**

Your Answer :

QuestionID : 17718 Subject Name SE Spl.

Q32. Function oriented design process consists of

1. Data Flow Design
2. Structural decomposition
3. Detailed Design
4. all of the above

**Correct Answer : 4**

Your Answer :

QuestionID : 17720 Subject Name SE Spl.

Q33. The method of deriving the structure chart from the DFD is called

1. Factoring
2. Factor Analysis
3. Transform Analysis
4. all of the above

**Correct Answer : 3**

Your Answer :

QuestionID : 17726 Subject Name SE Spl.

Q34. Which of the following is not true about a flow chart?

1. It shows the flow of control of a program
2. It is a tool for detailed design
3. Data interchange is not represented
4. It clearly separates various modules of the software

**Correct Answer : 4**

Your Answer :

QuestionID : 17730      Subject Name SE Spl.

Q35. What manifests in the patterns of choices made among alternatives ways of expressing an algorithm is

1. a data flow diagram
2. coding style
3. a data dictionary
4. None of these options

**Correct Answer : 2**

Your Answer :

QuestionID : 17732      Subject Name SE Spl.

Q36. Typographical errors and/or incorrect use of the programming language is referred to as

1. logic errors
2. syntax errors
3. run time errors
4. A bug

**Correct Answer : 2**

Your Answer :

QuestionID : 17739      Subject Name SE Spl.

Q37. Changes made to the software to correct defects uncovered after delivery is called

1. perfective maintainence
2. regressive maintainence
3. adaptive maintainence
4. corrective maintainence

**Correct Answer : 4**

Your Answer :

QuestionID : 17742      Subject Name SE Spl.

Q38. Major changes made to software after long periods is also called software reengineering or

1. perfective maintainence
2. regressive maintainence
3. adaptive maintainence
4. corrective maintainence

**Correct Answer : 2**

Your Answer :

QuestionID : 17745      Subject Name SE Spl.

Q39. Which of the following is not a part of Project Plan?

1. Risk Management Plan
2. Personnel Plan
3. Project Monitoring Plan
4. Software Architecture Planning

**Correct Answer : 4**

Your Answer :

QuestionID : 17747      Subject Name SE Spl.

Q40. Arrang the following in the correct sequence of software estimation a. Schedule Estimation b. Effort Estimation c. Cost Estimation d. Size estimation

1. b, c, a, d
2. c, a, b, d
3. d, b, a, c
4. a, c, d, b

**Correct Answer : 3**

Your Answer :

QuestionID : 17749      Subject Name SE Spl.

Q41. COCOMO is categorizes as a \_\_\_\_\_ estimation technique

1. Heuristic
2. Empirical
3. Analytical

4. None of the above

**Correct Answer : 1**

Your Answer :

QuestionID : 17762 Subject Name SE Spl.

**Q42. The total float for an activity is**

1. the total duration of the activity
2. the difference between the earliest finish time and earliest start time
3. the difference between the latest finish time and the earliest finish time
4. the difference between the latest finish time and the earliest start time

**Correct Answer : 3**

Your Answer :

QuestionID : 17765 Subject Name SE Spl.

**Q43. The minimum time required to finish the project can be estimated by considering the \_\_\_\_\_ path in the activity graph**

1. Shortest
2. Longest
3. Average
4. SPT

**Correct Answer : 2**

Your Answer :

QuestionID : 17768 Subject Name SE Spl.

**Q44. Which of the following is true as per Putnam model**

1. Staffing Pattern peaks at Coding & Unit testing
2. Schedule compression increases effort in proportion to fourth power
3. Expanding the schedule gives extreme saving in effort
4. all of the above

**Correct Answer : 4**

Your Answer :

QuestionID : 17772 Subject Name SE Spl.

**Q45. Arrange the following activities in Risk Assessment in the correct sequence a. Prioritization b. Identification c. Analysis**

1. b, a, c
2. b, c, a
3. a, b, c
4. c, a, b

**Correct Answer : 2**

Your Answer :

QuestionID : 17782 Subject Name SE Spl.

**Q46. \_\_\_\_\_ ensures that a set procedure is followed to make any changes to the software**

1. Configuration Identification
2. Configuration Control
3. Baselining
4. all of the above

**Correct Answer : 2**

Your Answer :

QuestionID : 17783 Subject Name SE Spl.

**Q47. Configuration Management is**

1. framework activity
2. umbrella activity
3. one time activity
4. None of the above

**Correct Answer : 3**

Your Answer :

QuestionID : 17784 Subject Name SE Spl.

**Q48. Under SCM the various SCIs are strictly maintained**

1. by their respective authors
2. by the appropriate team

- 1. in a local project database
- 3. in a central project database
- 4. all of the above

**Correct Answer : 3**

Your Answer :

QuestionID : 17785      Subject Name SE Spl.

**Q49. Software quality managers are responsible for \_\_\_\_.**

- 1. Quality assurance
- 2. Quality planning
- 3. Quality control
- 4. All of the above

**Correct Answer : 4**

Your Answer :

QuestionID : 17788      Subject Name SE Spl.

**Q50. As per SEI CMM organizations which exhibit continuous process improvement and can adapt to changing technology & changing process are considered at**

- 1. Level 2
- 2. Level 3
- 3. Level 4
- 4. Level 5

**Correct Answer : 4**

Your Answer :



## **Question Paper – Software Engg.**

**14.** An important aspect in coding is

- a. **Readability**
- b. productivity
- c. to use as small memory as possible.
- d. brevity.

**15.** One way to improve readability in coding is to

- a. **avoid goto statements.**
- b. name variables & functions according to their use
- c. modular the program.
- d. none of the above.

**16.** The data flow model of an application mainly shows

- a.the underlying data and relationship among them
- b. processing requirements and the flow of data.**
- C.decision and control information.
- D.communication network structure

**17.** According to Brooks, if n is the number of programmers in a project team then the number of communication path is

- a. **n (n-1)/2**
- b.  $n \log n$
- c. n
- d.  $n(n+1)/2$

**18.** The extent to which the software can control to operate correctly despite the introduction of invalid input is called as

- a. reliability
- b. robustness**
- c. fault tolerance
- d. portability

**19.** If the number of conditions in a condition table is n, then maximum number of rules (column) possible is

- a. n
- b.  $2^n$**
- c.  $2^n$
- d.  $\log_2 n$

**20.** Which of the following is not true?

- a. Content coupling in a module is desirable.**
- b. Logical cohesion in a module is desirable.**
- C.Stap coupling is preferred over functional coupling.
- d. All the above.**

**21.** Configuration management is not concerned with

- a. controlling changes to source code**
- b. choice of hardware configuration for an application**
- C.controlling documentation changes
- d. maintaining versions of software**

**22.** Railway reservation system currently operational in India can be classified as a

- a. catch processing system
- b. real - time system**
- c. on-line system**
- d. expert system

**23.** Data flow diagram, regular expression and transition table can be combined to provide \_\_\_\_\_ for functional specification of system software

- a. decision table
- b. finite state automata**
- c. event table
- d. none of the above

**24.** A program P calls two subprograms P1 and P2. P1 can fail 50% times and P2 can fail 40% times. P can fail

- a. 50%
- b. 60%
- c. 10%
- d. 70%**

**25.** Probability of success of two modules in unit testing of 0.9 each. The probability of success of integration testing is 0.9. The joint probability of success is

- a. 0.9
- b. 0.81
- c. 0.729**
- d. 0.1

**26.** Which of the following graph theoretic concept will be useful in software testing?

- a. **Cyclomatic number**
- b. Hamiltonian circuit
- c. Eulerian cycle
- d. None of the above

**27.** In a decision table if there are 3 variables and 3 rules, it implies

- a. **specification may not be complete**
- b. design could be faculty
- c. coding will be incorrect
- d. all of the above

**28.** Which of the following software engineering concept does Ada language support?

- a. Abstraction
- b. Generic
- c. Information hiding
- d. All of the above**

**29.** Which of the following testing method is normally used as the acceptance test for a software system

- a. regression testing
- b. integration testing
- c. unit testing
- d. function testing**

**30.** A computer program can often be very satisfactory \_\_\_\_\_ of a physical system such as road traffic conditions

- a. solution
- b. replacement
- c. simulation**
- d. model

**31.** On an average, the programmer months is given by  $3.6 \times (\text{KDSI})^{1.2}$ . If so, a project requiring one thousand source instruction will require

- a. 3.6 PM**
- b. 0.36PM
- c. 0.036PM
- d. 7.23PM

**32.** Considering a program graph (PG) with statement as vertices and control as edges, which of the following is not true for any program graph?

- a. **PG is always acyclic**
- b. PG is always directed graph
- c. There won't be any self loop
- d. PG is always a connected graph.

**33.** In object oriented design of software, objects have

- a. attributes and name only
- b. operations and name only
- c. attributes name and operations**
- d. none of the above

**34.** Which one is maximum effort distribution in phases of software development?

- a. Requirement analysis
- b. Design phase
- c. Coding
- d. Testing**

**35.** Which one is minimum effort distribution in phases of software development?

- a. Requirement analysis**
- b. Design phase
- c. Coding
- d. Testing

**36.** In testing phase, how much effort distribution?

- a. 10%
- b. 20%
- c. 40%
- d. 50%**

**37.** How many types of design phase?

- a. one
- b. two**
- c. three
- d. four

**38.** In which phase maximum error distribution?

- a. Requirement analysis
- b. Design
- c. Coding**
- d. Testing

**39.** In which phase minimum error distribution in the period of software development?

- a. Requirement analysis**
- b. Design
- c. Coding
- d. Testing

**40.** How much effort distribution in the case of coding

- a. 10%
- b. 20%
- c. 40%
- d. 50%**

**41.** How much effort distribution in the case of requirement analysis?

- a. 10%
- b. 20%**
- c. 40%
- d. 50%

**42.** Which one is first phase of software development?

- a. Requirement analysis**
  - b. Design**
  - c. Coding**
  - d. Testing**

43. Which model is simplest model in software development?

- a. Waterfall model**
  - b. Prototyping
  - c. iterative
  - d. None of these

44. Which model reduces the cost of development of software?

- a. Waterfall model
  - b. Prototyping
  - c. iterative
  - d. None of these

45. In which model advantage of better testing in software development?

- a. Waterfall model  
b. Prototyping  
c. iterative  
d. None of these

46. Which model is recent?

- a. Spiral
  - b. Waterfall model
  - c. **Prototyping**
  - d. iterative

47. Which model estimates the total effort in terms of person, months of the technical project staff?

- a. Spiral
  - b. Waterfall model
  - c. Prototyping
  - d. COCOMO model**

48. Relation of COCOMO model is

- a.  $E = a * (KDL) 6$       b.  $E = a * (KDL) 5$   
c.  $E = a * (KDL) 7$       d.  $E = a * (KDL) 3$

49. Which model is the best between all models?

- 19) Which model is the best between all models?

  - a. Spiral
  - b. Waterfall
  - c. Iterative
  - d. COCOMO model

50. The part of the operating system that co-ordinates the activities of other program is called the



51. Device independence allows you to

- a. switch operating systems
  - b. add a new I/O device without making changes to other software
  - c. more application software from one machine to another without programming changes**
  - d. none of the above

75. Business application programs include

- a.tax planning and preparation program**
  - b.drill- and practice programs**
  - C.expert systems**
  - d.all of the above**

76. A stock and bond analysis program that focuses on technical analysis will

- a.allow you to establish a database.
  - b.analyse each security's market price and volume statistics
  - C.both a and b**
  - d.none of the above

77 An inventory management program can assist with

- a. the planning with inventory
  - b. the purchase of inventory
  - c. the distribution of inventory
  - d. **all of the above**

78. Home finance programs are

- a.project management programs
- b.accounting programs**
- c.inventory management programs
- d.none of the above

79.Most home finance programs

- a.use full screen menu prompts
- b.allow erroneous transactions to be corrected directly.
- c.Can be used to generate reports
- d.All of the above**

80.Vertical market application programs include

- a.database managements systems
- b.farm managements programme**
- c.home finance program
- d.all of the above

81.An expert system

- a.simulates the reasoning of a human expert in a particular subject
- b.is an application of artificial intelligence research
- c.both a and b**
- d.none of the above

82. An example of an expert system is

- a. the Internist, a medical diagnosis program**
- b. a stock and bond analysis program
- c. a structural analysis program
- d. all of the above

83.Educational software includes

- a.drill-and-practice programs
- b.tutorial programs**
- c.simulation programs
- d.all of the above**

84.A simulation program

- a.guides novices through the basics of using other computer programs
- b.teaches facts, such as arithmetic operations & spelling**
- c.teaches by emulating the response of the system being studied.**
- d.None of the above

85.Drill-practice programs

- a.can adjust to the pace or skill level of the student**
- b.emphasize the learning of facts through repetition**
- c.both a and b**
- d.none of the above

86.Game programs include

## 87. Machine language programs

- a.consists of long sequences binary numbers**
  - b.can express the same meaning in fewer statements than Basic programs
  - C.both a and b
  - d.none of the above

88. Basic is an example of

- a. machine language                          b. assembly language  
**c. a high-level language**                          d. none of the above

89. Mnemonic codes and variables are used in

- a. machine language      b. assembly language  
c. a high-level language      d. all of the above

90. All variables must be declared at the beginning of



91. To write a program that solves a given problem, a programmer

- a.designs an algorithm
  - b.codes an algorithm in a programming language
  - C.debugs the program
  - d.all of the above

92. A control structure used to create loops is

- a. sequence
  - b. choice
  - c. **iteration**
  - d. none of the above.

### 93. A structure program

- a. Can be reduced at control structures
  - b. Is generally more complicated than non-structured program
  - c. Can only be modified by the person who wrote it.
  - d. All of the above.

94. Structured programs do not include

- a. Loops
  - b. GOTO statements
  - c. Both (a) and (b) above
  - d. None of the above.

## 95. All programming languages

- a. Are compatible with each other.
  - b. Can be supported by any operating system
  - c. Have the same syntax.
  - d. **None of the above.**

96. A language's grammar is determined by its.



## 97. Modularity

- a. Is a feature of all programming languages
  - b. **Helps make large programs more understandable**
  - c. Both (a) and (b) above
  - d. None of the above

### 98. In a consistent language

- a. Similar situations are handled in a similar way
  - b. Large program chunks can be broken into smaller modules
  - c. Multiplication is always performed before addition in all expressions
  - d. Both (a) and (c) above

99. Structured programming is enforced in

## 100. A structured programming language

- a. Would not permit the If-THEN-GOTO statement
  - b. Would have all program statements have a single entry point and a single exit point
  - c. **Both (a) and (b) above**
  - d. None of the above

101. An example of a special-purpose symbol-processing language is



102. Control structures include

112. Control structures include  
a. Iteration  
b. Rendezvous statements  
c. Exception statements  
d. **All of the above**

103. Data structures include

- a. Arrays
  - b. Exception statement
  - c. Iteration
  - d. Both (b) and (c) above

104. A module that is supplied along with the programming language translator to make the language easier is called

- a. A benchmark program
  - b. An intrinsic function
  - c. A data structure
  - d. None of the above

105. A program written in machine language

- a. Is easy to understand and modify
  - b. Runs more slowly than a program written in a high-level language
  - c. **None of the above**

## 106. A non-procedural language

- a. Is a low-level language
  - b. Describes what processing is to be done without specifying the particular procedures to be used**
  - c. Is frequently used by software designers
  - d. Both (a) and (b) above

## 107. An application generator

- a. Gives a detailed description of what data is to be processed
  - b. Is a translator that converts non-procedural information into a procedural program
  - c. Is typically an extension to the query facility of a DBMS
  - d. **Both (a) and (c) above**

108. A program written for an application generator includes

- a. Procedural statements
  - b. Non-procedural statements
  - c. **Both (a) and (b) above**
  - d. None of the above

109. Aliasing is a situation where

- a. Two commands with different names share the same code
  - b. A particular location associated with more than one name
  - c. **Both (a) and (b) above**
  - d. None of the above

110. Which of the following is a dangling reference?

- a. Accessing a variable, that is declared but not initialized
  - b. Accessing a storage that is already disposed at the request of the processor**
  - c. Accessing a storage that is already disposed at the request of the user
  - d. **All of the above**

111. What is not the type of Software Maintenance?

- a. Adaptive
  - b. Corrective
  - c. Perfective
  - d. Obsolescence**

112. Which is an iterative through which the requirements are translated into a “blue print” for constructing the software?

- a. Testing
  - b. Requirements Analysis
  - c. **Design**
  - d. Maintenance

### 113. An adaptive maintenance is

- a. To improve the system in some way without changing its basic functionality.
  - b. The maintenance due to the changes in the environment.

**C.**The correction of undiscovered system errors.

114. Which of the following can be a reason of project failure?

- a.**Finite resources
- b.****Inaccurate estimation of cost and time**
- c.**Others are competing to do the job cheaper and faster

115. What manifests in the patterns of choices made among alternatives ways of expressing an algorithm is

- a. A data flow diagram
- b. Coding style
- c. A data dictionary
- d. **A flow chart**

116. Corrective maintenance is to

- a.**Improve the system in some way without changing its functionality
- b.****Correct the undiscovered errors**
- c.**Make changes in the environment

117. COCOMO is an Effort Estimation model in terms of

- a. Cost
- b. Person Months
- c. both the above**

118. \_\_\_\_\_ is a method for estimating the software.

- a. COCOMO
- b. Function Point Analysis
- c. Use case Estimation
- d. All the above**

119. Quality control

- a.**Focuses on inspections, testing and removal of defects before release.
- b.****Is a set of planned and strategic actions to provide confidence that a product or service will satisfy given requirements for quality**
- c.**Is to check system for its internal errors.

120. The elements of the software architecture of a computing systems include

- i. software components
  - ii. class diagrams
  - iii. connectors expressing relationships between software components
  - iv. entity relationship diagram
- a. i and ii
  - b. **i and iii**
  - c. i, iii and iv
  - d. i, ii, iii and iv

121. Which of the following activities of SDLC involves choosing a system structure capable of satisfying the requirement specification?

- a.**Requirement Analysis
  - b.**Design
  - c.**Coding
- a. a and c
  - b. a and b
  - c. a, b and c
  - d. a, c and d**

122. Towards the end of the design phase, \_\_\_\_\_ should be allocated to source code components.

- a. use case
- b. relationships
- c. models
- d. classes**

123. Identify the true statement about using a process for software development

- a.**Processes usually divide software development.
  - b.**Processes provide guidelines for what to do at each phase of development
  - c.**Processes are used only during the analysis phase of a project
  - d.**Processes make it easier to measure the progress of a project
- a. a and c
  - b. a and b
  - c. a, b and d**
  - d. a, c and d

124. What do you think is the first step you should take in designing any project?

- a. Design a prototype
- b. Create the test cases

**C.****Define the problem domain and produce a problem statement**

- d.**Draw up a plan for the entire project

125. Which of the following best describes what a problem domain is?

- a. The kinds of resources available to design team
- b. The surroundings in which a system will operate**
- c. The set of all the functionality's required of a system
- d. The list of technical details needed to implement a project

126. Pick up the odd one out of the following.

- a. **Component assembly model**
- b. Spiral model
- c. Incremental model
- d. Iterative model

127. Debugging is technique of \_\_\_\_\_ testing

- a. **Unit**
- b. Integration
- c. System
- d. Stress

128. Which of the following types of test plans is most likely to arise from the requirement specification process?

- a. System integration test plan
- b. Acceptance test plan**
- c. Sub-system integration test plan
- d. Module test plan

129. Pick up the odd one out of the following

- a. Data flow Diagrams
- b. Object Identification**
- c. Structural Decomposition
- d. E-R Diagrams

130. In project planning first thing is

- a. Set objective or goals**
- b. Develop strategies and policies
- c. Decision making
- d. Find out requirements

131. Out of the following which one is not a plan

- a. Test plan
- b. Training plan**
- c. Maintenance plan
- d. Delay plan**

132. Which one is not a part of testing

- a. White box testing
- b. Black box testing**
- c. Inner Testing
- d. Gorilla testing

133. Which one of the following is not a part of phase of software development

- a. High level Design
- b. Low level Design**
- c. Mid level Design**
- d. Integration and System tests

134. Which one is not a part of spiral model

- a. Planning
- b. Customer communication**
- c. Project Documentation**
- d. Engineering

135. The decision logic is expressed by

- a. data flow diagram
- b. flow chart**
- c. structure chart

136. Validation is to check

- a.whether we are building the product right**
- b.whether we are building the right product**
- c.the methodology of software development**

137. Which software development model incorporates risk management?

- a. waterfall model
- b. spiral model**
- c. incremental model

138. What are the 3 major aspects of any Application Development

- a. Money, Resource, Time**
- b. Money, Efforts, Schedule
- d. Money, Scope, human resources

139. When the program is called Structured programme.

- a. uses only selection and sequence
- b. uses only iteration and branching
- c. uses only sequence, selection and iteration**

140. \_\_\_\_\_ is a series of identifiable stages that a software product can undergo.

- a. **Software Life Cycle**
- b. Software evolution
- c. Software Schedule

141. Please select the statements which are true for Project Planning

- a. Project Planning starts before the contract is signed.
- b. Project Planning starts once the Contract is signed**
- c. Project Initiation is the first step in Project Planning**
- d. Requirements elicitation is a part of Project Planning

142. Evaluating the system as per the standard requirements is called as \_\_\_\_\_

- a. **Verification of System**
- b. Validation of System
- c. None of above

143 During Requirement Analysis phase, detailed document prepared by system analyst is called as \_\_\_\_\_ (SRS – Software Requirement Specification).

144. Finalizing the requirements is called as \_\_\_\_\_

- a. Version control
- b. Approval
- c. Base lining**

145. Select the characteristics of a good software design

- a. **Correctness**
- b. Testability
- c. Efficiency**
- d. Maintainability**

146. In the example of testing the max.no. of connections to the system, type of testing is called as

- a. Volume Testing
- b. Boundary Testing
- c. Stress Testing**

147. Transitive Dependency is handled in \_\_\_\_\_ normalization

- a. First
- b. Second
- c. Third**
- d. Fourth

148. The problems faced in different CMM models are resolved in the \_\_\_\_\_ model

- a. SW-CMM
- b. PCMM
- c. CMMI**
- d. Six Sigma

149. Lifecycle model selected when the requirements are not clear and product may go on adding features later, is

- a. Iterative life cycle model
- b. Evolutionary life cycle model**
- c. Spiral lifecycle model

150. One of the estimation technique used for Object Oriented technology development

- a. Function Point Analysis
- b. Use Case Point**
- c. None of above

151. Testing where system components work together as specified by the design is tested, is called as \_\_\_\_\_

- a. System Testing
- b. Functional Testing
- c. Integration Testing**

152. One of the certification used for security is named as \_\_\_\_\_ (bs7799)

153. Briefly explain Activity Diagram

154. \_\_\_\_\_ is a special type of association, where the involved classes represent a whole part relationship.

- a. Inheritance
- b. Aggregation**
- c. None of above

155. Strength of relation between modules is called as \_\_\_\_\_

- a. Cohesion
- b. Coupling**
- c. Association
- d. Interrelation

156. Select the basic attributes of Estimations

a. Cost              b. Duration              c. Efforts d. Schedule

157. \_\_\_\_\_ is the process of determining whether a fully developed system conforms to its requirements specifications.

a. Validation              b. Verification              c. None of above

158. Identify the types of testing for Testing In Large

a. Unit Testing              b. System Testing              c. All of above

159. Breifly explain 'Coverage Testing'

Ans: Startegy of designing Test Cases in such a way that every statement in a program is executed at least once

160. Write down a note on Integration Testing

Ans: Should cover Big-bang Testing, Top-down testing, Bottom-up testing and Mixed Integration Testing

161. Write down a brief note on Six-Sigma

Ans: It's a disciplined, data driven approach to eliminate the defects in any process. Purpose is to reduce the defects in process to do things better, faster and at lower cost. There are sub methodologies, DMAIC and DMADV. DMAIC for existing processes looking for incremental improvements. DMADV for new processes or products to cater to Six sigma quality levels.

162. Select the reasons for Software Crisis

a. Software Development time are too long  
b. Inaccurate estimations  
c. Inaccurate planning  
d. All above

163. Lifecycle model chosen for the project where requirements are known and finalized by the client is

a. Iterative life cycle              b. Evolutionary              c. Waterfall

164. Please select the statements which are true about Project Monitoring And Control (PMC)

a. PMC is a part of Project Management  
b. Weekly status reports is an input for PMC  
c. Monitoring Risk list is a part of PMC  
d. Configuration Management Plan creation

165. Data Modeling Languages are -

a. UML              b. OMT              c. Pearl

166. Select the Risk types

a. Business risk              b. Project risk              c. Technical risk

167. Evaluating the system with respect to its features introduced, comparison with other similar system is called as \_\_\_\_\_

a. Verification of System              b. Validation of System              c. None of above

168. Changes to the finalized requirements leads to \_\_\_\_\_

a. Configuration Management b. Requirements Managementc. None of above

169. One of the estimation technique based on size of the product is \_\_\_\_\_

a. Function Point Analysis              b. Use case Point Technique  
c. none of above

170. One of the certification used for security is named as \_\_\_\_\_ (bs7799)

171. Briefly explain State Diagram

Ans: State diagram explains, what states an object can have in the whole system from the beginning to end.

172. Requirements Volatile Index is used for \_\_\_\_\_

- a. Requirements elicitation      b. Requirements Analysis      c. **None of above**

173. \_\_\_\_\_ in this association, the involved classes are existence-dependant on the whole.

- a. **Composition**      b. Aggregation      c. None of above

174. Object Diagram are also called as \_\_\_\_\_ diagram

- a. Static      b. **Instance**      c. None of above

175. Strength of relation within a module is called as \_\_\_\_\_

- a. **Cohesion**      b. Coupling      c. Association      d. Interrelation

176. \_\_\_\_\_ is the process of determining whether the output of one phase of software conforms to that of its previous phase.

- a. Validation      b. **Verification**      c. None of above

177. Identify the types of testing for Testing In Small

- a. **Unit Testing**      b. System Testing      c. All of above

178. Briefly explain Path Coverage

Ans: Strategy of designing Test Cases in such a way that all linearly independent paths in the program are executed at least once.

179. Select the types of System Testing

- a. **Alpha Testing**      b. Bottom-up Testing      c. All Above

180. Briefly explain Phased vs Incremental Integration Testing

Ans: In incremental testing, at a time only one module is added and in phased testing, group of related module is added to partial system under test

181. Write down a note on Performance Testing

Should contain min. 3 performance testing types from following - Stress, Volume, Configuration, Compatibility, Regression, Recovery, Maintenance, Documentation, Usability testing

182. Write down a brief note on PSP

183. \_\_\_\_\_ is a named property of a class

- a. Method      b. **Attribute**      c. None of above

184 Briefly state the reasons behind why OOD improves productivity.

185. Domain modeling is also known as \_\_\_\_\_ modeling

- a. **Conceptual**      b. Analytical      c. None of above

#### State True or False

a> Feasibility Report do not talk about Legal Aspects of the system. F

b> MPP is a tool used for application maintenance. F

c> Context level DFD can have multiple processes. F

d> Data Dictionary should be associated with DFD. T

e> Metrics to be captured should be decided while you are executing project. F

- f> Release Management is a part of configuration Management. T
- g> UML is a script language. F
- h> Logging of defects should start from Testing phase. F
- I> Inheritance supports software design reuse in Object Oriented technology. T
- j> Unit Testing is done by QA team. F
- k> Invalid data should exists in Test Plan. T
- l> Black Box testing is carried out by the peers in the same team. F
- m> Risks identified at the time of proposal are called as Project Risks. F
- n> Plan created for future risks is called as Mitigation Plan. F
- o> Object oriented design is always the best approach for the application development. F
- p> Class diagrams developed using UML can serve as the functional specification of the system. F
- q> The interaction diagram can be effectively used to describe how the behavior of an object changes across several use cases. F
- r> Coincidental cohesion is the one when tasks are tightly related to each other. F
- s> Boundary Value Analysis is an approach to Black Box Testing. T
- t> Driver module is the one which contains the nonlocal data structures accessed by the module under the test. T
- State True or False
- a> Contract can be prepared by a person other than a Project Manager.
- b> MPP can be used to see the resource overload
- c> First level DFD can have 9-10 processes in it.
- d> Metrics finalized should depend on the performance objectives set by client or company
- e> ClearCase is a tool used for maintaining the defects of the system.
- f> Decomposition of modules should be done in detailed Requirement Analysis phase.
- g> Project Manager should be involved in reviews of code.
- h> Self developer of the code should be a part of the walkthrough team
- I> Preparation of Test Plan should be started with the Design phase
- j> Release Management is a part of Project monitoring and Control.
- k> High level req. analysis is dependent on technology which will be used for application development
- l> Implementation of CMMI is very expensive because of different models to be implemented for different process areas.
- m> Integration Testing is done by developers
- n> Plan made up of lessons learnt from the risk occurred is called as Mitigation Plan.
- o> Sequence diagram in OOD, can show the relations of all activities with each other(where ever applicable).
- p>Object diagrams developed using UML can serve as the functional specification of the system.
- q> A State chart diagram is good at describing behaviour that involves multiple objects cooperatig with each other to achieve some behaviour.
- r> When all the functions in a module refer or update the same data structure, it is called as Communicational Cohesion.
- s> Equivalence class partitioning is an approach to Black-Box Testing

†>Stub module is the one, which is called by module under the test

ANSWERS

a> T b> T c> F d> T e> F f> F g> F h> F i> F j> F k> F l> F m> F n> T o> F p> F  
q> F r> T s> T t> T

1. In use-case diagram, what is system illustrated by?

- 1. oval
- 2. box
- 3. circle
- 4. triangle

**Correct Answer : 2**

2. UML supports \_\_\_\_\_ phases of software development

- 1. earlier
- 2. final
- 3. middle
- 4. all

**Correct Answer : 4**

3. Which Agile principle can help in chronic situation?

- A. Incremental Delivery
- B. Continuous Integration
- C. PMO Policy
- D. Latest Technology

4. requirement analysis \_\_\_\_\_

- 1. delivers a system in a series of versions
- 2. organizes abstraction
- 3. builds a bridge between user and developer
- 4. uses experimental software to better understand user requirements

**Correct Answer : 3**

5. What is type of software maintainance?

- 1. adaptive
- 2. corrective
- 3. perfective
- 4. obsolescence

**Correct Answer : 4**

6. which of the following activities of SDLC involves choosing a system structure capable of satisfying requirement specification?

- 1. requirement analysis
- 2. design
- 3. coding
- 4. testing

**Correct Answer : 2**

7. pick up the odd one out of the following

- A. data flow diagram
- B. object identification
- C. structural decomposition
- D. E-R diagrams

**Correct Answer : 2**

8. . ----- Lifecycle model describe how software system should be developed and describe how software are actually developed.

- 1. Prescriptive & Descriptive

2. Prescriptive & Definitive
3. Descriptive & Prescriptive
4. Descriptive & Intuitive

**Correct Answer : 1**

9. The requirement phase consist of
- a) Problem analysis b) Requirement specification
  - c) Requirement validation d) Problem validation
1. a, b, c
  2. a, b, c, d
  3. a, b, d
  4. a, c, d

**Correct Answer : 2**

10. \_\_\_\_\_ is a method for estimating the software
1. COCOMO
  2. Function Point Analysis
  3. Use Case Estimation
  4. All of the above

**Correct Answer : 4**

11. The elements of the software architecture of a computing system include
1. software components
  2. class diagrams
  3. connectors expressing relationships between software components
  4. entity relationship diagrams
1. 1 & 2
  2. 1 & 3
  3. 1, 3 & 4
  4. 1, 2, 3 & 4

**Correct Answer : 2**

12. Ability of a software to perform intended function with minimum consumption of computing resources
1. Efficiency
  2. Robustness
  3. Reliability
  4. Correctness

**Correct Answer : 1**

13. Ability to deal with exceptional conditions e.g. invalid input, improper handling, power failure, disk crash etc.
1. Efficiency
  2. Robustness
  3. Reliability
  4. Correctness

**Correct Answer : 2**

14. Maintainability is the ease with which a software can
1. be corrected if an error is encountered

2. adapted if its environment changes
3. enhanced if the customer desires a change in requirements
4. all of above

**Correct Answer : 4**

15. The type of testing carried out along with coding is called

1. system testing
2. unit testing
3. pretesting
4. stress testing

**Correct Answer : 2**

16. The type of software maintainence which is done to remove bugs or defects in the software is called

1. Corrective Maintainence
2. Adaptive Maintainence
3. Regressive Maintainence
4. Perfective Maintainence

**Correct Answer : 1**

17. RAD stands for

1. Rapid Application Development
2. Random Access Disc
3. Random Application Driver
4. Rapid Alignment Disc

**Correct Answer : 1**

18. Which of the following is not true about Component Assembly Model

1. It is similar to the Spiral Model
2. The technical framework for this model is provided by object technologies
3. Candidate classes are extracted from class library or developed
4. Its productivity is low

**Correct Answer : 4**

19. Which of the following is not true about the context diagram?

1. It does not show details of the functioning
2. It shows major inputs & outputs of the system
3. It shows the external entities of the system
4. It shows the datastores of the system

**Correct Answer : 4**

20. Data Items in a data dictionary are description of

1. Input data
2. data flows
3. data stores
4. All of the above

**Correct Answer : 4**

21. The ways of describing specifications at different levels of detail include

1. requirements definition

2. requirements specification
3. both a and b options
4. None of these options

**Correct Answer : 3**

22. Stable requirements are

1. Requirements related to the core activities of software customer
2. Requirements which are dependent on the environment where the delivered system is to be used
3. both a and b options
4. none of these options

**Correct Answer : 1**

23. Functional Independence is not achieved by

1. Coupling
2. Modularity
3. Information Hiding
4. Any of the above

**Correct Answer : 1**

24. If two modules are coupled without exchange of data or control information then they exhibit

1. Normal Coupling
2. Stamp Coupling
3. Control Coupling
4. Common Coupling

**Correct Answer : 1**

25. Which of the following is a graphical tool for software design?

1. Data Flow Diagram
2. Structure Chart
3. Decision Tree
4. all of the above

**Correct Answer : 4**

26. What manifests in the patterns of choices made among alternatives ways of expressing an algorithm is

1. a data flow diagram
2. coding style
3. a data dictionary
4. None of these options

**Correct Answer : 2**

27. Changes made to the software to correct defects uncovered after delivery is called

1. perfective maintainence
2. regressive maintainence
3. adaptive maintainence
4. corrective maintainence

**Correct Answer : 4**

28. Arrang the following in the correct sequence of software estimation a. Schedule Estimation b. Effort Estimation c. Cost Estimation d. Size estimation

1. b, c, a, d
2. c, a, b, d

3. d, b, a, c

4. a, c, d, b

**Correct Answer : 3**

29. Final Function point count calculated for project will result in the smallest LOC if implemented in

1. Assembly

2. C

3. C++

4. Visual Basic

**Correct Answer : 4**

30. Project schedule can be illustrated using

1. DFD and ERD

2. Bar chart

3. Activity chart

4. Both b and c options

**Correct Answer : 4**

31. Most of the project plans should include

1. Risk analysis

2. Project organization

3. Project schedule

4. All of the above

**Correct Answer : 4**

32. \_\_\_\_\_ shows the dependencies between the different activities making up a project.

1. PERT chart

2. Bar chart

3. Staffing Plan

4. Pi chart

**Correct Answer : 1**

33. Chief Programmer Teams are suitable for projects

1. with research orientation

2. with high modularity

3. with high creativity

4. None of these

**Correct Answer : 2**

34. Judging the seriousness of a risk by evaluating its probability along with its consequences is called

1. Risk analysis

2. Risk Projection

3. Risk Estimation

4. all of the above

**Correct Answer : 4**

35. The RMMM plan is generally included in the

1. Feasibility Study

2. Project Plan

3. SRS Document

4. Project Legacy

**Correct Answer : 2**

36. InvalidateRect() puts WM\_PAINT message in message queue.

- 1.**true**
- 2.false
- 3.Not Always

37. UpdateWindow() paints the client area.

- 1.**True**
- 2.False
- 3.Not Always

38. HINSTANCE type variable stores id of running application

- 1. **True**
- 2 False
- 3 Not Always

39. WM\_TIMER is the highest priority message

- 1.true
- 2.false
- 3.not always

40. The WM\_INITDIALOG message is sent to the dialog box procedure immediately before a dialog box is displayed.

- 1.**true**
- 2.false
- 3.not always

41. SendMessage is not directly send to the window procedure.

- 1.true
- 2.**false**
- 3.not always

42. Icon is a Text resource.

- 1.true
- 2.**false**
- 3.not always

43. Subclassing means changing the behaviour of controls.

- A. **true**
- B. false
- C. not always

44. CALLBACK functions are called by the operating systems.

- a) **true**
- b) false
- c) not always

45. WINAPI is not related to calling conventions.

- true
- false**
- not always

46. Which of the following operations is provided by a common dialog box?

- Choosing an icon
- Choosing a network drive.
- Choosing a database.
- Choosing a font.**

47. What is the primary difference between SendMessage and PostMessage?

SendMessage is used for local queues, while PostMessage is used for remote queues.

SendMessage can only be used within a worker thread, while PostMessage can be used at any time.

SendMessage can only send messages to the application thread, while PostMessage can send messages to any thread.

**SendMessage is called from within a Windows procedure, while PostMessage is called from within message queues**

48. Menu is -----

- A. GDI Object
- B. Resource**
- C. Picture
- D. Item

49. Following is not type of Device Context

- A. Screen Device Context**
- B. Window Device Context
- C. Client area Device Context
- D. **View Device Context**

50. Modal DialogBox is created on \_\_\_\_\_ & ModalessDialogBox is created on \_\_\_\_\_.

- A. heap , stack
- B. stack , heap**

51. Which of the following are resources.

- Menu
- Bitmap
- StatusBarIcon

52. \_\_\_\_\_ function creates model dialog box.

- createDialog()
- DialogBox()**
- DlgBox()
- lunkown

53. \_\_\_\_\_ is return type of window procedure.

handle to the window

**LRESULT**

BOOL  
INT

54. To subclass window's background brush \_\_\_\_\_ API call is used.

- SetClassLong()****SetClass()**
- SetLongClass()
- SetLong()

55. \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ & \_\_\_\_\_ are the parameters of WinMain().

hInstance , hPrevInstance , messege , iCmdShowhInstance , hPrevInstance , szCmdLine , iCmdShowhwnd , message , wParam , lParam , message , wParam , lParam

56. \_\_\_\_\_ is first message passed to window procedure.

WM\_PAINT

**WM\_CREATE**

WM\_SHOW

WM\_COMMAND

57. \_\_\_\_\_ function creates modeless dialog box.

**CreateDialog()** Dialog()

CreateDialogBox()

DialogBox()

58. Write Windows messages in higher order

1. WM\_TIMER

2. Posted Message

3. WM\_LBUTTONDOWN

4. Sent Message

5. WM\_PAINT

1, 2, 3, 4, 5, 4, 3, 2, 1

2, 3, 4, 5, 1

3, 4, 5, 1, 2

59. Write steps to create standard windows application

1) Initialise and Register Window class

2) Create window

3) Display Window

4) Message loop

5) WndProc1, 2, 3, 4, 5

2, 3, 4, 5, 1

3, 4, 5, 1, 2

4, 5, 1, 2, 3

60. A windows program should have a message loop comprising of GetMessage(), DispatchMessage() and TranslateMessage() to process messages from the message queue.

**true**

false

not always

61. GetDC() is used to retrieve the device context handle for the windows client area when processing a WM\_PAINT message.

**true**

false

not always

62. If a printable key is pressed then WM\_CHAR message will be generated and the ASCII code of the key will be stored in wParam.

**true**

false

not always

63. Whenever WM\_LBUTTONDOWN,WM\_MOUSEMOVE,WM\_RBUTTONDOWN messages are generated that time LOWORD(wParam) and HIWORD(wParam) consists of x and y coordinates of the mouse pointer.

true

**false**

not always

64. Predefined controls send WM\_COMMAND message whereas common controls send WM\_NOTIFY message.

**true**

false

not always

65. A Device Context is a GDI structure, which deals with text and graphics.

**true**

false

not always

66. A Metafile is a collection of GUI functions that are encoded in a binary format.

**true**

false

not always

67. A Clipboard is used to transfer information between applications or within application.

true

**false**

not always

68. WinMain is an entry point for windows application.

**True**

False

Not Always

69. Menu is GDI Object.

True

False

Not Always

70. WINAPI is a API function which explicitly calls Operating System to run Window Procedure.

True

False

Not Always

71. When function key(s) pressed on the keyboard that time WM\_KEYDOWN message is generated.

True

False

Not Always

72. LRESULT is a return type of Dialog Procedure.

True

False

Not Always

73. SetPixel is used to draw a particular pixel with a particular color.

True

False

Not Always

74. GetROP2 () is used to get the current drawing mode.

True

False

Not Always

75. Pallette is an attribute of a device context.

True

False

Not Always

76. Windows TIMER is not an input device.

True

False

Not Always

77. In MDI application the default window procedure for main Window is DefWindowProc ().

True

False

Not Always

78. The WM\_INITDIALOG message is sent to the dialog box procedure immediately before a dialog box is displayed.

True

False

Not Always

79. In MDI application child windows are created by mainframe windows.

True

False

Not Always

80. Cursor is a GDI Object.

True

False

Not Always

81. SubClassing means changing the behaviour of the controls.

True

False

Not Always

82. Color Dialog box is a common dialog box.

True

False

Not Always

83. If you want your window procedure to receive double click mouse message that time, you must include the identifier \_\_\_\_\_ in a window class structure before calling RegisterClassEX ().

CS\_DBCLKS  
CS\_DBCLICKS  
CS\_DBLS  
CS\_DOUBLECLICKS

84. \_\_\_\_\_ is used to play the metafile.

PlayMeta      PlayFile      PlayMetafile      OpenMetafile

85. To use the windows common controls always include \_\_\_\_\_ .h header file.

- a) COMMONCTL
- b) COMCTL
- c) COMMDLG
- d) COMMCTL

86. You can obtain the state of Shift keys by using \_\_\_\_\_ function.

GetKeyState( )  
Key\_getValue( )  
GetState( )  
GetStatus( )

87. Entry point function of a DLL is \_\_\_\_\_.

Main( )  
DLLMain( )  
StartDLL( )  
RunDLL ( )

88. \_\_\_\_\_ is a function for creating a Thread.

NewThread( )  
Thread ( )  
CreateThreadInstance ( )  
CreateThread ( )

89. InvalidateRect sends \_\_\_\_\_ message in message queue.

WM\_COMMAND  
WM\_PAINT  
WM\_DISPLAYCHANGE  
WM\_CHANGE

90. For drawing an Icon on client area of window \_\_\_\_\_ function is used.

PaintIcon( )  
PastelIcon ( )  
DrawIcon( )  
LoadIcon ( )

91. You can create a logical font by calling which of the following functions.

CreateFont( )  
CreateFontDirect( )  
CreateFontIndirect( )  
NewFont ( )

92. Dynamic Linked Library is loaded in the memory at \_\_\_\_\_

Static time

Run time

Load Time

Compile Time.

93. Menu is \_\_\_\_\_

GDI Object

Resource

Picture

Item

94. Which API call is used to check what type of data available in clipboard.

IsClipboardFormatAvailable ( )

IsClipboardContainData ( )

IsTypeofData ( )

SetClipboardData ( )

95. Following option is not a mapping mode.

MM\_ISOTROPIC

MM\_TEXT

MM\_BITMAP

MM\_HIMETRIC

96. Following is not a type of device context

Screen Device Context

Window Device Context

Client Area Device Context

View Device Context

97. Following is not a raster operation.

R2\_COPYPEN

R2\_XORCOPYPEN

R2\_NOT

R2\_YES

98. Every instance of a running program is \_\_\_\_\_ of virtual address space.

4 GB

2 GB

6 GB

64 MB

99. Default size of heap is \_\_\_\_\_

2 MB

1 MB

32 MB

None of the above

100. Following is not a bitmap related API call.

PasteBlt ( )

BitBlt ( )

StretchBlt ()

PatBlt ()

101. Windows Message contains following information.

Visible property of a window

Caption of window

Handle of window

Root class of a window

102. \_\_\_\_\_ is a lowest priority message in Windows Programming. (Win 32 Programming)

WM\_PAINT

WM\_COMMAND

WM\_CHAR

WM\_TIMER

103. SetROP2() function is used to change the Raster Operation the Device Context.

true

false

Not Always

104. CreateEnhMetaFile returns handle of the metafile.

true

false

Not Always

105. ClipBoard can store 'n' no of formats at a time.

true

false

Not Always

106. If 4 windows are running in a single application then there are 4 Message Queues.

true

false

Not Always

107. With CreateWindow \_\_\_\_\_ and \_\_\_\_\_ functions are used to display the window.

DisplayWindow( ), UpdateWindow( )

ShowWindow( ), DialogBox( )

ShowWindow( ), UpdateWindow( )

ShowWindow( ), RepaintWindow( )

108. The Windows system32 directory contains files which provides function to user application to perform certain task in the windows environment.

GDI32.DLL

KERNEL32.DLL

USER32.DLL

WIN32.DLL

109. The layer between the application and different types of hardware

Application Layer

GDI layer  
DataLayerShellLayer

110. The Message received if the right mousebutton is pressed in thtnonclient is  
WM\_RBUTTONDOWN  
WM\_NCRBUTTONDOWN  
WM\_NCIRBUTTONDOWN  
WS\_RBUTTONDOWN

111. In order to receive Doubleclick message a window must be created with which window style?  
DB\_DBCLK  
CS\_DBLCLOCK  
CS\_DBLCLKS  
CS\_DBLCLK

112. Which message helps in detecting mouse movement and finding mousecursor position  
WM\_MOUSEMOVE  
WM\_MOUSEPOS  
WM\_ONMOUSEMOVE  
None of these

113. When child Control in a dialogbox is activated window sends which message?  
WM\_COMMAND  
SendDlgItem  
WM\_NOTIFY  
WM\_ACTIVATE

114. Which function will test whether the message is fr the dialogbox or the window?  
DlgMessage()  
SendDlgItemMessage()  
TranslateMessage()  
IsDialogMessage()

115. Which function creates a modal dialog box?  
CreateDialog()  
DialogBox()  
DoModal()  
CreateDialogBox()

116. Which function creates a modeless dialog box?  
CreateDialog()  
DoModal()  
DialogBox()  
CreateDialogBox()

117. Modal DialogBox is destroyed by calling which function?  
EndDialog()  
DestroyDialog()  
EndDialogBox()  
EndModal()

118. Which function sends a message to controls in a dialogbox?

- SendDlgItemMessage()
- SendDialogMessage()
- SendDialogItemMessage()
- none of these

119. The register() function takes a pointer to the WndClass structure as a parameter

- True
- False

120. WM\_CHAR is a combination of WM\_KEYUP and WM\_KEYDOWN.

- True
- False

121. Only ModlessDialogbox can be moved on the screen.

- True
- False

122. The ID value for the child window is passed by lParam Parameter with the message.

- True
- False

123. In which message it is better to initialize all the controls with in the dialogbox.

- WM\_CREATE
- WM\_INITDIALOG
- WM\_INIT
- WM\_COMMAND

124. The CopyMetaFile function copies the content of a window-format MetaFile to Specified File

- CreateMetaFile
- CopyMetaFile
- CopyDataGetMetaFile

125. TranslateMessage Detects a Keyboard action that translates to an ANSI Character

- True
- False

126. ScreenCoordinates are pixels measured from the upper left corner of the window's client area.

- True
- False

127. SelectObject function obtains an object from Device Context

- True
- False

128. CreatePen Return handle to Old Pen

- True
- False

129. Which function use to copy file from one Devicecontext to another

- DeviceContextBitBlt
- CreateCompatibleDC
- DcCopyBlt
- CopyBlt

130. Handle to BITMAP is

HBITMAP  
HBMP  
HACCEL  
HDC

131. To Create Thread Function used is

AfxBeginThreadCreateThreaddoThread  
Create

132. WM\_CREATE Message is generated after Window is Displayed

True  
False

133. The Thread Control Panel is capable of performing the following action

Setting Thread Priority  
Suspending a Thread  
Resuming Thread  
Terminating a Thread

134. which values are used to Set thread priority

15  
-2  
4  
-1

135. To display a modless dialog which property u have to add in its resource files?

WM\_SHOW  
WS\_SHOW  
WS\_VISIBLE  
WS\_DISPLAY

136. A Mouse Click on MenuBar generates:

WM\_COMMAND  
WM\_NOTIFY  
WM\_CHAR  
WM\_MENUCLICK

137. change in the size of the status bar generates:

WM\_RESIZE  
WM\_SIZE  
WM\_CHANGE  
WM\_COMMAND

138. Get TextMatrix() determines the physical dimention of the font currently selected in the DC.

True  
False

139. BeginPaint() Prepaires the windows client area for painting.

True  
False

140. Rectangle function takes :

2 Parameters

5 Parameters

4 Parameters

None Of the Above

141. The WndClass Structure must be registered with the window before it can be used to create a window.

True

False

142. To halt the execution of a thread:

KillThread()

SuspendThread()

TerminateThread()

None of These

143. The following are the steps of SDLC

1. Analysis

2. Design

3. Testing

4. All of the above

**Correct Answer : 4**

144. The SDLC Model most suitable for large projects with clear knowledge & priority of requirements is

1. Spiral Model

2. Incremental Model

3. Waterfall Model

4. Prototyping Model

**Correct Answer : 2**

145. Which of the following is not true about the Waterfall Model?

1. It is suited for small projects

2. It does not consider risk handling

3. It gives efficient staff utilization

4. It needs clarity of requirements at start.

**Correct Answer : 3**

146. Prototyping in software process may involve \_\_\_\_\_.

1. throw - away prototyping

2. evolutionary

3. Both a and b options

4. None of these

**Correct Answer : 3**

147. Which of the following model may require largest deployment of manpower

1. Incremental Model

2. Waterfall Model

3. Component Assembly Model

#### 4. RAD Model

**Correct Answer : 4**

148. The majority of the lifetime of a program is spent in the \_\_\_\_\_ phase

1. Maintenance
2. Analysis
3. Design
4. Testing

**Correct Answer : 1**

149. In Boehm's spiral model, each loop in the spiral represents \_\_\_\_\_ of the software process

1. phase
2. design
3. documentation
4. none of the above

**Correct Answer : 1**

150. Which of the following is seen in the DFD but not in the Context Diagram

1. Data Sources
2. Data Flows
3. Data Stores
4. Users

**Correct Answer : 3**

151. Data flow cannot take place between

1. a store & a process
2. external entity & process
3. store & an external entity
4. process & process

**Correct Answer : 3**

152. "Balancing of DFD" is means

1. conservation of inputs & outputs at various levels
2. Sub dividing a process into smaller subprocesses
3. Labelling of all data items
4. Allowing data flows to take place only to or from processes

**Correct Answer : 1**

153. A data flow diagram is not a

1. logical model of a system
2. good guide to a system
3. representation of the physical system
4. All of these options

**Correct Answer : 3**

154. DFDs, decision tables, decision trees are tools of

1. Requirements analysis
2. Requirements modelling
3. Software Design
4. All of the above

**Correct Answer : 4**

155. Which model used to show data processing at different levels of abstraction from fairly abstract to fairly detailed

1. Semantic Data Models
2. Object Model
3. Data Flow Models
4. Service Usage Models

**Correct Answer : 3**

156. \_\_\_\_\_ models describe the logical structure of the data which is imported to and exported by the system.

1. Object
2. Semantic data
3. Data flow
4. None of the above

**Correct Answer : 2**

157. Which of the following is true about E-R Diagrams?

1. They consist of object-relationship pairs
2. It indicates cardinality of relationships
3. It indicates modality of relationships
4. all of the above

**Correct Answer : 4**

158. Which of the following is not a characteristic of a good SRS document?

1. Unambiguous
2. Verifiable
3. Redundant
4. Consistent

**Correct Answer : 3**

159. Find the odd one out

1. Axiomatic Specification
2. Algebraic Specification
3. Z Specification
4. Data Flow Diagram

**Correct Answer : 4**

160. Which is the most undesirable form of cohesion from the following options

1. Sequential
2. Coincidental
3. Temporal
4. Communicational

**Correct Answer : 2**

161. The external interface design process should be \_\_\_\_\_

1. developer centered
2. user centered
3. administrator centered
4. management centered

**Correct Answer : 2**

162. Which of the following is true with respect to function oriented & object oriented design methodologies

1. They vary in the basic abstractions they use
2. They vary in the way state information is maintained
3. They vary in the way functions are grouped
4. All of the above

**Correct Answer : 4**

163. In which of the following phases of a use-case driven process do you think use cases have a role?

a) Requirements capture b) Analysis c) Design d) Implementation e) Test

1. a, b and c
2. a, b, c and d
3. b and d
4. a, b, c, d and e

164. Which of the following is NOT true about comments

1. Comments should use problem domain terminology
2. They should explain the code at crucial places only
3. They should be used to document changes to the code
4. They add up to the LOC size of the software

**Correct Answer : 4**

165. Use of coding standards

1. eases the task of integration of software modules
2. enhances the maintainability of the software
3. enhances reusability of the software
4. All of these options

**Correct Answer : 4**

166. \_\_\_\_\_ is a programming method which combines data and instructions for processing that data into a self-sufficient block that can be used in other programs.

1. modular programming
2. top down design
3. object oriented programming
4. structured programming

**Correct Answer : 3**

167. A test case design technique that makes use of a knowledge of the internal program logic

1. Black Box Testing
2. White Box Testing
3. Unit Testing
4. None of these

**Correct Answer : 2**

168. Black box test cases can be derived from

1. source code
2. flowchart
3. SRS Document
4. pseudocode

**Correct Answer : 3**

169. Which of the following is true about Boundary Value Analysis?

1. It is an approach to designing black box test cases
2. It is complementary to Equivalence Class Partitioning
3. It gives test cases based on the boundaries of the equivalence classes
4. All of the above

**Correct Answer : 4**

1. Cyclomatic complexity is calculated from

1. Data Flow Graph
2. Structure Chart
3. Control Flow Graph
4. All of the above

**Correct Answer : 3**

170. Which of the following is true about McCabe's Cyclomatic Complexity of a Program

1. It is an indicator of the structural complexity of a program
2. It gives the maximum no of independent paths in a program
3. It is calculated from the no. of edges & nodes in the Control Flow diagram
4. All of the above

**Correct Answer : 4**

Effective Software Project Management focusses on

1. People
2. Problem
3. Process
4. all of above

**Correct Answer : 4**

171. Which of the following is generally not a part of the SPMP document?

1. Configuration Management Plan
2. Quality Assurance Plan
3. Risk Management Plan
4. Requirements Elicitation Plan

**Correct Answer : 4**

172. Conversion of Adjusted Function Point Count to LOC count is dependent on

1. Team Size
2. Project Duration
3. Programming Language
4. Cost Drivers

**Correct Answer : 3**

173. The critical path of PERT/CPM chart cannot be

1. the path with the longest duration
2. more than one unique path
3. path on which any delays are allowed
4. path with same earliest and latest starts for all activities

**Correct Answer : 3**

174. The total float for an activity is

1. the total duration of the activity
2. the difference between the earliest finish time and earliest start time
3. the difference between the latest finish time and the earliest finish time
4. the difference between the latest finish time and the earliest start time

**Correct Answer : 3**

175. Which of the following are Software Risk Components

1. Performance
2. Cost
3. Schedule
4. all of the above

**Correct Answer : 4**

176. Risk of unrealistic estimates & schedules can be overcome by

1. Using objective methods of estimation rather than judgemental methods
2. Developing a culture of software reuse
3. Performing multisource estimations
4. all of the above

**Correct Answer : 4**

177. Under SCM the various SCIs are strictly maintained

1. by their respective authors
2. by the appropriate team
3. in a central project database
4. all of the above

**Correct Answer : 3**

178. Cleanroom Software Development process is based on

1. Formal Specification
2. Static Verification
3. Statistical Testing
4. All of the above

**Correct Answer : 4**

179.. Which one of the following is method is not used in describing complex system process

1. Decision table
2. Structure English
3. Finite automata
4. Binary tree

**Correct Answer : 4**

180. Productivity can measure from the relationship

1. Productivity=KLOC/person-month
2. Productivity=KLOC/defects
3. Productivity=KLOC/LOC
4. Productivity=KLOC\*person-month

**Correct Answer : 1**

181. Broad design of modules & their relationships is called

1. external design
2. detailed design
3. architectural design
4. process design

**Correct Answer : 3**

182. Pick up the odd one out of the following process models

1. Component assembly model
2. Prototyping Model
3. Spiral model
4. Waterfall Model

**Correct Answer : 4**

183. The Linear Sequential or Classic Life Cycle is also called

1. Waterfall Model
2. Incremental Model
3. Spiral model
4. Prototyping Model

**Correct Answer : 1**

184. The waterfall model of the software process considers each process activity as a \_\_\_\_\_ phase

1. separate
2. discrete
3. Both a and b options
4. None of the above

**Correct Answer : 3**

185. Which of the following is not a feature of RAD

1. Well understood, constrained & modularizable requirements
2. Component based construction & use of 4 GL
3. Use of multiple teams each developing separate function
4. Project has high technical risks

**Correct Answer : 4**

186. In the Spiral model the radius of the spiral at any point represents

1. the level of risk
2. the progress made in the current phase
3. the cost incurred in the project till then
4. None of these

**Correct Answer : 3**

187. Planning the modular program structure & control relationships between modules is called

1. Architectural Design
2. High Level Design
3. System Design
4. all of the above

**Correct Answer : 4**

188. Designers should aim to produce strongly \_\_\_\_\_ and weakly \_\_\_\_\_ designs

1. coupled, functional
2. maintainable, cohesive
3. cohesive, coupled

4. coupled, cohesive

**Correct Answer : 3**

189. Use of global data areas or global variables may lead to

1. Stamp Coupling
2. Common Coupling
3. Content Coupling
4. Control Coupling

**Correct Answer : 2**

**Correct Answer : 4**

190. Function oriented design process consists of

1. Data Flow Design
2. Structural decomposition
3. Detailed Design
4. all of the above

**Correct Answer : 4**

191. Transform Analysis performed on a DFD identifies the

1. Afferent Branch
2. Efferent Branch
3. Central Transform
4. all of the above

**Correct Answer : 4**

192. The two questions "Are we building the right product?" & "Are we building the product right?" correspond to

1. Verification only
2. Validation only
3. Validation & Verification respectively
4. Verification & Validation respectively

**Correct Answer : 3**

193. Which of the following is not a White box testing method

1. Statement coverage
2. Error guessing
3. Path coverage
4. Condition Coverage

**Correct Answer : 2**

194. A stub is a dummy version of the \_\_\_\_\_ module of the module under testing

1. superordinate
2. subordinate
3. coordinate
4. All of the above

**Correct Answer : 2**

195. A driver is a dummy version of the \_\_\_\_\_ module of the module under testing

1. superordinate
2. subordinate
3. coordinate
4. All of the above

**Correct Answer : 1**

196. \_\_\_\_\_ exercises the system beyond its maximum design load

1. Thread testing
2. Stress Testing
3. Back to back testing
4. all of the above

**Correct Answer : 2**

197. Presenting the same tests to different versions of the system and compare outputs is called

1. Thread testing
2. Stress Testing
3. Back to back testing
4. all of the above

**Correct Answer : 3**

198. Which of the following is not a part of Project Plan?

1. Risk Management Plan
2. Personnel Plan
3. Project Monitoring Plan
4. Software Architecture Planning

**Correct Answer : 4**

199. Which of the following is true for two projects of same category with the same estimated LOC size and using COCOMO for estimation  
A) The initial effort estimate for both projects will be same as both have same LOC  
B) The Effort Adjustment Factor will always be the same for both projects  
C) The final effort estimate will always be the same for both projects

1. Only A is true.
2. Only A & B are true
3. Only C is true
4. Neither A, B or C are true.

**Correct Answer : 1**

200. In COCOMO terminology a project with software being strongly coupled to complex hardware & stringent regulations on operating procedures is categorised as

1. Organic
2. Semidetached
3. Embedded
4. Application

**Correct Answer : 3**

201. Which version of COCOMO develops estimates for large projects as sum of estimates of its various subsystems by considering the differences in the complexities of its various subsystems

1. Basic COCOMO
2. Intermediate COCOMO
3. Complete COCOMO
4. None of the above

**Correct Answer : 3**

202. The minimum time required to finish the project can be estimated by considering the \_\_\_\_\_ path in the activity graph

1. Shortest
2. Longest
3. Average
4. SPT

**Correct Answer : 2**

203. PERT/CPM cannot be used for

1. Scheduling of projects
2. Monitoring & Control of projects
3. Optimising Resource Utilization
4. Quality control of products

**Correct Answer : 4**

204. Democratic team structure is suitable for projects

1. with strict deadlines
2. with clearly known requirements
3. with research orientation
4. None of these

**Correct Answer : 3**

205. Arrange the following activities in Risk Assessment in the correct sequence a. Prioritization b. Identification c. Analysis

1. b, a, c
2. b, c, a
3. a, b, c
4. c, a, b

**Correct Answer : 2**

206. \_\_\_\_\_ ensures that a set procedure is followed to make any changes to the software

1. Configuration Identification
2. Configuration Control
3. Baselineing
4. all of the above

**Correct Answer : 2**

207. Configuration Management is

1. framework activity
2. umbrella activity
3. one time activity
4. None of the above

**Correct Answer : 3**

208. CASE stands for

1. Computing Advanced System Engineering

2. Computer Aided Software Engineering
3. Calculating Arithmetic System Engineering
4. None of the above

**Correct Answer : 2**

209. Requirement phase is usually done by

1. System Analyst
2. System Administrator
3. System Engineer
4. All

**Correct Answer : 1**

210. Which one of the following is not considered as parameter of function point

1. Number of input
2. Number of interface
3. Number of file
4. Number of output data

**Correct Answer : 4**

211. CASE is expanded as

1. Computer Analysis Software Engineering
2. Computer Aided Software Engineering
3. Computer Aided System Engineering
4. Computer Analysis System Engineering

**Correct Answer : 2**

212. Cohesion is the concept which tries to capture this -----

1. Intra-Module
2. Extra-Module
3. Inner-Module
4. Outer-Module

**Correct Answer : 1**

213. Functional approach is also known as

1. Glass box testing
2. Black box testing
3. Input box testing
4. Output box testing

**Correct Answer : 2**

214. Object oriented technology's use of \_\_\_\_\_ facilitates reuse of the code and architecture while its \_\_\_\_\_ feature provides systems with stability, as a small change in requirements doesn't require massive changes in the system.

1. Inheritance, Encapsulation
2. Inheritance, Polymorphism
3. Encapsulation, Polymorphism
4. Polymorphism, Abstraction

**Correct Answer : 1**

215. Which of the following steps do you think developers should take to create efficient compact applications?

- a. Clearly define initial requirements of the system

- b. concentrate early development efforts on modeling implementation mechanisms
- c. Analyze and manage risk throughout the development process
- d. Leave all software testing until after system has been implemented

- 1. a, c
- 2. a, b
- 3. a, b, d
- 4. a, b, c

**Correct Answer : 1**

216. Which of the following elements combine to form OOAD method

- a. Notation
- b. Diagram
- c. Process
- d. View

- 1. a, c
- 2. a, b
- 3. a, b, d
- 4. a, b, c

**Correct Answer : 1**

217. Which of the following are aims of UML?

- a. To model system using OO concepts
- b. To provide a process for software development
- c. To support small-scale and large-scale analysis and design
- d. To provide an insight into implementation mechanism

- 1. a, c
- 2. a, b
- 3. a, b, d
- 4. a, c, d

**Correct Answer : 4**

218. Towards end of the design phase, \_\_\_\_\_ should be allocated to source code components.

- 1. use cases
- 2. relationships
- 3. models
- 4. classes

**Correct Answer : 4**

219. What do you think is the first step you should take in designing any project?

- 1. design a prototype
- 2. create the test cases
- 3. define problem domain and produce problem statement
- 4. draw up a plan for entire project

**Correct Answer : 3**

220. If you are finding hard to identify the name of class and to write definition for it. What thing you should do?

- 1. ignore class completely
- 2. do more analysis to get a better understanding of what is involved in the class
- 3. write a definition for the class even if it is not very good
- 4. make it a friend class of some other main class

**Correct Answer : 2**

221. Which of the following statements are true of use cases and use case models?

- a. functionality of a use-case has to be complete from start to finish
- b. use case provide developers with classes and operations
- c. use cases outline functionality of the system
- d. use case models can be used to test the system

1. a, b, c
2. a, b, c, d
3. a, c, d
4. a, c

**Correct Answer : 3**

222. class diagram represents

1. conceptual design
2. organization of objects
3. set of actions
4. state machine

**Correct Answer : 1**

223. collaboration diagram represents

1. organization of objects
2. messages on time scale
3. conceptual design
4. set of actions

**Correct Answer : 1**

224. state chart diagram

1. organization of objects
2. conceptual design
3. set of actions
4. state machine

**Correct Answer : 4**

225. In OOD primary abstraction mechanism is \_\_\_\_\_

1. function
2. class
3. object
4. hierarchy

**Correct Answer : 2**

226. incremental model \_\_\_\_\_

1. delivers a system in a series of versions
2. works with encapsulation and inheritance to simplify flow of control
3. builds a bridge between user and developer
4. uses experimental software to better understand user requirements

**Correct Answer : 1**

227. prototyping model \_\_\_\_\_

1. delivers a system in a series of versions
2. builds a bridge between user and developer
3. uses experimental software to better understand user requirements
4. works with encapsulation and inheritance to simplify flow of control

**Correct Answer : 3**

228. software re-engineering actually means reverse enggineers

229. re-engineering is a type of software maintainance

230. elements of software architecture of a computing systems include

- a. software components
- b. class diagrams
- c. connectors expressing relationships between software components
- d. E-R diagram

- 1. a, b
- 2. a, c
- 3. a, c, d
- 4. a, b, c, d

**Correct Answer : 2**

231. Project milestones are mainly divided in these two parts

- 1. DFD and SRS
- 2. interface design and implementation
- 3. feasibility study and detailed design
- 4. requirements and design

**Correct Answer : 4**

232.. Which is not part of testing?

- 1. white box testing
- 2. black box testing
- 3. inner testing
- 4. gorilla testing

**Correct Answer : 3**

233. Which is not part of phases of software development

- 1. high level design
- 2. low level design
- 3. mid level design
- 4. replication, delivery, installation

**Correct Answer : 3**

234. Which software development model incorporates risk management?

- 1. water fall model
- 2. spiral model
- 3. incremental model
- 4. object model

**Correct Answer : 2**

235. largest time is spent on which of the software development phase?

- 1. testing
- 2. enhancement
- 3. bug fixing
- 4. analysis and design

**Correct Answer : 2**

236. Simple SDLC contain

- 1. requirements, analysis, design, implementation, testing
- 2. analysis, design, implementation, testing, deployment
- 3. analysis, design, implementation, testing, maintainence
- 4. requirements, analysis, design, implementation, deployment

**Correct Answer : 1**

237. DFD is not a

1. logical model of system
2. good guide to a system
3. representation of physical stream
4. all of the above

**Correct Answer : 1**

238. Productivity metrics

1. focuses on the output of the development process.
2. focuses on the characteristics of the software.
3. provide indirect measure.
4. All.

**Correct Answer : 1**

239. Which is not a type of maintenance?

1. Adaptive
2. Corrective
3. Perfective
4. Obsolescence

**Correct Answer : 4**

240. Adaptive Maintenance is

1. To improve the system in some way by changing its basic functionality
2. The maintenance due to changes in the environment
3. The correction of undiscovered system errors
4. None of the above

**Correct Answer : 2**

241. Which of the following activities involves choosing a system structure capable of satisfying the requirement specification?

1. Requirements Analysis
2. Design
3. Coding
4. Testing

**Correct Answer : 2**

242. Reliability in a software system can be achieved using the following strategies, EXCEPT

1. Fault avoidance
2. Fault tolerance
3. Fault detection
4. Fault rectification

**Correct Answer : 3**

243. Agile methods are known as

Predictive

Adaptive

Process Oriented

Short term process methods.

244. Identify the true statements about using a process for software development.

- a) Processes usually divide software development into phases
  - b) Processes provide guidelines for what to do at each phase of development
  - c) Processes are used to
1. a and c
  2. a and b
  3. a, b and d
  4. a, c and d

**Correct Answer : 3**

245. Process visibility is enhanced by

1. Defining clear cut phases
2. Producing documents related to each phase
3. Conducting reviews & checks
4. all of the above

**Correct Answer : 4**

246. Which of the following activities is not considered as "Umbrella Activity"

1. S/W Quality assurance
2. Software Design
3. S/W configuration management
4. S/W Project Monitoring & Control

**Correct Answer : 2**

247. SDLC starts with \_\_\_\_\_ stage

1. User Requirement and Analysis
2. Deployment
3. Testing
4. Design

**Correct Answer : 1**

248. The analysis phase takes a \_\_\_\_\_ approach to the system, ignoring its inner workings whereas the design phase takes a \_\_\_\_\_ approach, making decisions on how the model will be implemented in code

1. White box & Black box
2. Black box & White box
3. Top-Down & Bottom-Up
4. Bottom-Up & Top-Down

**Correct Answer : 2**

249. The last step in System Development Life Cycle is \_\_\_\_\_

1. Analysis
2. Implementation
3. Testing
4. Maintenance

**Correct Answer : 3**

250. The \_\_\_\_\_ phase of the systems life cycle contains periodic evaluations and updates of the system

1. preliminary investigation
2. Systems analysis
3. Systems implementation
4. Systems maintenance

**Correct Answer : 4**

251. The type of software maintainence which is done to add new features to the product is called

1. Corrective Maintainence
2. Adaptive Maintainence
3. Regressive Maintainence
4. Perfective Maintainence

**Correct Answer : 4**

252. The choice of the Software Development Life Cycle Model to be followed for a project depends on  
A) Initial Clarity of Requirements B) Size of the Project C) Time Frame of the Project D) Clarity on  
Technical Issues

1. A, B & C only
2. A, B & D only
3. A, B, C & D
4. A & D only

**Correct Answer : 3**

253. Because of the cascade from one phase to another, the model of software development process is known as

1. Evolutionary model
2. Formal model
3. Waterfall model
4. None of the above

**Correct Answer : 3**

254. The Linear Sequential or Classic Life Cycle is also called

1. Waterfall Model
2. Incremental Model
3. Spiral model
4. Prototyping Model

**Correct Answer : 1**

255. Prototype may be used for

1. Risk Reduction
2. Requirements Elicitation
3. User Interface Design
4. all of the above

**Correct Answer : 4**

256. RAD Model is high speed implementation of

1. Waterfall Model
2. Spiral Model
3. Prototyping model
4. Component Assembly model

**Correct Answer : 1**

257. \_\_\_\_\_ means to build a model that can be modified before the actual system is installed

1. Maintenance
2. Prototyping
3. Implementation
4. None of the above

**Correct Answer : 2**

258. A requirement may be a description of

1. functionality to be provided

2. constraint on the software

3. external interface

4. all of the above

**Correct Answer : 4**

259. Data Models do not consider

1. Attributes of the data object

2. Relationships between data objects

3. Operations that act on the data

4. Any of the above

**Correct Answer : 3**

260. Notations used to specify the external characteristics, architectural structure, and processing details of a software system include I. Data Flow Diagrams II. HIPO diagrams III. Structure Charts

1. I and II Only

2. III Only

3. I, II and III

4. None of the above

**Correct Answer : 3**

261. Formal specification language consists of

1. syntax

2. semantics

3. set of relations

4. all of the above

**Correct Answer : 4**

262. The software architecture is best represented by

1. Context Diagram

2. Flow Chart

3. Structure Chart

4. Data Flow Diagram

**Correct Answer : 3**

263. Designers should aim to produce strongly \_\_\_\_\_ and weakly \_\_\_\_\_ designs

1. coupled, functional

2. maintainable, cohesive

3. cohesive, coupled

4. coupled, cohesive

**Correct Answer : 3**

264.. Using \_\_\_\_\_ a programmer can detail the logic of the program

1. pseudocode

2. software

3. context diagram

4. data flow diagram

**Correct Answer : 1**

265. Which of the following is not true about a flow chart?

1. It shows the flow of control of a program

2. It is a tool for detailed design

3. Data interchange is not represented
4. It clearly separates various modules of the software

**Correct Answer : 4**

266. \_\_\_\_\_ involves modeling a system as a set of interacting functional units.

1. Object oriented decomposition
2. Procedural decomposition
3. Functional decomposition
4. None of the above

**Correct Answer : 3**

267.. Typographical errors and/or incorrect use of the programming language is referred to as

1. logic errors
2. syntax errors
3. run time errors
4. A bug

**Correct Answer : 2**

268. Testing of software falls after \_\_\_\_\_ stage.

1. Designing
2. Implementation
3. Deployment
4. Coding

**Correct Answer : 4**

269.. Changes made to the software to accommodate changes to its environment is called

1. perfective maintainence
2. regressive maintainence
3. adaptive maintainence
4. corrective maintainence

**Correct Answer : 3**

270.. Major changes made to software after long periods is also called software reengineering or

1. perfective maintainence
2. regressive maintainence
3. adaptive maintainence
4. corrective maintainence

**Correct Answer : 2**

271. Which of the following is not a part of Project Plan?

1. Risk Management Plan
2. Personnel Plan
3. Project Monitoring Plan
4. Software Architecture Planning

**Correct Answer : 4**

272. Function Point Count is dependent on

1. Platform & Technology
2. Team Size
3. H/W & Software Resources
4. Features & Functionalities

**Correct Answer : 4**

273. In COCOMO terminology a project with mixed level of staff experience & part familiarity with the system being developed is categorized as

1. Organic
2. Semidetached
3. Embedded
4. Application

**Correct Answer : 2**

274. In COCOMO terminology a project with software being strongly coupled to complex hardware & stringent regulations on operating procedures is categorised as

1. Organic
2. Semidetached
3. Embedded
4. Application

**Correct Answer : 3**

275. The value of COCOMO cost driver attribute for higher than average Programmer Ability will be

1. Greater than 1
2. Equal to 1
3. Less than 1
4. None of these

**Correct Answer : 3**

276. \_\_\_\_\_ and \_\_\_\_\_ are graphical notations which are used to illustrate the project schedule.

1. Bar chart and DFD
2. ERD and Bar chart
3. Class diagram and activity networks
4. Bar char and activity networks

**Correct Answer : 4**

277. The total float for an activity is

1. the total duration of the activity
2. the difference between the earliest finish time and earliest start time
3. the difference between the latest finish time and the earliest finish time
4. the difference between the latest finish time and the earliest start time

**Correct Answer : 3**

278. The minimum time required to finish the project can be estimated by considering the \_\_\_\_\_ path in the activity graph

1. Shortest
2. Longest
3. Average
4. SPT

**Correct Answer : 2**

279. According to Putnam the staffing pattern of a software project follows the Rayleigh-Norden curve and peaks during the \_\_\_\_\_

1. Detailed design
2. Coding & Unit testing

3. Integration Testing

4. System Testing

**Correct Answer : 2**

280. Risks arising out of frequent change requests are best mitigated by

1. User characterization
2. Strong SCM
3. Multisource estimations
4. Prescheduling key personnel

**Correct Answer : 2**

281.. Risk of unrealistic estimates & schedules can be overcome by

1. Using objective methods of estimation rather than judgemental methods
2. Developing a culture of software reuse
3. Performing multisource estimations
4. all of the above

**Correct Answer : 4**

282. Automated SCM tools help solve problem of

1. Inconsistencies of SCIs
2. concurrent access to SCI
3. instability of development environment
4. All of these options

**Correct Answer : 4**

283. \_\_\_\_\_ ensures that a set procedure is followed to make any changes to the software

1. Configuration Identification
2. Configuration Control
3. Baselining
4. all of the above

**Correct Answer : 2**

284. Configuration Management is

1. framework activity
2. umbrella activity
3. one time activity
4. None of the above

**Correct Answer : 3**

285.Under SCM the various SCIs are strictly maintained

1. by their respective authors
2. by the appropriate team
3. in a central project database
4. all of the above

**Correct Answer : 3**

286. CASE stands for

1. Computing Advanced System Engineering
2. Computer Aided Software Engineering
3. Calculating Arithmetic System Engineering
4. None of the above

**Correct Answer : 2**

287. Which of the following steps do you think developers should take to create efficient compact applications?

- a. Clearly define initial requirements of the system
- b. concentrate early development efforts on modeling implementation mechanisms
- c. Analyze and manage risk throughout the development process
- d. Leave all software testing until after system has been implemented

- 1. a, c
- 2. a, b
- 3. a, b, d
- 4. a, b, c

**Correct Answer : 1**

288. Towards end of the design phase, \_\_\_\_\_ should be allocated to source code components.

- 1. use cases
- 2. relationships
- 3. models
- 4. classes

**Correct Answer : 4**

289. Which of the following best describes what the problem domain is?

- 1. kinds of resources available to development team
- 2. surroundings in which system operate
- 3. set of all functionality required of a system
- 4. list of technical details needed to implement project

**Correct Answer : 2**

290. In which of the following phases of use-case driven process do you think use cases have a role?

- a. requirement capture
  - b. analysis
  - c. design
  - d. implementation
  - e. test
- 1. a, b, c
  - 2. a, b, c, d
  - 3. b, d
  - 4. a, b, c, e

**Correct Answer : 4**

291. collaboration diagram represents

- 1. organization of objects
- 2. messages on time scale
- 3. conceptual design
- 4. set of actions

**Correct Answer : 1**

292. sequence diagram represents

- 1. organization of objects
- 2. messages on time scale
- 3. conceptual design
- 4. set of actions

**Correct Answer : 2**

293. Analysis takes place from \_\_\_\_\_ perspective and design takes place from \_\_\_\_\_ perspective

1. user, user
2. user, developer
3. developer, user
4. developer, developer

**Correct Answer : 2**

294.. The \_\_\_\_\_ phase of SDLC aims at ensuring software product is as per requirements.

1. design
2. development
3. testing
4. deployment

**Correct Answer : 3**

295. polymorphism \_\_\_\_\_

1. organizes abstraction
2. builds a bridge between user and developer
3. delivers a system in a series of versions
4. works with encapsulation and inheritance to simplify flow of control

**Correct Answer : 4**

296. spiral model incorporates risk management

**Correct Answer : T**

297. storage management is not a part of version management

**Correct Answer : F**

298. data flow diagrams are part of design phase of SDLC

**Correct Answer : T**

299. Which is an iterative process through which the requirements are translated to "blueprint" for constructing software

1. testing
2. requirement analysis
3. design
4. maintenance

**Correct Answer : 3**

300. What manifests in the patterns of choices made among alternative ways of expressing an algorithm is

1. a data flow diagram
2. coding style
3. a data dictionary
4. a flow chart

**Correct Answer : 4**

301. quality control

1. focuses on inspections, testing and removal of defects before release
2. is a set of planned and strictly strategic actions to provide confidence that the product or service will satisfy given requirements for quality
3. is to check system for its internal errors

4. all of the above

**Correct Answer : 1**

302. elements of software architecture of a computing systems include

- a. software components
- b. class diagrams
- c. connectors expressing relationships between software components
- d. E-R diagram

1. a, b

2. a, c

3. a, c, d

4. a, b, c, d

**Correct Answer : 2**

303. which of the following types of test plans is most likely to arise from requirement specification process?

- 1. system integration testing plan
- 2. acceptance test plan
- 3. sub-system integration test plan
- 4. module test plan

**Correct Answer : 2**

304. In project planning first thing is

- 1. set objectiv or goal
- 2. develop strategies and policies
- 3. decision making
- 4. find out requirement

**Correct Answer : 1**

305.. Which is not part of phases of software development

- 1. high level design
- 2. low level design
- 3. mid level design
- 4. replication, delivery, installation

**Correct Answer : 3**

306. Which of the following is not part of spiral model?

- 1. planning
- 2. customer communication
- 3. project documentation
- 4. engineering

**Correct Answer : 3**

307. DFD is not a

- 1. logical model of system
- 2. good guide to a system
- 3. representation of physical stream
- 4. all of the above

**Correct Answer : 1**

308. Pick up one of the testing methods given below that is part of white-box testing

- 1. equivalence partitioning

2. boundary value analysis
3. basis and testing
4. debugging

**Correct Answer : 3**

309. Productivity metrics

1. focuses on the output of the development process.
2. focuses on the characteristics of the software.
3. provide indirect measure.
4. All.

**Correct Answer : 1**

310. The requirement phase consist of

- a) Problem analysis b) Requirement specification
  - c) Requirement validation d) Problem validation
1. a, b, c
  2. a, b, c, d
  3. a, b, d
  4. a, c, d

**Correct Answer : 2**

311.. Following are the different steps that is to be followed in design methodology arrange them in an order.

- a) First level factoring b) factoring of input
  - c) Restate the problem d) Identifying the input and output
1. a, b, c, d
  2. c, d, a, b
  3. a, d, c, b
  4. a, c, b ,d

**Correct Answer : 2**

312. Which is not a typ

313.e of maintenance?

1. Adaptive
2. Corrective
3. Perfective
4. Obsolescence

**Correct Answer : 4**

314. COCOMO is an effort estimation model in terms of \_\_\_\_\_

1. Cost
2. Person- Months
3. Both
4. None of the above

**Correct Answer : 2**

315. Pick the odd one out

1. Component assembly model
2. Spiral Model
3. Incremental Model
4. Iterative Model

**Correct Answer : 1**

316. Pick the odd one out

1. Data Flow Diagrams
2. Object Identification
3. Structural Decomposition
4. E-R Diagrams

**Correct Answer : 2**

317. Which of the following factors of a Software Product may not contribute much directly to its maintainability?

1. Understandability
2. Flexibility
3. Security
4. Testability

**Correct Answer : 3**

318. Which of the following activities is not considered as "Umbrella Activity"

1. S/W Quality assurance
2. Software Design
3. S/W configuration management
4. S/W Project Monitoring & Control

**Correct Answer : 2**

319. What is the primary purpose of the first stage of software analysis and design?

1. Determining system deployment
2. Writing code
3. Capturing requirements
4. Building GUIs

**Correct Answer : 3**

320. SDLC starts with \_\_\_\_\_ stage

1. User Requirement and Analysis
2. Deployment
3. Testing
4. Design

**Correct Answer : 1**

321. The analysis phase takes a \_\_\_\_\_ approach to the system, ignoring its inner workings whereas the design phase takes a \_\_\_\_\_ approach, making decisions on how the model will be implemented in code

1. White box & Black box
2. Black box & White box
3. Top-Down & Bottom-Up
4. Bottom-Up & Top-Down

**Correct Answer : 2**

322. Prototype may be used for

1. Risk Reduction
2. Requirements Elicitation
3. User Interface Design
4. all of the above

**Correct Answer : 4**

323. RAD Model is high speed implementation of

1. Waterfall Model
2. Spiral Model
3. Prototyping model
4. Component Assembly model

**Correct Answer : 1**

324. In the Spiral model the radius of the spiral at any point represents

1. the level of risk
2. the progress made in the current phase
3. the cost incurred in the project till then
4. None of these

**Correct Answer : 3**

325. A requirement may be a description of

1. functionality to be provided
2. constraint on the software
3. external interface
4. all of the above

**Correct Answer : 4**

326. During Requirements Phase recording interface requirements of a software system does not include which of the following interfaces

1. User Interfaces
2. Software Interfaces
3. Hardware Interfaces
4. Module Interfaces

**Correct Answer : 4**

327. External Entities in a Context Diagram may be A) People B) Other Software Systems C) Hardware D)

Databases

1. Only A & D
2. Only B & C
3. Only A, B & D
4. A,B, C & D

**Correct Answer : 4**

328. Example of a Semantic Data model is

1. data flow diagram
2. Context Diagram
3. Entity Relationship Diagram
4. all of the above

**Correct Answer : 3**

329. Data Models do not consider

1. Attributes of the data object
2. Relationships between data objects

3. Operations that act on the data

4. Any of the above

**Correct Answer : 3**

411. A system developed to give end users a concrete impression of the system capabilities is called

- a) 1. Semantics
- b) 2. model
- c) 3. prototype
- d) 4. abstraction

**Correct Answer : 3**

412. Formal specification language consists of

- a) 1. syntax
- b) 2. semantics
- c) 3. set of relations
- d) 4. all of the above

**Correct Answer : 4**

413. Planning the solution to a programming problem using a structured technique is called program

- a) 1. coding
- b) 2. compiling
- c) 3. moduling
- d) 4. design
- e) **Correct Answer : 4**
- f)

414. The software architecture is best represented by

- a) 1. Context Diagram
- b) 2. Flow Chart
- c) 3. Structure Chart
- d) 4. Data Flow Diagram

**Correct Answer : 3**

415. Conception & planning out of externally observable characteristics of a software is called

- a) 1. External Design
- b) 2. User Interface Design
- c) 3. Both a and b options
- d) 4. None of the above

**Correct Answer : 3**

416. A way of indicating the desired effect without establishing the actual mechanism

- a) 1. Procedural Abstraction
- b) 2. Data Abstraction
- c) 3. Control Abstraction
- d) 4. None of the above

**Correct Answer : 3**

417. In case of Bank, what will be the relationship between "Opening of Account" use case and "Deposit" Use case?

A. Uses

- B. Extends
- C. Includes
- D. None of the above

418. The number & complexity of interconnections between two modules is an indicator of

- a) 1. Modularity
- b) 2. Cohesion
- c) 3. Coupling
- d) 4. Abstraction

**Correct Answer : 3**

419. Use of global data areas or global variables may lead to

- a) 1. Stamp Coupling
- b) 2. Common Coupling
- c) 3. Content Coupling
- d) 4. Control Coupling

**Correct Answer : 2**

420. The method of deriving the structure chart from the DFD is called

- a) 1. Factoring
- b) 2. Factor Analysis
- c) 3. Transform Analysis
- d) 4. all of the above

**Correct Answer : 3**

421. Transform Analysis performed on a DFD identifies the

- a) 1. Afferent Branch
- b) 2. Efferent Branch
- c) 3. Central Transform
- d) 4. all of the above

**Correct Answer : 4**

422. Which of the following is true about structure chart notations?

- a) 1. There should be only one module at the top
- b) 2. There should be at most one control arrow between two modules
- c) 3. The sequence or order of tasks is not represented
- d) 4. All of the above

**Correct Answer : 4**

423. A programmer must follow the rules for coding a particular programming language. These rules are called:

- a) 1. pseudocode
- b) 2. iteration
- c) 3. syntax
- d) 4. documentation
- e) **Correct Answer : 3**
- f)

424. Typographical errors and/or incorrect use of the programming language is referred to as

- a) 1. logic errors
- b) 2. syntax errors

- c) 3. run time errors
- d) 4. A bug
- e) **Correct Answer : 2**

425. \_\_\_\_\_ is the process of locating and eliminating program errors.

- a) 1. editing
- b) 2. correcting
- c) 3. debugging
- d) 4. testing
- e) **Correct Answer : 3**

431. Changes made to the software to accommodate changes to its environment is called

- a) 1. perfective maintainence
- b) 2. regressive maintainence
- c) 3. adaptive maintainence
- d) 4. corrective maintainence
- e) **Correct Answer : 3**

432. Changes made to the software to extend it beyond its original functionality is called

- a) 1. perfective maintainence
- b) 2. regressive maintainence
- c) 3. adaptive maintainence
- d) 4. corrective maintainence
- e) **Correct Answer : 1**
- f)

433. Major changes made to software after long periods is also called software reengineering or

- a) 1. perfective maintainence
- b) 2. regressive maintainence
- c) 3. adaptive maintainence
- d) 4. corrective maintainence
- e) **Correct Answer : 2**
- f)

434. COCOMO is categorized as a \_\_\_\_\_ estimation technique

- a) 1. Heuristic
- b) 2. Empirical
- c) 3. Analytical
- d) 4. None of the above

**Correct Answer : 1**

435. The value of COCOMO cost driver attribute for higher than average Programmer Ability will be

- a) 1. Greater than 1
- b) 2. Equal to 1
- c) 3. Less than 1
- d) 4. None of these

**Correct Answer : 3**

436.. \_\_\_\_ and \_\_\_\_ are graphical notations which are used to illustrate the project schedule.

- a) 1. Bar chart and DFD
- b) 2. ERD and Bar chart
- c) 3. Class diagram and activity networks

- d) 4. Bar chart and activity networks

**Correct Answer : 4**

437. Which of the following is true as per Putnam model

- a) 1. Staffing Pattern peaks at Coding & Unit testing
- b) 2. Schedule compression increases effort in proportion to fourth power
- c) 3. Expanding the schedule gives extreme saving in effort
- d) 4. all of the above

**Correct Answer : 4**

438. Democratic team structure is suitable for projects

- a) 1. with strict deadlines
- b) 2. with clearly known requirements
- c) 3. with research orientation
- d) 4. None of these

**Correct Answer : 3**

439. RMMM is a Risk Management methodology which focusses on

- a) 1. Risk avoidance by developing a risk mitigation plan
- b) 2. Continuous risk monitoring throughout the project
- c) 3. Actually managing the risks when they become a reality by contingency planning
- d) 4. all of the above

**Correct Answer : 4**

440. Risks arising out of frequent change requests are best mitigated by

- a) 1. User characterization
- b) 2. Strong SCM
- c) 3. Multisource estimations
- d) 4. Prescheduling key personnel

**Correct Answer : 2**

441. Risk of unrealistic estimates & schedules can be overcome by

- a) 1. Using objective methods of estimation rather than judgemental methods
- b) 2. Developing a culture of software reuse
- c) 3. Performing multisource estimations
- d) 4. all of the above

**Correct Answer : 4**

442. A change request has to be evaluated for

- a) 1. its technical merit
- b) 2. cost & schedule impacts
- c) 3. side effects
- d) 4. All of these options

**Correct Answer : 4**

443. Under SCM the various SCIs are strictly maintained

- a) 1. by their respective authors

- b) 2. by the appropriate team
- c) 3. in a central project database
- d) 4. all of the above

**Correct Answer : 3**

444. Software quality managers are responsible for \_\_\_\_.

- a) 1. Quality assurance
- b) 2. Quality planning
- c) 3. Quality control
- d) 4. All of the above

**Correct Answer : 4**

445. As per SEI CMM organizations which do not have any KPAs present & stable are considered at

- a) 1. Level 1
- b) 2. Level 2
- c) 3. Level 3
- d) 4. Level 4

**Correct Answer : 1**

446.. Which of the following are aims of UML?

- a. To model system using OO concepts
  - b. To provide a process for software development
  - c. To support small-scale and large-scale analysis and design
  - d. To provide an insight into implementation mechanism
- a) 1. a, c
  - b) 2. a, b
  - c) 3. a, b, d
  - d) 4. a, c, d

**Correct Answer : 4**

447.Q2. In which of the following phases of use-case driven process do you think use cases have a role?

- a. requirement capture
  - b. analysis
  - c. design
  - d. implementation
  - e. test
- a) 1. a, b, c
  - b) 2. a, b, c, d
  - c) 3. b, d
  - d) 4. a, b, c, e

**Correct Answer : 4**

448. If you are finding hard to identify the name of class and to write definition for it. What thing you should do?

- a) 1. ignore class completely
- b) 2. do more analysis to get a better understanding of what is involved in the class
- c) 3. write a definition for the class even if it is not very good
- d) 4. make it a friend class of some other main class

**Correct Answer : 2**

449. Which of the following are possible actors?

- a. data inputter

- b. GUI component
  - c. Another system
  - d. A printer
- a) 1. a, b, c
  - b) 2. a, b, c, d
  - c) 3. a, b, d
  - d) 4. a, c

**Correct Answer : 3**

450. UML can be used as a way to represent only OO software systems

- a) **Correct Answer : F**

451. Use cases can be included in any type of collaboration diagrams.

- a) **Correct Answer : F**

452. collaboration diagram represents

- a) 1. organization of objects
  - b) 2. messages on time scale
  - c) 3. conceptual design
  - d) 4. set of actions
- e) **Correct Answer : 1**

453. In OOD primary abstraction mechanism is \_\_\_\_\_

- a) 1. function
  - b) 2. class
  - c) 3. object
  - d) 4. hierarchy
- e) **Correct Answer : 2**

454. prototyping model \_\_\_\_\_

- a) 1. delivers a system in a series of versions
  - b) 2. builds a bridge between user and developer
  - c) 3. uses experimental software to better understand user requirements
  - d) 4. works with encapsulation and inheritance to simplify flow of control
- e) **Correct Answer : 3**

455. storage management is not a part of version management

- a) **Correct Answer : F**

456. Q14. data flow diagrams are part of design phase of SDLC

- a) **Correct Answer : T**

457. Which of the following is reason of project failure?

- a) 1. finite resources
  - b) 2. inaccurate estimates of cost and time
  - c) 3. others are competing to do the job cheaper and faster
  - d) 4. none of the above
- e) **Correct Answer : 2**

458. What manifests in the patterns of choices made among alternative ways of expressing an algorithm is

- a) 1. a data flow diagram
  - b) 2. coding style
  - c) 3. a data dictionary
  - d) 4. a flow chart
- e) **Correct Answer : 4**
- f)

459. \_\_\_\_\_ is method for estimating software

- a) 1. COCOMO

b) 2. function point analysis

c) 3. use case estimation

d) 4. all of the above

e) **Correct Answer : 4**

f)

460. pickup odd one out of the following

a) 1. component assembly model

b) 2. spiral model

c) 3. incremental model

d) 4. iterative model

e) **Correct Answer : 1**

f)

461. which of the following types of test plans is most likely to arise from requirement specification process?

a) 1. system integration testing plan

b) 2. acceptance test plan

c) 3. sub-system integration test plan

d) 4. module test plan

e) **Correct Answer : 2**

f)

462. Parts of design principle are

a) 1. correctness, robustness, efficiency, flexibility, understandable

b) 2. correctness, robustness, efficiency, flexibility, reusability

c) 3. flexibility, correctness, robustness, efficiency, standard

d) 4. flexibility, correctness, robustness, efficiency, security

**Correct Answer : 2**

463. largest time is spent on which of the software development phase?

a) 1. testing

b) 2. enhancement

c) 3. bug fixing

d) 4. analysis and design

**Correct Answer : 2**

464. Which of the following can be a reason for project failure?

a) 1. Finite resources

b) 2. Inaccurate estimates of cost & time

c) 3. Others competing to do the job cheaper & faster.

d) 4. None of the above

**Correct Answer : 2**

465. Pick the odd one out

a) 1. Component assembly model

b) 2. Spiral Model

c) 3. Incremental Model

d) 4. Iterative Model

e) **Correct Answer : 1**

f)

466. Software Engineering is concerned with \_\_\_\_\_.

- 1. process
- 2. methods
- 3. tools
- 4. all of the above

**Correct Answer : 4**

467. An approved feasibility study is a deliverable out of

- a) 1. Systems design
- b) 2. Preliminary investigation
- c) 3. Systems development
- d) 4. Systems analysis
- e) **Correct Answer : 2**

468. Checklists, grid charts, and decision tables are all tools used in the \_\_\_\_\_ step

- a) 1. preliminary investigation
- b) 2. systems analysis
- c) 3. systems development
- d) 4. systems implementation
- e) **Correct Answer : 2**
- f)

469. The present system is studied in depth during the \_\_\_\_\_ phase of the systems life cycle.

- a) 1. preliminary investigation
- b) 2. systems analysis
- c) 3. systems design
- d) 4. systems development
- e) **Correct Answer : 2**

470. RAD Model is high speed implementation of

- a) 1. Waterfall Model
- b) 2. Spiral Model
- c) 3. Prototyping model
- d) 4. Component Assembly model

**Correct Answer : 1**

471. Arrange the following Requirements subphases in the correct order a. Documentation b. Analysis c. Validation d. Elicitation

- a) 1. a, b, c, d
- b) 2. d, b, a, c
- c) 3. d, c, a, b
- d) 4. b,a, d c

**Correct Answer : 2**

472. External Entities in a Context Diagram may be A) People B) Other Software Systems C) Hardware D) Databases

- a) 1. Only A & D
- b) 2. Only B & C
- c) 3. Only A, B & D
- d) 4. A,B, C & D
- e) **Correct Answer : 4**

473.Example of a Semantic Data model is

- a) 1. data flow diagram
- b) 2. Context Diagram
- c) 3. Entity Relationship Diagram
- d) 4. all of the above
- e) **Correct Answer : 3**

474.Automated CASE tools like PSL/PSA do not help in

- a) 1. Requirements Documentation
- b) 2. Requirements Validation
- c) 3. Requirements Analysis
- d) 4. Requirements Elicitation
- e) **Correct Answer : 4**

475.A system developed to give end users a concrete impression of the system capabilities is called

- a) 1. Semantics
- b) 2. model
- c) 3. prototype
- d) 4. abstraction
- e) **Correct Answer : 3**

476.The requirement engineering process has the following stages, Except

- a) 1. Feasibility study
- b) 2. Requirement analysis
- c) 3. Implementation
- d) 4. Requirement definition
- e) **Correct Answer : 3**

477.Notations used to specify the external characteristics, architectural structure, and processing details of a software system include I. Data Flow Diagrams II. HIPO diagrams III. Structure Charts

- a) 1. I and II Only
- b) 2. III Only
- c) 3. I, II and III
- d) 4. None of the above
- e) **Correct Answer : 3**

478.Planning the modular program structure & control relationships between modules is called

- a) 1. Architectural Design
- b) 2. High Level Design
- c) 3. System Design
- d) 4. all of the above
- e) **Correct Answer : 4**

479.Conception & planning out of externally observable characteristics of a software is called

- a) 1. External Design
- b) 2. User Interface Design
- c) 3. Both a and b options
- d) 4. None of the above

e) **Correct Answer : 3**

480. Concept of Abstraction is used in

- a) 1. Requirements phase
  - b) 2. Design Phase
  - c) 3. Testing Phase
  - d) 4. all of the above
- e) **Correct Answer : 4**

481. Providing a logical reference to the data object without concern for the underlying representation is

- a) 1. Procedural Abstraction
  - b) 2. Data Abstraction
  - c) 3. Control Abstraction
  - d) 4. None of the above
- e) **Correct Answer : 2**

482. The number of subordinate modules controlled by a module is called its

- a) 1. control range
  - b) 2. fan out
  - c) 3. fan in
  - d) 4. width
- e) **Correct Answer : 2**

483. If two modules pass a data structure across their interface they exhibit

- a) 1. Stamp Coupling
  - b) 2. Data Coupling
  - c) 3. Content Coupling
  - d) 4. Control Coupling
- e) **Correct Answer : 1**

484. Use of global data areas or global variables may lead to

- a) 1. Stamp Coupling
  - b) 2. Common Coupling
  - c) 3. Content Coupling
  - d) 4. Control Coupling
- e) **Correct Answer : 2**

485. The strength of relationship between which of the following elements of a module is examined to evaluate module cohesion

- a) 1. function declarations, function definitions& calls
  - b) 2. variable declarations
  - c) 3. data definitions
  - d) 4. all of the above
- e) **Correct Answer : 4**

486. The graphical tool commonly used to represent the system architecture is called

- a) 1. Context Diagram
- b) 2. Structure Chart
- c) 3. Architectural Plan
- d) 4. Event Table

e) **Correct Answer : 2**

487. The method of deriving the structure chart from the DFD is called

- a) 1. Factoring
- b) 2. Factor Analysis
- c) 3. Transform Analysis
- d) 4. all of the above
- e) **Correct Answer : 3**

488. Which of the following is true about structure chart notations?

- a) 1. There should be only one module at the top
- b) 2. There should be at most one control arrow between two modules
- c) 3. The sequence or order of tasks is not represented
- d) 4. All of the above
- e) **Correct Answer : 4**
- f)

489. Using \_\_\_\_\_ a programmer can detail the logic of the program

- a) 1. pseudocode
- b) 2. software
- c) 3. context diagram
- d) 4. data flow diagram
- e) **Correct Answer : 1**

490. Typographical errors and/or incorrect use of the programming language is referred to as

- a) 1. logic errors
- b) 2. syntax errors
- c) 3. run time errors
- d) 4. A bug
- e) **Correct Answer : 2**

491. \_\_\_\_\_ is the process of locating and eliminating program errors.

- a) 1. editing
- b) 2. correcting
- c) 3. debugging
- d) 4. testing
- e) **Correct Answer : 3**

492. Changes made to the software to accommodate changes to its environment is called

- a) 1. perfective maintenance
- b) 2. regressive maintenance
- c) 3. adaptive maintenance
- d) 4. corrective maintenance
- e) **Correct Answer : 3**
- f) Your Answer :

493. Changes made to the software to extend it beyond its original functionality is called

- a) 1. perfective maintenance
- b) 2. regressive maintenance
- c) 3. adaptive maintenance
- d) 4. corrective maintenance

e) **Correct Answer : 1**

f) Your Answer :

494. Major changes made to software after long periods is also called software reengineering or

- a) 1. perfective maintainence
- b) 2. regressive maintainence
- c) 3. adaptive maintainence
- d) 4. corrective maintainence

e) **Correct Answer : 2**

f) Your Answer :

495. The value of COCOMO cost driver attribute for lower than average Reliability requirement will be

- a) 1. Greater than 1
- b) 2. Equal to 1
- c) 3. Less than 1
- d) 4. None of these

e) **Correct Answer : 3**

496. The critical path of PERT/CPM chart cannot be

- a) 1. the path with the longest duration
- b) 2. more than one unique path
- c) 3. path on which any delays are allowed
- d) 4. path with same earliest and latest starts for all activities

e) **Correct Answer : 3**

497. The total float for an activity is

- a) 1. the total duration of the activity
- b) 2. the difference between the earliest finish time and earliest start time
- c) 3. the difference between the latest finish time and the earliest finish time
- d) 4. the difference between the latest finish time and the earliest start time

e) **Correct Answer : 3**

498. required to finish the project can be estimated by considering the \_\_\_\_\_ path in the activity graph

- a) 1. Shortest
- b) 2. Longest
- c) 3. Average
- d) 4. SPT

e) **Correct Answer : 2**

499. Which of the following is true as per Putnam model

- a) 1. Staffing Pattern peaks at Coding & Unit testing
- b) 2. Schedule compression increases effort in proportion to fourth power
- c) 3. Expanding the schedule gives extreme saving in effort
- d) 4. all of the above

e) **Correct Answer : 4**

500. \_\_\_\_\_ ensures that a set procedure is followed to make any changes to the software

- a) 1. Configuration Identification
- b) 2. Configuration Control
- c) 3. Baselining
- d) 4. all of the above
- e) **Correct Answer : 2**

501. Configuration Management is

- a) 1. framework activity
- b) 2. umbrella activity
- c) 3. one time activity
- d) 4. None of the above
- e) **Correct Answer : 3**

503. Your Answer : The Software Life Cycle covers activities from

- a) 1. Feasibility Study to Installation
- b) 2. Requirements Phase to Testing
- c) 3. Requirements Phase to Maintenance
- d) 4. Project Initiation to Software Retirement
- e) **Correct Answer : 4**

504.. The Software Development Life Cycle covers activities from

- a) 1. Feasibility Study to Installation
- b) 2. Requirements Phase to Testing
- c) 3. Requirements Phase to Maintenance
- d) 4. Project Initiation to Software Retirement
- e) **Correct Answer : 2**

505. Which of the following activities is not considered as "Umbrella Activity"

- a) 1. S/W Quality assurance
- b) 2. Software Design
- c) 3. S/W configuration management
- d) 4. S/W Project Monitoring & Control
- e) **Correct Answer : 2**

506.. Any activity designed to keep programs in working condition, error free, and up-to-date, is referred to as \_\_\_\_\_

- a) 1. maintenance
- b) 2. testing
- c) 3. debugging
- d) 4. coding
- e) **Correct Answer : 1**

507. Checklists, grid charts, and decision tables are all tools used in the \_\_\_\_\_ step

- a) 1. preliminary investigation
- b) 2. systems analysis
- c) 3. systems development
- d) 4. systems implementation
- e) **Correct Answer : 2**

508. Prototype may be used for

- a) 1. Risk Reduction

- b) 2. Requirements Elicitation
- c) 3. User Interface Design
- d) 4. all of the above
- e) **Correct Answer : 4**

509. Which of the following is not true about Component Assembly Model

- a) 1. It is similar to the Spiral Model
- b) 2. The technical framework for this model is provided by object technologies
- c) 3. Candidate classes are extracted from class library or developed
- d) 4. Its productivity is low
- e) **Correct Answer : 4**

510. During Requirements Phase recording interface requirements of a software system does not include which of the following interfaces

- a) 1. User Interfaces
- b) 2. Software Interfaces
- c) 3. Hardware Interfaces
- d) 4. Module Interfaces
- e) **Correct Answer : 4**

511. E-R diagrams are used in

- a) 1. Database design
- b) 2. Data Dictionary compilation
- c) 3. Architectural design
- d) 4. Functional Design
- e) **Correct Answer : 1**

512. The flow of data within a system is described by a \_\_\_\_\_

- a) 1. data flow diagram
- b) 2. top-down analysis
- c) 3. system flowchart
- d) 4. decision table
- e) **Correct Answer : 1**

513. A system developed to give end users a concrete impression of the system capabilities is called

- a) 1. Semantics
- b) 2. model
- c) 3. prototype
- d) 4. abstraction
- e) **Correct Answer : 3**

514. Notations used to specify the external characteristics, architectural structure, and processing details of a software system include I. Data Flow Diagrams II. HIPO diagrams III. Structure Charts

- a) 1. I and II Only
- b) 2. III Only
- c) 3. I, II and III
- d) 4. None of the above
- e) **Correct Answer : 3**

515. Formal specification techniques are based on

- a) 1. set theory
- b) 2. logic
- c) 3. sequence
- d) 4. all of the above
- e) **Correct Answer : 4**

516. Using the name of a sequence of instructions in place of the sequence of instructions is an example of

- a) 1. Procedural Abstraction
- b) 2. Data Abstraction
- c) 3. Control Abstraction
- d) 4. None of the above
- e) **Correct Answer : 1**

517. Providing a logical reference to the data object without concern for the underlying representation is

- a) 1. Procedural Abstraction
- b) 2. Data Abstraction
- c) 3. Control Abstraction
- d) 4. None of the above
- e) **Correct Answer : 2**

518. A way of indicating the desired effect without establishing the actual mechanism

- a) 1. Procedural Abstraction
- b) 2. Data Abstraction
- c) 3. Control Abstraction
- d) 4. None of the above
- e) **Correct Answer : 3**

519. Designers should aim to produce strongly \_\_\_\_\_ and weakly \_\_\_\_\_ designs

- a) 1. coupled, functional
- b) 2. maintainable, cohesive
- c) 3. cohesive, coupled
- d) 4. coupled, cohesive
- e) **Correct Answer : 3**

520. If two modules pass a data structure across their interface they exhibit

- a) 1. Stamp Coupling
- b) 2. Data Coupling
- c) 3. Content Coupling
- d) 4. Control Coupling
- e) **Correct Answer : 1**

521. The strength of relationship between which of the following elements of a module is examined to evaluate module cohesion

- a) 1. function declarations, function definitions& calls
- b) 2. variable declarations
- c) 3. data definitions

- d) 4. all of the above
- e) **Correct Answer : 4**

522.. A module whose all elements exhibit relationship which involves both data and control flow is said to be \_\_\_\_\_ cohesive

- a) 1. Sequentially
- b) 2. Communicationally
- c) 3. Temporally
- d) 4. Procedurally
- e) **Correct Answer : 1**

523.The afferent branch of the DFD ends at the

- a) 1. Most Abstract Input
- b) 2. Most Abstract Output
- c) 3. middle of the central transform
- d) 4. all of the above
- e) **Correct Answer : 1**

524.Which of the following is not true about a flow chart?

- a) 1. It shows the flow of control of a program
- b) 2. It is a tool for detailed design
- c) 3. Data interchange is not represented
- d) 4. It clearly separates various modules of the software
- e) **Correct Answer : 4**

525.I. Object-oriented software development creates better programs but is less efficient to use II.

Object-oriented software development is more efficient than traditional methods. III. OOP is a process that organizes a program into objects that contain both data and the processing operations necessary to perform a task

- a) 1. I and II are correct
- b) 2. II and III are correct
- c) 3. I and III are correct
- d) 4. I, II and III are correct
- e) **Correct Answer : 3**

526.Typographical errors and/or incorrect use of the programming language is referred to as

- a) 1. logic errors
- b) 2. syntax errors
- c) 3. run time errors
- d) 4. A bug
- e) **Correct Answer : 2**

527.The if-then-else construct is an example of the

- a) 1. sequencing
- b) 2. selection
- c) 3. iteration
- d) 4. all of the above
- e) **Correct Answer : 2**

528. Proper program layout by proper usage of proper use of indentation, blank spaces, blank lines, parentheses improves

- a) 1. Efficiency of the program
- b) 2. size of the program
- c) 3. maintainability of the program
- d) 4. reliability of the program
- e) **Correct Answer : 3**

529.. Static verification & validation is applied to

- a) 1. SRS
- b) 2. Design
- c) 3. Code
- d) 4. all of the above
- e) **Correct Answer : 4**

530. Static testing involves

- a) 1. Code Analysis
- b) 2. Structural Analysis
- c) 3. Data Flow Analysis
- d) 4. all of the above
- e) **Correct Answer : 4**

531. Statistical Testing is used for

- a) 1. For statistical softwares only
- b) 2. Only uncovering defects
- c) 3. Reliability estimation
- d) 4. efficiency estimation
- e) **Correct Answer : 3**

532. Which of the following is NOT true about software testing

- a) 1. It follows a bottom up approach
- b) 2. Testing is planned after the coding phase
- c) 3. Complete testing is not possible
- d) 4. Testing only establishes presence of defects
- e) **Correct Answer : 2**

533. Black box testing is more useful in locating

- a) 1. Functional Errors
- b) 2. Performance Errors
- c) 3. Interface Errors
- d) 4. All of these options

**Correct Answer : 4**

534. Testing of software falls after \_\_\_\_\_ stage.

- a) 1. Designing
- b) 2. Implementation
- c) 3. Deployment
- d) 4. Coding

**Correct Answer : 4**

535. Testing strategies can be \_\_\_\_\_.

- 1. Top – down testing, Bottom – up testing

2. Thread testing, Stress testing
3. Back – to – back testing
4. all of above

**Correct Answer : 4**

536. \_\_\_\_\_ exercises the system beyond its maximum design load

- a) 1. Thread testing
- b) 2. Stress Testing
- c) 3. Back to back testing
- d) 4. all of the above
- e) **Correct Answer : 2**

537. Presenting the same tests to different versions of the system and compare outputs is called

- a) 1. Thread testing
- b) 2. Stress Testing
- c) 3. Back to back testing
- d) 4. all of the above
- e) **Correct Answer : 3**

538. Testing done with real data is called \_\_\_\_\_.

- a) 1. Data testing
- b) 2. Unified testing
- c) 3. Alpha testing
- d) 4. Beta testing
- e) **Correct Answer : 4**

539. The following are the testing strategies except

- a) 1. Top-down testing
- b) 2. Thread testing
- c) 3. Stress testing
- d) 4. Verification testing
- e) **Correct Answer : 3**

540. Changes made to the software to accommodate changes to its environment is called

- a) 1. perfective maintainence
- b) 2. regressive maintainence
- c) 3. adaptive maintainence
- d) 4. corrective maintainence
- e) **Correct Answer : 3**

541. Changes made to the software to extend it beyond its original functionality is called

- a) 1. perfective maintainence
- b) 2. regressive maintainence
- c) 3. adaptive maintainence
- d) 4. corrective maintainence
- e) **Correct Answer : 1**

542. Major changes made to software after long periods is also called software reengineering or

- a) 1. perfective maintainence
- b) 2. regressive maintainence
- c) 3. adaptive maintainence
- d) 4. corrective maintainence

e) **Correct Answer : 2**

543. Which of the following is not a part of Project Plan?

- a) 1. Risk Management Plan
- b) 2. Personnel Plan
- c) 3. Project Monitoring Plan
- d) 4. Software Architecture Planning

e) **Correct Answer : 4**

544. An example of an Empirical Software estimation technique is

- a) 1. COCOMO
- b) 2. FPA
- c) 3. Delphi
- d) 4. Halstead's Software Science

e) **Correct Answer : 3**

545. The Lines of Code (LOC) size do not include

- a) 1. Compiler Directives
- b) 2. Declarations
- c) 3. Comments
- d) 4. all of the above

e) **Correct Answer : 3**

546. In COCOMO terminology a project with software being strongly coupled to complex hardware & stringent regulations on operating procedures is categorised as

- a) 1. Organic
- b) 2. Semidetached
- c) 3. Embedded
- d) 4. Application

e) **Correct Answer : 3**

547. The value of COCOMO cost driver attribute for lower than average Reliability requirement will be

- a) 1. Greater than 1
- b) 2. Equal to 1
- c) 3. Less than 1
- d) 4. None of these

e) **Correct Answer : 3**

548. The critical path of PERT/CPM chart cannot be

- a) 1. the path with the longest duration
- b) 2. more than one unique path
- c) 3. path on which any delays are allowed
- d) 4. path with same earliest and latest starts for all activities

e) **Correct Answer : 3**

549. \_\_\_\_\_ and \_\_\_\_\_ are graphical notations which are used to illustrate the project schedule.

- a) 1. Bar chart and DFD
- b) 2. ERD and Bar chart
- c) 3. Class diagram and activity networks
- d) 4. Bar chart and activity networks

e) **Correct Answer : 4**

550. The minimum time required to finish the project can be estimated by considering the \_\_\_\_\_ path in the activity graph

- a) 1. Shortest
  - b) 2. Longest
  - c) 3. Average
  - d) 4. SPT
- e) **Correct Answer : 2**

551. PERT/CPM cannot be used for

- a) 1. Scheduling of projects
  - b) 2. Monitoring & Control of projects
  - c) 3. Optimising Resource Utilization
  - d) 4. Quality control of products
- e) **Correct Answer : 4**

552. Which of the following is true as per Putnam model

- a) 1. Staffing Pattern peaks at Coding & Unit testing
  - b) 2. Schedule compression increases effort in proportion to fourth power
  - c) 3. Expanding the schedule gives extreme saving in effort
  - d) 4. all of the above
- e) **Correct Answer : 4**

553. Risk of unrealistic estimates & schedules can be overcome by

- a) 1. Using objective methods of estimation rather than judgemental methods
  - b) 2. Developing a culture of software reuse
  - c) 3. Performing multisource estimations
  - d) 4. all of the above
- e) **Correct Answer : 4**

554. Configuration Management is

- a) 1. framework activity
  - b) 2. umbrella activity
  - c) 3. one time activity
  - d) 4. None of the above
- e) **Correct Answer : 3**

555.. Repeatable level as per CMM model is

- a) 1. Level 1
  - b) 2. Level 2
  - c) 3. Level 3
  - d) 4. Level 4
- e) **Correct Answer : 2**

556. The collection of computer programs, procedures ,rules and associated document and data is called

- 
- a) 1. Software
  - b) 2. Hardware
  - c) 3. Both
  - d) 4. None

e) **Correct Answer : 1**

557. A context diagram contain

- a) 1. Only one process
- b) 2. More than one process
- c) 3. At least one process
- d) 4. None

e) **Correct Answer : 1**

558. The spiral model is both suitable for

- a) 1. Development type projects
- b) 2. Enhancement type project
- c) 3. Both
- d) 4. None

e) **Correct Answer : 3**

559. CASE is expanded as

- a) 1. Computer Analysis Software Engineering
- b) 2. Computer Aided Software Engineering
- c) 3. Computer Aided System Engineering
- d) 4. Computer Analysis System Engineering

e) **Correct Answer : 2**

560. Three major factor of software engineering are

- a) 1. Cost , Correctness , Reliability
- b) 2. Cost , Schedule , Reliability
- c) 3. Cost , Quality ,Correctness
- d) 4. Cost , Portability , Reliability

e) **Correct Answer : 2**

561.. Data flow can take place between

- a) Process to Process b) File to File
- c) Process to File d) External Entity to Process
- a) 1. a ,b ,c
- b) 2. b ,c ,d
- c) 3. a ,c, d
- d) 4. a ,b, d

e) **Correct Answer : 3**

562. Match the level testing can work on

1) Acceptance Testing 2) System Testing 3) Integration Testing 4) Unit Testing

a) Client Needs b) Requirements c) Design d)Code

- a) 1. 1-a, 2-b, 3-c, 4-d
- b) 2. 1-d, 2-b, 3-c, 4-a
- c) 3. 1-a, 2-b, 3-d, 4-c
- d) 4. 1-a, 2-c, 3-b, 4-d

e) **Correct Answer : 1**

563. The first step in the project planning is:

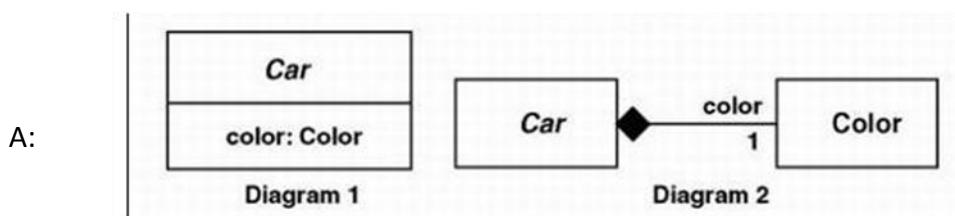
A: Size of the product

B: Select team organizational mode

C: Determine the Project constraints

**D: Establish objectives and scope**

564.



1:An aggregation, 2: A composition.

B:1:An attribute, 2: An aggregation.

C:1:An aggregation, 2: An attribute.

**D:1:An attribute. 2: A composition.**

565. Phase containment of errors means.

**A: Detect errors to the closest point of errors.**

B: Stop errors during software projects deployment.

C: Stop errors during software projects coding

D: None of the above.

566. The most commonly used model in today's development is

**A: Waterfall model**

B: Spiral model

C: Iterative waterfall model

D: None of the above.

567. What is "Customer must have at least a Pentium machine to access this software" in context of Software Requirements,

**A: Assumption**

B: Objective

C: Business Problem

D: All of the above

568. For a Leave Application System, an "Employee" can use the system to request for leaves and a "Manager can approve/reject the leaves. The data will be stored within a "Leave database" as part of this system. In this scenario, identify the valid actors from the following for this system.

(i)Employee

(ii)Manager

(iii)Leave Database

(iv)Leave Application System

Choice A: None of the above

Choice B: i, ii

Choice C: iii, iv

Choice D: All of the above

661. A timing constraint placed on the system or the use of a specific language during development, is an example of

A: Functional requirements

**B: Non functional requirements**

C: Requirements definition

D: None of the above

What is a Requirement definition?

A: What software provides.

B: Requirements in SRS

**C: What customer wants?**

D: All of the above

662. Which of the following is a tool in design phase?

A: Abstraction

B: Refinement

C: Information hiding

**D: All the above**

661. The data flow diagram

A: Depicts relationships between data objects depicts relationships between data objects

B: Depicts functions that transform the data flow

**C: Indicates how data are transformed by the system**

D: Both b and c

662. An approved feasibility study is a deliverable out of

A: Systems design

**B: Preliminary investigation**

C: Systems development

D: Systems analysis

661. \_\_\_\_\_ provides the maximum number of test cases that will be required to guarantee that every statement in program has been executed at least once.

A: Independent Program paths

**B: Cyclomatic complexity**

C: Graph Matrices

D: None of the above

662. Content testing uncovers

A: Syntactic errors

**B: Semantic errors**

C: Structural errors

D: All of the above

663. Which of these are standards for assessing software processes?

A: SEI R

B: SPICE

**C: ISO 9001**

D: Both b and c

664. Methods of Project Monitoring are

A: time sheet

B: Earned value method

C: Design Constraints

**D: Both a & b**

666. Risk projection attempts to rate each risk in two ways

A: Likelihood and cost

**B: Likelihood and impact**

C: Likelihood and consequences

D: Likelihood and exposure

667. Effective risk management plan needs to address which of these issues?

- A: risk avoidance
- B: risk monitoring
- C: contingency planning
- D: all of the above**

668. To quantify a risk we need to do the following

- A: Determine the possibility of risk happening
- B: Determine consequences of the problem associated with that risk.
- C: Both a and b.**
- D: None of the above.

669. Change control process is done in a software project during

670. A: requirements

671. Deliverable for a software Project is

- A: Source Code
- B: Design Documents
- C: Requirement Documents and Test Plans
- D: All of the above**

672. Scoping is done during,

- A: Proposal Stage
- B: Requirements gathering stage**
- C: Design Stage
- D: Coding Stage

673. A software engineer is measuring the quality of a software system. He is concerned with the 'reliability' and the "validity" of his measurements. Which of the following is true?

- A: Reliability refers to the extent to which the measurement represents the actual quality of the system and validity refers to the consistency of the quality measurements
- B: Reliability refers to the consistency of her quality measurements and validity refers to the extent to which the measurement represents the actual quality of the system.**
- C: Reliability refers to the accuracy of her quality measurements and validity refers to the extent to which the measurement follows a quality standard.
- D: Reliability refers to the concurrency of her quality measurements and validity refers to the extent to which the measurements are consistent with established norms.

674. Quality attributes are the overall factors that affect

- A: run-time behavior
- B: system design
- C: user experience
- D: All of the above**

675. Which of the following is reason of project failure?

- A: finite resources
- B: inaccurate estimates of cost and time
- C: others are competing to do the job cheaper and faster
- D: none of the above

676. Parts of design principle are

- A: correctness, robustness, efficiency, flexibility, understandable
- B: correctness, robustness, efficiency, flexibility, reusability
- C: flexibility, correctness, robustness, efficiency, standard
- D: flexibility, correctness, robustness, efficiency, security

677. Testing is a

- A: process of executing a program with intent of finding an error**

- B: process of removing error

678. C: process of testing software

679. D: all of the above

680. Black box testing checks the following errors

- A: incorrect function

- B: Interface errors

- C: Both a & b

- D: None of the above**

681. A method of estimating the amount of functionality required for a project is

- A: WBS Estimation

- B: UCP Estimation

- C: FP Estimation**

- D: COCOMO estimation

682. Scheduling begins with \_\_\_\_\_

- A: Risk identification

- B: Process decomposition**

- C: FP Estimation

- D: COCOMO estimation

683. Aggregation represents

- A: is\_a relationship

684. B: part\_of relationship

685. C: composed\_of relationship

- D: None of above

686. Modules X and Y operate on the same input and output data. The cohesion is said to be:

- A: Sequential

- B: Communicational**

- C: Procedural

- D: Logical

687. Estimates are made in a project primarily on

- A: size**

- B: Cost

- C: Both a and b.

- D: None of the above

688. SPMP document is made at the end of

- A: project planning**

- B: project monitoring

- C: project control

- D: None of the above

689. While gathering the requirements on OO way (using RUP UML), the very first thing we should do is

A: Start gathering functional requirements

B: List down all the Users of the System (called as Actors)

C: Start gathering non-functional requirements

D: Create Test plan

692. What is the solution to "Yes-But Syndrome" in requirements gathering?

A: Improve technical skills

**B: Seek customer feedback early**

C: Learn a tool for requirements

D: None of the above

693. Which of the following statements is true regarding scenarios?

A: Scenarios are instances of a use case.

B: Scenarios are generalizations of many use cases.

C: A use case is an instance of a scenario.

D: None of the above

694. Which of the following is true about a Build?

A: A Build represents an operational version of a system or a part of the system that demonstrates a subset of the capabilities provided in the final product.

B: A Build constitutes an integral part of the iterative development lifecycle and provides review points.

C: Each Build is placed under configuration control in case there is a need to roll back to an earlier version when added functionality causes breakages or when there is otherwise some form of compromised Build integrity.

**D: All of the above**

695. Reliability in a software system can be achieved using the following strategies, EXCEPT

1. Fault avoidance

2. Fault tolerance

3. Fault detection

4. Fault rectification

**Correct Answer : 3**

696. An approved feasibility study is a deliverable out of

1. Systems design

2. Preliminary investigation

3. Systems development

4. Systems analysis

**Correct Answer : 2**

697. Any activity designed to keep programs in working condition, error free, and up-to-date, is referred to as \_\_\_\_\_

1. maintenance

2. testing

3. debugging

4. coding

**Correct Answer : 1**

698. Checklists, grid charts, and decision tables are all tools used in the \_\_\_\_\_ step

1. preliminary investigation

2. systems analysis

3. systems development

4. systems implementation

**Correct Answer : 2**

699. During the \_\_\_\_\_ phase, the application is verified against the requirements

1. Analysis
2. Design
3. Testing
4. Implementation

**Correct Answer : 3**

700. Prototype may be used for

1. Risk Reduction
2. Requirements Elicitation
3. User Interface Design
4. all of the above

**Correct Answer : 4**

701. During the \_\_\_\_\_ phase of the systems life cycle, the new hardware and software are acquired and tested

1. design
2. development
3. implementation
4. maintenance

**Correct Answer : 3**

702. DFD gives idea about flow of \_\_\_\_\_ & flowchart gives idea of the flow of \_\_\_\_\_

1. processes, decisions
2. control, data
3. logic, control
4. data, control

**Correct Answer : 4**

703. Example of a Semantic Data model is

1. data flow diagram
2. Context Diagram
3. Entity Relationship Diagram
4. all of the above

**Correct Answer : 3**

704. A system developed to give end users a concrete impression of the system capabilities is called

1. Semantics
2. model
3. prototype
4. abstraction

**Correct Answer : 3**

705. The requirement engineering process has the following stages, Except

1. Feasibility study
2. Requirement analysis
3. Implementation
4. Requirement definition

**Correct Answer : 3**

706. Planning the solution to a programming problem using a structured technique is called program

1. coding
2. compiling
3. moduling
4. design

**Correct Answer : 4**

707. Conception & planning out of externally observable characteristics of a software is called

1. External Design
2. User Interface Design
3. Both a and b options
4. None of the above

**Correct Answer : 3**

708. The afferent branch of the DFD ends at the

1. Most Abstract Input
2. Most Abstract Output
3. middle of the central transform
4. all of the above

**Correct Answer : 1**

709. Static verification of code is not likely to reveal

1. logic errors
2. syntax errors
3. performance errors
4. coding standard violations

**Correct Answer : 3**

710. Which of the following is NOT true with regard to Testing & Debugging

1. Testing includes debugging
2. Debugging includes retesting
3. Testing only establishes presence of defects
4. Debugging repairs the program defects

**Correct Answer : 1**

711. Which factor among the following has least effect on the testability of a software ?

1. Decomposibility
2. Efficiency
3. Understandability
4. Observability

**Correct Answer : 2**

712. Identification of inputs which cause anomalous behavior in the outputs indicating the existence of defects is

1. Static Testing
2. White Box Testing
3. Black Box Testing
4. Interface testing

**Correct Answer : 3**

713. Purely black box testing would be used at which of the following levels?

1. Unit testing

2. Module testing
3. Integration Testing
4. Acceptance Testing

**Correct Answer : 4**

714.A Test case includes

1. Input
2. Expected output
3. information of function under test
4. All of these options

**Correct Answer : 4**

715.In unit testing which of the following is the strongest testing strategy?

1. Statement coverage
2. Branch Coverage
3. Condition Coverage
4. Path coverage

**Correct Answer : 4**

716.Selection of test paths according to defination& usage of different variables in the program is called

1. Path coverage testing
2. Condition Coverage testing
3. Data Flow Testing
4. Branch Coverage Testing

**Correct Answer : 3**

717. \_\_\_\_\_ exercises the system beyond its maximum design load

1. Thread testing
2. Stress Testing
3. Back to back testing
4. all of the above

**Correct Answer : 2**

718.Compared to small team projects large team projects are

1. more sensitive to programmer ability
2. less sensitive to programmer ability
3. not sensitive to programmer ability
4. None of these

**Correct Answer : 2**

719.COCOMO is categorizes as a \_\_\_\_\_ estimation technique

1. Heuristic
2. Empirical
3. Analytical
4. None of the above

**Correct Answer : 1**

720.In COCOMO terminology a project with software being strongly coupled to complex hardware & stringent regulations on operating procedures is categorised as

1. Organic
2. Semidetached
3. Embedded

#### 4. Application

**Correct Answer : 3**

721. Which version of COCOMO develops estimates for large projects as sum of estimates of its various subsystems by considering the differences in the complexities of its various subsystems

1. Basic COCOMO
2. Intermediate COCOMO
3. Complete COCOMO
4. None of the above

**Correct Answer : 3**

722. Which of the following is true as per Putnam model

1. Staffing Pattern peaks at Coding & Unit testing
2. Schedule compression increases effort in proportion to fourth power
3. Expanding the schedule gives extreme saving in effort
4. all of the above

**Correct Answer : 4**

723. Risk Assesment Table is based on categorization by

1. Risk Components
2. Risk Impact
3. Both a and b options
4. None of the above

**Correct Answer : 3**

724. Risks arising out of frequent change requests are best mitigated by

1. User characterization
2. Strong SCM
3. Multisource estimations
4. Prescheduling key personnel

**Correct Answer : 2**

725. Requirement phase is usually done by

1. System Analyst
2. System Administrator
3. System Engineer
4. All

**Correct Answer : 1**

726. Productivity can measure from the relationship

1. Productivity=KLOC/person-month
2. Productivity=KLOC/defects
3. Productivity=KLOC/LOC
4. Productivity=KLOC\*person-month

**Correct Answer : 1**

727. The goal of coding is

1. To reduce the cost of testing
2. To reduce the cost of maintenance
3. Both a & b
4. None

**Correct Answer : 3**

728. CASE is expanded as

1. Computer Analysis Software Engineering
2. Computer Aided Software Engineering
3. Computer Aided System Engineering
4. Computer Analysis System Engineering

**Correct Answer : 2**

729. Structural approach is also known as

1. Glass box testing
2. Black box testing
3. Input box testing
4. Output box testing

**Correct Answer : 1**

Your Answer :

730. Three major factor of software engineering are

1. Cost , Correctness , Reliability
2. Cost , Schedule , Reliability
3. Cost , Quality ,Correctness
4. Cost , Portability , Reliability

**Correct Answer : 2**

731.. Ability of a software to perform stated function under stated condition for a stated period of time

1. Efficiency
2. Robustness
3. Reliability
4. Correctness

**Correct Answer : 3**

732. The Software Life Cycle covers activities from

1. Feasibility Study to Installation
2. Requirements Phase to Testing
3. Requirements Phase to Maintenance
4. Project Initiation to Software Retirement

**Correct Answer : 4**

733. An approved feasibility study is a deliverable out of

1. Systems design
2. Preliminary investigation
3. Systems development
4. Systems analysis

**Correct Answer : 2**

734. The goal of \_\_\_\_\_ is to obtain a clear understanding of the system and its shortcomings and to determine opportunities for improvement

1. Feasibility study
2. systems analysis
3. systems definition
4. systems study

**Correct Answer : 2**

735. The SDLC Model most suitable for small projects with unclear requirements is but not many technical risks is

1. Spiral Model
2. Incremental Model
3. Waterfall Model
4. Prototyping Model

**Correct Answer : 4**

736. Prototype may be used for

1. Risk Reduction
2. Requirements Elicitation
3. User Interface Design
4. all of the above

**Correct Answer : 4**

737. \_\_\_\_\_ uses powerful development software and small, highly trained teams of programmers.

1. Prototyping
2. RAD
3. Coding
4. Modeling

**Correct Answer : 2**

738. Example of a Semantic Data model is

1. data flow diagram
2. Context Diagram
3. Entity Relationship Diagram
4. all of the above

**Correct Answer : 3**

739. Formal specification techniques are based on

1. set theory
2. logic
3. sequence
4. all of the above

**Correct Answer : 4**

740.. Formal specification language consists of

1. syntax
2. semantics
3. set of relations
4. all of the above

**Correct Answer : 4**

:

741. Planning the solution to a programming problem using a structured technique is called program

1. coding
2. compiling
3. moduling
4. design

**Correct Answer : 4**

742.. The number & complexity of interconnections between two modules is an indicator of

1. Modularity
2. Cohesion
3. Coupling
4. Abstraction

**Correct Answer : 3**

743.Among the following types which is the most undesirable form of coupling

1. Stamp Coupling
2. Common Coupling
3. Content Coupling
4. Control Coupling

**Correct Answer : 4**

744.A module whose all elements exhibit relationship which involves both data and control flow is said to be \_\_\_\_\_ cohesive

1. Sequentially
2. Communicationally
3. Temporally
4. Procedurally

**Correct Answer : 1**

745.Function oriented design process consists of

1. Data Flow Design
2. Structural decomposition
3. Detailed Design
4. all of the above

**Correct Answer : 4**

746.Which of the following would NOT appear as a symbol on a flowchart?

1. data type
2. decision
3. input/output
4. processing

**Correct Answer : 1**

747. \_\_\_\_\_ involves modeling a system as a set of interacting functional units.

1. Object oriented decomposition
2. Procedural decomposition
3. Functional decomposition
4. None of the above

**Correct Answer : 3**

748.All of the following are control structures used in structured programming, EXCEPT

1. iteration
2. selection
3. sequence
4. goto

**Correct Answer : 4**

749. Proper program layout by proper usage of proper use of indentation, blank spaces, blank lines, parentheses improves

1. Efficiency of the program
2. size of the program
3. maintainability of the program
4. reliability of the program

**Correct Answer : 3**

750. Statistical Testing is used for

1. For statistical softwares only
2. Only uncovering defects
3. Reliability estimation
4. efficiency estimation

**Correct Answer : 3**

751. In \_\_\_\_\_, the tester can analyze the code and use knowledge about the structure of a component to derive test data

1. Black box
2. White box
3. Stress testing
4. None of the above

**Correct Answer : 2**

752. Test Data includes

1. Set of inputs
2. set of expected outputs
3. information of function under test
4. All of these options

**Correct Answer : 1**

753. A driver is a dummy version of the \_\_\_\_\_ module of the module under testing

1. superordinate
2. subordinate
3. coordinate
4. All of the above

**Correct Answer : 1**

754. Changes made to the software to accommodate changes to its environment is called

1. perfective maintenance
2. regressive maintenance
3. adaptive maintenance
4. corrective maintenance

**Correct Answer : 3**

755. Compared to small team projects large team projects are

1. more sensitive to programmer ability
2. less sensitive to programmer ability
3. not sensitive to programmer ability
4. None of these

**Correct Answer : 2**

756. Which of the following is true for two projects of same category with the same estimated LOC size and using COCOMO for estimation  
A) The initial effort estimate for both projects will be same as both have same LOC  
B) The Effort Adjustment Factor will always be the same for both projects  
C) The final effort estimate will always be the same for both projects

1. Only A is true.
2. Only A & B are true
3. Only C is true
4. Neither A, B or C are true.

**Correct Answer : 1**

757. The critical path of PERT/CPM chart cannot be

1. the path with the longest duration
2. more than one unique path
3. path on which any delays are allowed
4. path with same earliest and latest starts for all activities

**Correct Answer : 3**

758. What are the components of a thin client model in Client/Server architecture?

1. Client (Presentation) – Server (Data Management, Application Processing)
2. Client (Application Processing) – Server (Data Management)
3. Client (Data Management) – Server (Application Processing)
4. Client (Application Processing) – Server- Client (Data Management)

759. Risks arising out of frequent change requests are best mitigated by

1. User characterization
2. Strong SCM
3. Multisource estimations
4. Prescheduling key personnel

**Correct Answer : 2**

760. Risk of unrealistic estimates & schedules can be overcome by

1. Using objective methods of estimation rather than judgemental methods
2. Developing a culture of software reuse
3. Performing multisource estimations
4. all of the above

**Correct Answer : 4**

761. Example of Software Configuration Items (SCI) is

1. SRS
2. Code
3. User manual
4. all of the above

**Correct Answer : 4**

762. Software quality managers are responsible for \_\_\_\_\_.

1. Quality assurance
2. Quality planning
3. Quality control
4. All of the above

**Correct Answer : 4**

:

763. Requirement phase is usually done by

1. System Analyst
2. System Administrator
3. System Engineer
4. All

**Correct Answer : 1**

764. Iterative method contains the feature of

1. Water fall method
2. Prototype method
3. Both
4. None

**Correct Answer : 2**

765.. Which of following order is true in software engineering life cycle

1. SRS, Design, Coding, Testing
2. Design, Coding, Testing, SRS
3. SRS, Design, Testing, Coding
4. Coding, Testing SRS, Design

**Correct Answer : 1**

766. Match the level testing can work on

1) Acceptance Testing 2) System Testing 3) Integration Testing 4) Unit Testing

a) Client Needs b) Requirements c) Design d)Code

1. 1-a, 2-b, 3-c, 4-d
2. 1-d, 2-b, 3-c, 4-a
3. 1-a, 2-b, 3-d, 4-c
4. 1-a, 2-c, 3-b, 4-d

**Correct Answer : 1**

:

767. Which software development model incorporates risk management?

1. Waterfall model
2. Spiral model
3. Incremental model
4. None of the above

768. Which is the most commonly used debugging approach?

1. Brute force
2. Back tracking
3. Cause elimination
4. None of the above

769. Four important characteristics of a software product are

1. dependability, usability, reliability, robustness

2. maintainability, dependability, efficiency, usability
3. Supportability, maintainability, visibility, rapidity
4. None of the above

770. Enough time will be left at the end of the project to uncover errors that were made because we rushed through the \_\_\_\_\_ process. The moral is: Don't rush through it! \_\_\_\_\_ is worth the effort. (Clue: both the blanks to be filled by the same word)

1. coding
2. design
3. testing
4. None of the above

771. Who should perform the validation test?

1. Software developer
2. Software user
3. a group of developers and users
4. None of the above

772. Find the activity, which is not part of version management

1. controlled change
2. storage management
3. coding standard
4. None of the above

773. Testing

1. instills guilt
2. is punishment
3. is to find errors
4. None of the above

774. Which is more important?

1. product
2. process
3. quality
4. None of the above

775. The sooner you begin \_\_\_\_\_, the longer it will take to get done.

1. coding
2. testing
3. design
4. None of the above

776. Doing what is said one would do, is the definition for

1. reliability
2. quality
3. software plan
4. none of the above

777. Pick up the correct sequence of processes

1. Requirements, Analysis, Test case design, Design
2. Requirements, Analysis, Design, Test case design
3. Requirements, Test case design, Analysis, Design
4. None of the above

778. A software quality assurance activity that is performed by software engineers

1. coding
2. formal technical reviews
3. design
4. None of the above

779. In what manner, coding and testing are done

1. top-down
2. bottom-up
3. cross-sectional
4. adhoc

780. Which of the following is generally not contained in a feasibility document

1. Problem descriptions
2. Project name
3. Feasible alternative solutions
4. data-flow diagrams

781. The initiation of a systems investigation may result from

1. An analysis investigation
2. A manager's formal request
3. Scheduled system review
4. All of the above

782. Which of the following is not a factor in the failure of a systems development Project?

1. inadequate user involvement
2. failure of systems integration
3. size of the company
4. continuation of a project that should have been cancelled

783. "The probability of failure free operation of a computer program in a specified Environment for a specified time" is the definition for

1. quality
2. reliability
3. operability
4. None of the above

784. The four icons used in building Data Flow Diagram are

1. Flow, Source, Store, Process
2. Flow, Process, Source, Store
3. Flow, Process, Source/Destination, Store
4. Source, Process, Destination, Store

785. Which of the following is (are) not a tool for Application Prototyping?

1. Application generates
2. Third generation language
3. Screen generators

#### 4. Report generators

786. All of the following tools are used for process description except

1. Structured English
2. Decision tables
3. Pseudo code
4. Data Dictionaries

787. Which of the following activities does not belong to the Implementation phase of The SDLC?

1. File conversion
2. Program testing
3. User training
4. All of the above

788. Which of the following is not true of the conversion phase of the development life Cycle?

1. the user and systems personnel must work closely together
2. steps must be taken to phase out the old system
3. documentation should be emphasized
4. the non-machine components of the system should be considered

789. Benchmarking is used

1. To select computer systems
2. To maintain files in p-to-date condition
3. for application proto-typing
4. for system acceptance

790. Which is the first phase of the Waterfall software process model?

1. Design
2. Prototype
3. Testing
4. Requirement

791. What is the purpose of use cases in UML?

1. Requirements of capture
2. Define how the software system will be used
3. Describe what the user expects to do with the system
4. Make clear what the stakeholders needs are

792. Please match the Spiral model sectors:

- X1: Objective setting  
X2: Risk assessment and reduction  
X3: Development and validation  
X4: Planning

With their correct characteristics:

- Y1: Risks are assessed and activities put in place to reduce the key risks  
Y2: Specific objectives for the phase are identified  
Y3: The project is reviewed and the next phase of the spiral is planned  
Y4: A development model for the system is chosen which can be of  
The generic models

1. X1-Y3 X2-Y1 X3-Y2 X4-Y4
2. X1-Y2 X2-Y3 X3-Y4 X4-Y1
3. X1-Y2 X2-Y1 X3-Y4 X4-Y3
4. X1-Y3 X2-Y2 X3-Y1 X4-Y4

793. Indicate what information is provided by Functional requirements?

- X1: The constraints on the services or functions offered by the system such as  
    Timing constraints
- X2: How the system should behave in particular situation
- X3: The constraints on the development process, standards
- X4: How the system should react to particular inputs

1. X2, X4
2. X1, X2, X4
3. X1, X3
4. X2, X3, X4

794. Function point is

1. A pointer to a function
2. A point where the function is written in a code
3. A method of estimating the amount of functionality required for a program
4. A function named “point”

795. A system version

1. Is an instance of a system deployed at the client side?
2. Is an instance of a system that differs in some way from other instances?
3. Should either include new functionalities or should be intended for a different  
    Hardware platform
4. Is created to fix reported faults as part of development process

796. What is synchronization control in configuration management?

1. It governs which software engineer have the authority to access & modify a  
    Particular configuration object
2. It helps to ensure that parallel changes performed by two different people don't  
    Overwrite one another
3. It synchronizes two different system versions to form a single versions
4. It helps to synchronize the source code files to form deployable version

797. The currently known containment effectiveness of faults introduced during each  
    Constructive phase of software development for a particular software product is  
    Ratio of

1. (Actual project duration) to (estimated project duration)
2. (number of pre-release Defects) to (number of pre-release Defects) to (number of pre-release  
    Defects + number of post release Defects)
3. (number of phase i errors) to (number of phase i errors + number of phase i defects)
4. (number of failure) to (Execution time)

798. SRS is maintained in configuration environment as

1. Software design baseline
2. Software development baseline

3. Software artefacts
4. Software product baseline

799. Following is the SCM audit tool

1. Requirement metrics
2. PERT charts
3. Source Code
4. Design Document

800. Delphi method of cost estimation uses

1. Functional point analysis
2. SLOC expressed in KDSI
3. PERT model using effort calculations
4. Decomposition method of cost estimation

801. Validate that the functions meet started requirements or not is called as

- 
1. Unit testing
  2. System testing
  3. Integration Testing
  4. Acceptance Testing

Q.2) what do you mean by incremental testing?

1. White box testing
2. Black box testing
3. Top-down testing
4. Independent testing

802. Verification should be performed for \_\_\_\_\_

1. Requirements
2. Design
3. Code construction
4. All of the above

803. Validation is mostly used to determine the \_\_\_\_\_ of the final software/program.

1. Correctness
2. Consistency
3. Completeness
4. Quality

804. Quality control procedures are \_\_\_\_\_

1. Preventive costs
2. Appraisal costs
3. Failure costs
4. None of the above

805. Who should be involved in determined risk management?

1. Customer
2. Management
3. Development team
4. All of the above

806. Which of the following is an attribute of Quality?

1. Process
2. Product
3. Standard
4. Policy

807. The system design SDLC phase is immediately followed by \_\_\_\_\_

1. Program and training
2. Initiation
3. Standard
4. Policy

808. Resource planning, audit planning , estimation, scheduling are the some of the tasks carried out in \_\_\_\_\_

1. Initiation phase
2. System design phase
3. Definition phase
4. Evaluation phase

809. System reviews and software testing are examples of \_\_\_\_\_

1. Quality control
2. Quality assurance
3. Quality audits
4. None of the above

810. \_\_\_\_\_ is done without executing the code.

1. Registration
2. Unit
3. System
4. Static

811. Which of the following is not a white box testing technique?

- 1. Statement coverage
- 2. Equivalence Partitioning
- 3. Decision/condition coverage
- 4. Multiple condition coverage

812. Which of the following task is not performed by v & v management?

- 1. Create the software v & v plan
- 2. Conduct the management review of v & v
- 3. Support management and technical reviews
- 4. Conduct in-process reviews

813. A standard must be \_\_\_\_\_

- 1. Measurable, Attainable and critical
- 2. Smart, Measurable and Time-bound
- 3. Measurable, Achievable and Clear
- 4. Approved, Available and Attainable

814. Which are the four primary standards of ISO 9000?

- 1. ISO 9000, ISO 9001, ISO 9004, ISO 10010
- 2. ISO 9000, ISO 9001, ISO 9006, ISO 10011
- 3. ISO 9000, ISO 9001, ISO 9004, ISO 10011
- 4. ISO 9000, ISO 9001, ISO 9004, ISO 10054

815. Cost of quality includes \_\_\_\_\_

- 1. Preventive, Corrective & control
- 2. Preventive, detective & control
- 3. Preventive, appraisal & failure
- 4. None of the above

816. AQL stands for?

- 1. Allowable quality level
- 2. Allocated quality level
- 3. Acceptable quality level
- 4. Allowed quality level

817. Quality assurance is a function responsible for \_\_\_\_\_.

- 1. Controlling quality
- 2. Managing quality
- 3. Inspections
- 4. Removal of defects

818. \_\_\_\_\_ is used to perform structured analysis and to document the result.

- 1. DFD
- 2. UML
- 3. COCOMO
- 4. None of the above

819. Reverse engineering of data focuses on \_\_\_\_\_

- 1. Database structures
- 2. Internal data structures
- 3. Both 1 & 2
- 4. None of the above

820. System Test will not include \_\_\_\_\_

- 1. Approach
- 2. Risks
- 3. Suspension and Resumption criteria
- 4. None of the above

821. As series of definable, repeatable and measurable tasks leading to useful result is called

- 1. Program
- 2. Process
- 3. Activity
- 4. Controller

822. The first step in project planning is to \_\_\_\_\_

- 1. Determine the budget
- 2. Determine the project constraints
- 3. Establish the objectives and scope
- 4. Select a team organizational model

823. Which of the following is a characteristic of a good decision?

- 1. Includes test cases for all components
- 2. Exhibits strong coupling between its modules
- 3. Implements all requirements in the analysis model
- 4. Incorporates source code for descriptive purposes

824. Which of the following characteristics of a strong design?

- 1. Low coupling
- 2. High cohesion
- 3. Modular
- 4. All of the above

825. Find the activity which is not part of version management?

- 1. Controlled change
- 2. Storage management
- 3. Coding standard
- 4. Creating program code
- 5. None of the above

826. Which of the following is a disadvantage of outsourcing?

- 1. Reduces technical know-how for future innovation
- 2. Increases degree of control
- 3. Increases vulnerability of strategic information
- 4. Increases dependency on other organizations

827. If a linear process models all steps come after finishing of a step then that model

called \_\_\_\_\_

- 1. Spiral
- 2. Prototype
- 3. Water fall model
- 4. None of the above

828. Cyclomatic Complexity method comes under which of the following testing method?

- 1. White box
- 2. Black box
- 3. Green box
- 4. Yellow box

829. Which of the following provides the foundation for team development?

- 1. Motivation
- 2. Organizational development
- 3. Conflict management
- 4. Individual development

830. Which of the following is a key to effective software engineering?

1. Good skills      2. Good design      3. Good Management      4. None of the  
above

831. Estimation for the satisfaction of the identified user needs is known as \_\_\_\_\_

1. Feasibility study    2. Requirements evolution    3. Requirements capture    4. None of the  
above

832. Translating the algorithm into a programming language occurs at the \_\_\_\_\_ step of the  
SDLC

- 1. Debugging
- 2. Coding
- 3. Testing and Documentation
- 4. Algorithm Development

833. Who designs and implement database structures?

- 1. Programmers
- 2. Project managers
- 3. Technical writers
- 4. Database administrators

834. The \_\_\_\_\_ determines whether the project should go forward or not

- 1. Feasibility assessment
- 2. Opportunity identification
- 3. System evaluation
- 4. Program specification

835. Actual programming of software code is done during the \_\_\_\_\_ step in the SDLC

- 1. Maintenance and Evaluation
- 2. Design
- 3. Analysis
- 4. Development and Documentation

836. Evolutionary software process models \_\_\_\_\_

- 1. Are iterative in nature
- 2. Can easily accommodate product requirements changes
- 3. Do not generally produce throwaway systems
- 4. All of the above

837. Which of the following is not a part of testing?

- |                      |                      |                  |                    |
|----------------------|----------------------|------------------|--------------------|
| 1. White box testing | 2. Black box testing | 3. Inner testing | 4. Gorilla testing |
|----------------------|----------------------|------------------|--------------------|

838. Quality assurance \_\_\_\_\_

- 1. Focuses on removal of defects before release
- 2. Is a set of planned and systematic actions to provide confidence that a product or service will satisfy
  - Given requirements for quality
- 3. Is to check the system for its interface errors
- 4. None of the above

839. \_\_\_\_\_ is the chain of activities that determines the duration of the project

- 1. object points
- 2. LOC
- 3. Lines of code
- 4. Critical path

840. Debugging is a consequence of \_\_\_\_\_

- 1. An unsuccessful test
- 2. An error in design
- 3. A successful test
- 4. A metric that Describes the degree to which a software product meets its requirements

841. In object-orientation, polymorphism means \_\_\_\_\_

- 1. There can be many objects in the design
- 2. Methods can be changed in many ways
- 3. Many ways can be instantiated of a class
- 4. Objects can implement the same method in many ways

842. The spiral model of software development \_\_\_\_\_

- 1. Ends with the delivery of the software product
- 2. is more chaotic than the incremental model
- 3. Includes project risks evaluation during each iteration
- 4. All of the above

843. The objective of software project planning is to \_\_\_\_\_

- 1. Convince the customer that a project is feasible
- 2. Enable a manager to make reasonable estimates of cost and schedule
- 3. Make use of historical project data
- 4. Determine the probable profit margin prior to bidding on a project

844. Which of the following is not a section in the standard for SQA plans recommended by IEEE?

- 1. Documentation
- 2. Reviews and audits
- 3. Test
- 4. Budget

845. Which of the following tasks is not part of software configuration management?

- 1. Change control
- 2. Reporting
- 3. Statistical quality control
- 4. Version control

846. How many steps are in the program development life cycle (PDLC)?

- 1. 4
- 2. 5
- 3. 6
- 4. 10

847. \_\_\_\_\_ is a measure of independence of a module or component?

- 1. Cohesion
- 2. Coupling
- 3. Loop coupling
- 4. Loop cohesion

848. The purpose of requirement phase is \_\_\_\_\_

- 1. To freeze requirements
- 2. To understand user needs
- 3. To define the scope of testing
- 4. All of the above

849. A modular design has \_\_\_\_\_

1. High cohesion, low coupling and high abstraction
2. High cohesion, low coupling and low abstraction
3. Low cohesion, low coupling and high abstraction
4. High cohesion, high coupling and high abstraction

850. The outcome of the analysis phase is

- 1. Sufficient understanding of the problem to write a design specification.**
2. Sufficient understanding of the problem to write a formal description of it.
3. Sufficient understanding of the problem to suggest a solution (or solutions)
4. Sufficient understanding of the problem to write a code specification.

851. Corrective maintenance is related to:

1. Making the system more functional
- 2. Correcting the fault that could not be found during testing**
3. Making the system work in new environment
4. All of the above

852. Testing is done with the objective of \_\_\_\_\_.

- 1. Finding new errors in the software**
2. Correcting errors in the software
3. Both 1 and 2
4. None of the above

853. If a software had 5 failures in 100 tests during 10 days of testing (Assume 10 tests Per day), what would be a good estimate of the reliability of the software over the Next week? (Assume 5 working days in a week)

1. 0.0275
2. 0.5987
- 3. 0.0769**
4. 0.9500

854. A requirements specification is:

1. A general list of things that the proposed software ought to do
- 2. A precise and mathematical list of things that the proposed software ought to do**
3. A formal list of things that the proposed software must do
4. A list of software and hardware resources needed for completing the proposed system

855. To achieve a good design, different modules should have \_\_\_\_\_

1. Weak cohesion and low coupling
2. Weak cohesion and high coupling
- 3. Strong cohesion and low coupling**
4. Strong cohesion and high coupling

856. Which of the following is the input to the feasibility study?

1. Outline description of the system
2. Set of preliminary business requirements
3. How the system is intended to support business process
- 4. All of the above**

857. Assuming that the tests are representative of the operational situation, then calculate the Reliability of a software system that has had 10 failures in 200 test cases.

1. **0.95**
2. 0.9
3. 0.1
4. 1

858. A critical task is one with \_\_\_\_\_

1. Minimum slack time
2. Maximum slack time
- 3. No slack time**
4. None of the above

859. Which of the following is identified as critical for success in software development process?

1. Adopting SDLC configuration management
2. Adopt Continuous risk management
- 3. Both 1 and 2**
4. Choice 2 only

860. Quality control \_\_\_\_\_

1. Focuses on inspections, testing and removal of defects before release
2. Is to check the system for its interface errors
3. Is checking and reviewing work that has not been done

**4. Is a set of planned and systematic actions to provide confidence that a product Or service will satisfy given requirements for quality**

861. How maintainability can be achieved?

1. Through Error recovery
- 2. When the S/W process evolves to reflect changed organizational requirements  
Or identified process improvements**
3. Both 1 and 2
4. None of the above

862. Which testing methods are used by end-users who actually test software before they use it?

1. White Box testing
- 2. Alpha and Beta testing**
3. Black box testing
4. Trial and Error testing

863. What do you mean by nonfunctional requirements?

1. User requirements
2. Requirements definition
- 3. A timing constraint placed on the system or the use of a specific language during Development**
4. None of the above

864. The project plan should be regularly revised during the project

- 1. Yes**
2. No
3. It cannot be changed, it is to be followed
4. It is made only once at the start of project

865. A program's control flow structure indicates \_\_\_\_\_

1. Correct program
- 2. The sequence in which the program's instructions are executed**
3. High-level language programming
4. All of the above

866. Bar charts and activity networks are graphical notation which are used to illustrate the

1. Project Plan
2. Project dependencies
- 3. Project Schedule**
4. Project Risk Analysis

867. Which factor is not contributing to software crisis?

1. Larger problem sizes
2. Skill shortage
3. Low productivity improvements
- 4. None of the above**

868. Spiral mode \_\_\_\_\_

1. Is an example of exploratory programming?
- 2. Is characterized by the assessment of management risk items**
3. Both 1 and 2
4. None of the above

869. Cohesion is \_\_\_\_\_

1. Measure of quality
2. Concept related to testing
3. Understandability
- 4. Measure of closeness of the relationships between the system's components**

870. Which term defines the process of project compliance with policies and procedures?

1. Quality control
2. Quality assurances
3. Quality audits
- 4. Quality control management**

871. The data items that are exchanged between the different functions are represented as \_\_\_\_\_

1. Design phase
- 2. DFDs**
3. ER Diagram
4. Data Structures

Q.23) which of these terms apply to identify quality standards and how to satisfy them?

1. Quality projections
- 2. Quality management**
3. Quality overview
4. Quality planning

872. Software engineering principles are based on \_\_\_\_\_

1. Error correction
2. Error prevention
3. Error detection
- 4. None of the above**

873. Acceptance test plan is \_\_\_\_\_

- 1. Most likely to arise from the requirements specification process**
2. Most likely to arise from the System integration
3. Both 1 and 2
4. None of the above

874. Visibility of design means \_\_\_\_\_

1. Efficient design
3. Good quality, consistent document
2. Less complex design
- 4. None of above**

875. Project quality management includes \_\_\_\_\_

- 1. All activities of the performing organization that determines policies and Responsibilities of a project**
2. Performance quality control
3. Error detection
4. None of the above

876. Important distinction between the spiral model and other software process model is

1. Explicit consideration of planning next phase
2. Explicit consideration of Validation
- 3. Explicit consideration of Risk Assessment and Reduction**
4. Explicit consideration of Objective setting

877. Capability maturity model \_\_\_\_\_

1. Gives description for software process
- 2. States what activities are necessary for success**
3. Describes how activities are to be performed
4. Compare essential difficulties of software

878. Validations is to check \_\_\_\_\_

1. Whether we are building the product right  
**product**
3. The methodology of software development
- 2. Whether we are building the right**
4. The methodology of software testing

879. Which lifecycle model would you use for developing a commercial web site that requires About 8 months of effort from a team of 6 people?

1. Opportunistic    2. **Waterfall**    3. Incremental    4. Spiral

880. Which of the following s/w development life cycle shows high amount of risk analysis?

1. Water fall model    2. **Spiral model**    3. V-shaped model    4. Incremental model

881. Deliverables are usually milestones but milestones need not be deliverables

1. **True**    2. False    3. May be true    4. None of the above

882. Design phase will usually be \_\_\_\_\_

1. **bottom-up**    2. Top-down    3. Random    4. Center fringing

883. The execution of every possible test case is called as \_\_\_\_\_

1. Static analysis    2. Dynamic testing    3. Structural testing    **4. Exhaustive testing**

884. Configuration Management is not related with

1. Controlling changes to the source code  
2. **Choice of hardware configuration for an application**  
3. Controlling documentation for an application  
4. Maintaining versions of software

885. Which of the following statement is correct?

1. The project schedule is usually represented a set of charts showing the work.  
2. The project schedule is usually represented as a set of charts showing the activities Dependencies and staff allocations  
3. The project schedule is usually represented as a set of charts showing the work Breakdown and activities dependencies  
**4. The project schedule is usually represented as a set of charts showing the work Breakdown, activities dependencies and staff allocations**

886. Which is true about regression testing?

1. Regression testing is carried out if the system underline is an upgraded or corrected Version  
2. Regression testing checks that there is no side effect after changes  
**3. Both 1 and 2**  
4. None of the above

887. Which of the following is true about integration testing?

1. Integration testing aims to find out the errors related to various module interfaces  
2. Integration testing is a kind of testing, which is carried out while constructing or integrating the System  
**3. Integration testing is a kind of testing, which is carried out after constructing or Integrating the system**  
4. Both 1 & 2

888. Which of the following is not a queued message?

- a. WM\_TIMER
- b. WM\_QUIT
- c. WM\_COMMAND
- d. None of these

Ans. D

889. Which of the following is not a resource?

- a. Bitmap
- b. Dialog box Template
- c. Html document
- d. None of these

Ans. D

890. Which of the following is the resource?

- 1. Bitmap
- 2. Html document
- 3. Dialog templates
- 4. All of the above.

891. Which function is used to compare the regions?

- 1. EqualTo
- 2. EqualRgn
- 3. CompareRgn
- 4. CmpRgn

892. Which of the following is not a queued message?

- 1. WM\_COMMAND
- 2. WM\_QUIT
- 3. WM\_TIMER
- 4. All of the above

893. Which function is used to convert white to black and black to white?

- 1. Convert
- 2. Invert
- 3. Insert
- 4. None of above

894. Which API is used to copy and stretch the bitmap?

- 1. BitBlt
- 2. StretchBlt
- 3. PatBlt
- 4. None of above

895. Which of the following is a resource?

- 1) Bitmap
- 2) Dialog box template
- 3) Html document
- 4) All of the above

896. By default polygon is?

- 1) dot-dash
- 2) Solid
- 3) Transparent
- 4) None of the above

897.\_begin thread present in which header file?

- 1)winuser.h
- 2>window.h
- 3)process.h**
- 4)none of the above

898.what function to stretch the bitmap is used?

- 1)strblt()
- 2)bitblt
- 3)stretchblt()**
- 4)hbitmap

899.Which of the following not Virtual key?

- a.VK\_PREV
- b.VK\_NEXT
- c.VK\_UP
- d.None

900.Which of the following is non queed message?

- 1.WM\_COMMAND
- 2.WM\_QUIT
- 3.WM\_TIMER
- 4.All of the above

901.Which of the following is not a resource?

- 1.Bitmap
- 2.Dialogbox Template
- 3.Html document
- 4.None of these

902.Which function is used to convert white to black and black to white?

- 1.Convert
- 2.Invert
- 3.Insert
- 4.None of above

903.Which of the following not Virtual key?

- 1.VK\_PREV
- 2.VK\_NEXT
- 3.VK\_UP
- 4.None

904.Which of the following is a resource?

- 1)bitmap
- 2)dialod box template
- 3)html document

**4)all of the above**

905.By default polygon is?

- 1)dot-dash
- 2)solid**
- 3)transparent
- 4)none of the above

906.what function to stretch the bitmap is used?

- 1)strblt()
- 2)bitblt
- 3)stretchblt()**
- 4)hbitmap

907.which of the following is the blocking function?

- 1)getmessage()**
- 2)postquitmessage()
- 3)dispatchmessage()
- 4)translatemessage()

908.The outcome of the analysis phase is

- 1. Sufficient understanding of the problem to write a design specification
- 2. Sufficient understanding of the problem to write a formal description of it
- 3. Sufficient understanding of the problem to suggest a solution (or solutions)
- 4. Sufficient understanding of the problem to write a code specification

909.A requirements specification is:

- 1. A general list of things that the proposed software ought to do.
- 2. A precise and mathematical list of things that the proposed software ought to do.**
- 3. A formal list of things that the proposed software must do.
- 4. A list of software and hardware resources needed for completing the proposed system.

949.To achieve a good design, different modules should have \_\_\_\_\_.

- 1. Weak cohesion and low coupling
- 2. Weak cohesion and high coupling
- 3. Strong cohesion and low coupling**
- 4. Strong cohesion and high coupling

950.

What do you mean by nonfunctional requirements?

- 1. User requirements
- 2. Requirements definition
- 3. A timing constraint placed on the system or the use of a specific language during development.**
- 4. None of the above

951.Spiral model \_\_\_\_\_

- 1. Is an example of Exploratory programming.

**2. Is characterized by the assessment of management risk items.**

- 3. Both 1 and 2
- 4. None of the above

952.

Cohesion is \_\_\_\_\_.

- 1. Measure of quality

- 2. Concept related to testing

**3. Understandability**

- 4. Measure of closeness of the relationships between the system's components.

953. The data items that are exchanged between the different functions are represented as \_

- 1. Design phase

**2. DFDs**

- 3. ER Diagram

- 4. Data Structures

956. Important distinction between the spiral model and other software process model is

- 1. Explicit consideration of planning next phase

- 2. Explicit consideration of Validation

**3. Explicit consideration of Risk Assessment and reduction**

- 4. Explicit consideration of Objective setting

957. Which lifecycle model would you use for developing a commercial web site that requires about 8 months of effort from a team of 6 people?

- 1. Opportunistic

**2. Waterfall**

- 3. Incremental

- 4. Spiral

958. Which of the following software development life cycle shows high amount of risk analysis?

- 1. Water fall model

**2. Spiral model**

- 3. V – shaped model

- 4. Incremental model

959. Design phase will usually be \_\_\_\_\_.

- 1. Bottom-up

**2. Top-down**

- 3. Random

- 4. Centre fringing

960. Which is the first phase of the Waterfall software process model?

- 1. Design

2. Prototype
3. Testing
- 4. Requirement**

961. Indicate what information is provided by Functional requirements?

- X1: The constraints on the services or functions offered by the system such as timing constraints.
- X2: How the system should behave in particular situations.
- X3: The constraints on the development process, standards.
- X4: How the system should react to particular inputs.

**1. X2, X4**

- 2. X1, X2, X4
- 3. X1, X3
- 4. X2, X3, X4

962. Software engineering principles are based on \_\_\_\_\_.

- 1. Error correction
- 2. Error prevention
- 3. Error detection
- 4. None of the above**

963. Which of the following are SDLC process models?

- 1. Waterfall
- 2. V-shape
- 3. Spiral
- 4. All of the above**

964. Deployment of a system refers to

- 1. Activities performed in system testing
- 2. Implementing the design into executable codes
- 3. The transition of the system from its development phase to the operational phase.**
- 4. None of the above

965. Please match the Spiral model sectors: (X-Y)

X1: Objective setting

X2: Risk assessment and reduction

X3: Development and validation

X4: Planning with their correct characteristics:

Y1: Risks are assessed and activities put in place to reduce the key risks

Y2: Specific objectives for the phase are identified

Y3: The project is reviewed and the next phase of the spiral is planned

Y4: A development model for the system is chosen which can be any of the generic models

- 1. X1-Y3, X2-Y1, X3-Y2 X4-Y4
- 2. X1-Y2, X2-Y3, X3-Y4 X4-Y1
- 3. X1-Y2, X2-Y1, X3-Y4 X4-Y3**
- 4. X1-Y3, X2-Y2, X3-Y1 X4-Y4

966. The requirement should specify \_\_\_\_\_

1. Why
2. What
3. How
4. All of the above

967. V Shape Model \_\_\_\_\_

1. Builds the throwaway version intend to test concept & requirements
2. Adds risk analysis, and 4gl RAD prototyping to the waterfall model
3. **Is a variant of the Waterfall that emphasizes the verification and validation**
4. None of the above

968. Just as the entry point to a C program is the function main(), the entry point to a Windows program is \_\_\_\_\_.

(WinMain() )

969. The three main Windows libraries are \_\_\_\_\_, \_\_\_\_\_ & \_\_\_\_\_. (Kernel32, User32, GDI32)

970.. The size of Unicode character is \_\_\_ bits. (32)

971.. CreateWindow() function sends the \_\_\_\_\_ message. (WM\_CREATE)

972.. UpdateWindow() function sends the \_\_\_\_\_ message. (WM\_PAINT)

973. PostQuitMessage() function posts the \_\_\_\_\_ message. (WM\_QUIT)

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976. TranslateMessage() function is used for \_\_\_\_\_ translation. (Keyboard)

977. Window procedure function is a \_\_\_\_\_ function. (CALLBACK)

978. TA program can call its own window procedure by using the \_\_\_\_\_ function. (SendMessage)

979. DispatchMessage() function passes the MSG structure back to \_\_\_\_\_. (Windows)

980. The very first message that a window procedure receives is \_\_\_\_\_. (WM\_CREATE)

981. RegisterClass() associates a window procedure to the \_\_\_\_\_. (window class)

982. Window messages are defined in both windows.h and \_\_\_\_\_ header files. (winuser.h)

983. Everything that happens to a window is relayed to the \_\_\_\_\_ in the form of message. (Window Procedure)

984.. \_\_\_\_\_ API is used for subclassing. (SetWindowLong() )

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986. Message \_\_\_\_\_ occurs when the user clicks an item on the menu bar or presses a menu key. (WM\_INITMENU)

963. \_\_\_\_\_ API is used to kill a modal dialog box. (EndDialog() )

964.. \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ are windows resources defined in a .Res file. (Any three of these -

ICON / CURSOR / STRINGTABLE / DIALOG / MENU / BITMAP)

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965. When there is no message in the queue, PeekMessage() function returns \_\_\_\_\_. (FALSE or 0)

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967. System keystroke messages are \_\_\_\_\_ and \_\_\_\_\_. (WM\_SYSKEYDOWN, WM\_SYSKEYUP)

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965. Software acts with a dual role as –

- A. Application software and Embedded software
- B. Embedded software and Product-line software
- C. Software product and Environment or application tool for software product development
- D. Application software and Data storage

Answer: C

966. Which one of the following is false statement?

- A. Software is developed or engineered, it is not manufactured in the classic sense
- B. Replacement of parts is always an ideal solution
- C. Software does not 'wear out' though it may deteriorates over a period
- D. None of the above

Answer: B

967. Software Engineering encompasses -

- A. Process, Methods, and Tools
- B. Process, Product, And Methods
- C. Methods, Tools, and People
- D. People, Process, and Product

Answer: A

968. Which one of the following is correct list of prescriptive process model?

- A. Waterfall, Incremental, Spiral,
- B. Waterfall, V-shaped, Prototyping
- C. Prototyping, Spiral, Adaptive S/w development
- D. Waterfall, Incremental, V-shaped

Answer: D

969. Which process model will you adopt for a project having

- Lengthy delivery schedule
- All requirements are known upfront & well established and
- Customer needs important functionality to be implemented at earliest?

- A. Waterfall
- B. Prototyping
- C. Incremental
- D. RAD

Answer: C

970. Risk analysis and 4gl RAD prototyping is added to the waterfall model to form a ----- model

- A. Spiral
- B. Prototyping
- C. V-shaped
- D. RAD

Answer: A

971. ----- model is a variant of the Waterfall model, which also emphasizes the verification and validation

- A. Waterfall
- B. Prototyping
- C. Incremental
- D. V-shaped

Answer: D

972. Requirement should specify

- A. Hardware required to complete the project
- B. Resource requirement
- C. A precise and mathematical list of things that describes what proposed software should provide
- D. Description of how to develop the system

Answer: C

973. Stakeholders are asked to rank / prioritise requirements & discuss conflicts in priority in ----- stage of requirement engineering.

- A. Conflict resolution
- B. Elaboration
- C. Specification
- D. Negotiation

Answer: D

974. Use-cases are defined from ----- point of view

- A. An actor's
- B. A function's
- C. An actor and function's
- D. None of the above

Answer: A

975. Product requirements, Organizational requirements, & External requirements are example of

- A. Domain requirements
- B. Non-functional requirements
- C. Functional requirements
- D. None of the above

Answer: B

976. Which of the following models collectively form the design model?

- A. Data design, Architectural design, Interface Design, Component Design
- B. Data design, Architectural design, System design, Program design
- C. Architectural design, Interface Design, Functional design, Class design
- D. None of the above

Answer: A

977. Cohesion is --

- A. Qualitative indication of the degree to which a module focuses on just one thing
- B. Qualitative indication of the degree to which a module is connected to other modules & to outside world
- C. Both 1 & 2
- D. None of the above

Answer: A

978. Which of the following is FALSE statement?

- A. Abstractions allows designers to focus on solving a problem without being concerned about irrelevant lower level details
- B. Modularity is ability to understand the software by examining its components independently
- C. Control hierarchy represents the procedural aspects of the software
- D. None of the above

Answer: C

979. Coupling is --

- A. Qualitative indication of the degree to which a module focuses on just one thing
- B. Qualitative indication of the degree to which a module is connected to other modules & to outside world
- C. Both 1 & 2
- D. None of the above

Answer: B

980. Validation process checks -

- A. Whether we are building the right product
- B. Whether we are building the product
- C. Whether we are building the product right
- D. Whether we are testing the product

Answer: A

981. Smoke testing is an ---- testing approach, which is used when software is being developed

- A. Unit testing
- B. Regression testing
- C. Integration testing
- D. Acceptance testing

Answer: C

982. ----- is conducted at developer's site by end-users

- A. Beta testing
- B. Alpha testing
- C. White box testing
- D. None of the above

Answer: B

983. Unit testing is

- A. A Black box testing
- B. A White box testing
- C. An User Acceptance Testing
- D. Not a testing

Answer: B

984. ---- provides the maximum number of test cases that will be required to guarantee that every statement in program has been executed at least once.

- A. Independent Program paths
- B. Cyclomatic complexity
- C. Graph Matrices
- D. None of the above

Answer: B

985. Content testing uncovers

- A. Syntactic errors
- B. Semantic errors
- C. Structural errors
- D. All of the above

Answer: D

986. Reliability is indicated by following attributes -

- A. Maturity, fault tolerance, recoverability
- B. Understandability, learnability, accuracy
- C. Suitability, accuracy, compliance
- D. All of the above

Answer: A

987. Consider the following data for the effort spent on various tasks in project

Coding	- 120
Self code walk-thru	- 04
Code review	- 06
Rework (Bug fixing)	- 37
Training	- 02
Tool Development	- 10
Testing	- 35
Preparing check list	- 01

What is the Cost of quality, Failure cost, prevention cost, and appraisal cost?

- A. 120, 35, 37
- B. 37, 95, 120
- C. 95, 37, 13, 45

D. 120, 13, 45

Answer: C

988. Warranty work is an example of -----

- A. Prevention cost
- B. External failure cost
- C. Internal failure cost
- D. All of the above

Answer: B

989. Match the following

- |                          |  |
|--------------------------|--|
| a) Internal failure cost | i) Efforts spent in post-delivery defect fixing                      |
| b) Appraisal Cost        | ii) Efforts spent in pre-delivery defect fixing                      |
| c) External failure cost | iii) Efforts spent on quality planning, tools development & training |
| d) Prevention cost       | iv) Efforts spent on reviews and testing                             |

- A. a-iv      b-iii    c-ii    d-i
- B. a-iv      b-ii    c-iii    d-i
- C. a-Ib-iii    c-ii    d-iv
- D. a-ii      b-iv    c-i    d-iii

Answer: D

990. There are --- levels of CMMi

- A. 5
- B. 3
- C. 1
- D. 6

Answer: A

991. The objective of project planning is to provide

- A. Hardware & software requirement
- B. Framework that helps to make reasonable estimates of resources, cost and schedule
- C. Only the list of risks identified
- D. None of the above

Answer: B

992. Pick up the correct statement from following

- A. Project estimates should not be updated during project development
- B. Project estimates should be updated only at the end of the project
- C. Project estimates should be updated as the project progresses
- D. None of the above

Answer: C

993. The purpose of project management is -

- A. Prediction and prevention
- B. Prediction and reaction
- C. Recognition and reaction
- D. None of the above

Answer: A

994. Software project management is ----- within SDLC

- A. A phase
- B. An umbrella activity
- C. A milestone
- D. None of the above

Answer: B

995. Which one of the following is FALSE statement

- A. Gantt charts are often used for displaying the project schedule
- B. Gantt chart shows both planned and actual schedule information
- C. CPM is used for finding total project cost
- D. Critical path is the longest path through the network diagram

Answer: C

996. In Software project management, 4 Ps have to be managed in following order -

- A. Project, People, Product, Process
- B. Process, Problems, People, Product
- C. People, Product, Process, Project
- D. Product, People, Process, Problem

Answer: C

997. A method of estimating the amount of functionality required for a project is

- A. WBS Estimation
- B. UCP Estimation
- C. FP Estimation
- D. COCOMO estimation

Answer: C

998. Scheduling begins with -----

- A. Risk identification
- B. Process decomposition
- C. FP Estimation
- D. COCOMO estimation

Answer: B

999. One of the limitations of FP analysis is

- A. Evaluation effort is small
- B. Facilitates verification
- C. Does not provide phase-wise break up
- D. None of the above

Answer: C

1000. Which one of the following is true

- A. Deliverables are usually milestones but milestones need not be deliverables
- B. All milestones are deliverables
- C. Deliverables & Milestones are always deliverables
- D. None of the above

Answer: A

1001. Risk assessment is done in

- A. Analysis Phase
- B. Design Phase
- C. Coding Phase
- D. All phases of the project

Answer: D

1002. Risk score (or Risk Exposure) is a product of

- A. Probability of occurrence and Impact on project should the risk occur
- B. No. of resources on project and daily per person rate
- C. Probability of occurrence and total No of resources
- D. None of the above

Answer: A

1003. Risk assessment Process involves

- A. Risk identification, Treating problems, Issue resolution
- B. Identify problems, Resolve problems, Report problem
- C. Risk Identification, Assessment & Measurement, Planning, Tracking, Control
- D. None of the above

Answer: C

1004. In Risk management, the purpose of Risk Assessment is

- A. To convert risk data into decision making information
- B. To shift the impact of the threat to a third-party
- C. To reduce probability and impact
- D. To define roles and responsibilities

Answer: A

1005. Does an organization develop one life cycle model?

- a) for all the projects
- b) for each project
- c) for each domain

1006. Pick up the odd one out of the following:

- a) Software Design
- b) Software Testing
- c) Software Quality Assurance

1007. Software requirements should not be

- a) functional
- b) ambiguous
- c) consistent

1008. Find the odd one out of the following:

- a) stepwise refinement
- b) structural design
- c) information hiding

1009. The decision logic is expressed by

- a) data flow diagram
- b) flow chart
- c) structure chart

1010. Validation is to check

- a) whether we are building the product right
- b) whether we are building the right product
- c) the methodology of software development

1011. Corrective maintenance is to

- a) improve the system in some way without changing its functionality
- b) correct the undiscovered errors
- c) make changes in the environment

1012. Which software development model incorporates risk management ?

- a) waterfall model
- b) spiral model
- c) incremental model

1013. Four important characteristics of a software product are

- a) dependability, usability, reliability, robustness
- b) maintainability, dependability, efficiency, usability
- c) Supportability, maintainability, visibility, rapidity

1014. Object models

- a) should include details of the individual objects in the system
- b) are part of design
- c) are natural ways of reflecting the real world entities that are manipulated by the system.

1015. The three classes of interface errors are:

- a) interface misuse, interface misunderstanding, timing errors
- b) interface misunderstanding, interface coupling, data transfer errors
- c) interface coupling, timing errors, interface parameter errors

1016. Which is the non-technical factor of maintenance cost?

- a) program age
- b) programming style
- c) program validation

1017. Software quality assurance is

- a) a multitier testing strategy
- b) a measurement and reporting mechanism
- c) an activity that is applied throughout the software process.

1018. Verification is to check

- a) whether we are building the right product
- b) whether we are building the product right
- c) neither of the above

1019. Most common but least effective way of debugging is

- a) brute force
- b) backtracking
- c) cause elimination

1020. Equivalence partitioning is

- a) a white-box testing method
- b) a black-box testing method
- c) neither white-box nor black-box testing method

1021. The typical elements of the requirements engineering process are

- i) Problem analysis
  - ii) software design
  - iii) Analysis of staffing needs
  - iv) Externalbehavior specification
- A) i and iv
- B) ii and iii
- C) i, iii and iv
- D) i, ii and iii

1022. In object models, information hiding conceals

- A) Operations
- B) Attributes

- C) methods
- D) state and behaviour

1023. Which of the following types of test plans is most likely to arise from the requirements specification process?

- A) system integration test plan
- B) acceptance test plan
- C) sub-system integration test plan
- D) module test plan

1024. In object-orientation, polymorphism means

- A) There can be many objects in the design
- B) Methods can be changed in many ways
- C) Many objects can be instantiated of a class
- D) Objects can implement the same method in many ways.

**Fill in the blanks :**

1025. The sooner you begin \_\_\_\_\_, the longer it will take to get done.

**Answers the followings in brief:**

- 1026. Explain the concept of black box.
- 1027. What are the qualities of software?
- 1028. Give the various steps in prototyping.
- 1029. What are the various fact-finding Techniques?
- 1030. What are the types of decision tables?
- 1031. What are the structures of Structured English?
- 1032. Give a brief note on acceptance testing.
- 1033. Define coupling and cohesion.
- 1034. What is maintenance? Explain about various types of maintenance.
- 1035. Differentiate between Decision Tree and Decision Table.
- 1036. Give the coding guidelines.
- 1037. Give the debugging approaches.
- 1038. Why Software doesn't wear out.
- 1039. Explain about Dos and Don'ts of good coding style.
- 1040. Give the contents of SRS document.
- 1041. Explain briefly about SEI CMM.
- 1042. What is feasibility study? Explain about various aspects of feasibility.
- 1043. Define normalization and explain about first three normal forms.
- 1044. What is changeover? What are the types of changeover
- 1045. Differentiate between Black Box and White Box testing
- 1046. Explain about Interview as a Fact Finding technique
- 1047. What are the various factors that influence software cost-estimation.
- 1048. Write a short note on Structured charts.
- 1049. Explain about the various concepts of a system.
- 1050. Give Salient features of CASE tools.
- 1051. Explain about various stages of software Development according to classical life cycle.

**Answers the followings in detail:**

- 1052. Compare and contrast the two life cycle models viz. Waterfall and Spiral models. (Mention at least three distinct aspects).

1053. State the importance of requirements management in a software development
1054. Discuss and compare the coupling and cohesion in software design
1055. Discuss the trade-off between error checking execution time / memory space overhead.
1056. How can the overhead be reduced or eliminated?
1057. Give some reasons for using global variables than parameters. What are the potential problems created by the use of global variables?
1058. Develop test plan for the library management system (List at least three test cases).
1059. Explain why it is very difficult to produce a complete and consistent set of requirements.
1060. Discuss the differences between object-oriented and function-oriented design strategies
1061. Explain why maximising cohesion and minimising coupling leads to more maintainable Systems
1062. Show using a small example, why it is practically impossible to exhaustively test a code.
1063. List at least five distinct tests to exercise the various features of the Powerpoint software used for slide preparation and projection.
1064. State the importance of requirements management in a software development
1065. Develop a high level data flow diagram for an airline reservation system
1066. Discuss the trade-off between error checking execution time / memory space overhead.
1067. How can the overhead be reduced or eliminated?
1068. Give some reasons for using global variables than parameters. What are the potential problems created by the use of global variables?
1069. Develop test plan for the library management system (List at least five test cases).
1070. Rewrite the following requirements so that they may be objectively validated. You may make any reasonable assumptions about the requirements.
  - a) The software system should provide acceptable performance under maximum load conditions
  - b) Structured programming should be used for program development
  - c) The software must be developed in such a way that it can be used by inexperienced users.
1071. Model the data processing which might take place in an electronic mail system that can send and receive messages from remote computers.
1072. Discuss the advantages of incremental model as compared to water fall model. Can a program be correct and still not be reliable ? Explain

1073. Discuss how you would approach the top-down design of a software system.
1074. Discuss the advantages and disadvantages of using the "antibugging" technique to provide built-in debugging assistance to uncover errors.
1075. Discuss at least three reasons that would highlight the importance of software maintenance.
1076. Compare and contrast the white-box and black-box testing methods.
1077. Discuss the importance of documentation in software development.
1078. Discuss the pros and cons of the COCOMO model for cost estimation
1079. Make a structure chart for the following:
1080. Given an array of integers, arrange them in ascending order using quick sort method.
1081. Develop a software review checklist for use by the designer and the implementor. What issues are important to each of these roles?
1082. Develop a high-level data flow diagram and a structure chart for an airline reservation system.
1083. Develop an architecture and also flow diagrams (up to 2 levels) for the following: "Consider the automation of the transaction at the registration counter of a post-office. A scanner is provided to capture the "from" and "to" addresses from the envelop. The clerk uses your software to issue receipts to the customers. This is expected to reduce the waiting time at the counter."
1084. Suppose that a 50-KDSI (Thousands of delivered source instructions) application program can be purchased for Rs. 2,000,000/- . Assuming that your in-house programmers cost Rs.30,000/- per programmer month (including overheads), would it be more cost effective to buy the product or to build it ?
1085. A Manager decides to use the reports of code inspections as an input to the staff appraisal process. These reports show who made and who discovered program errors. Is this ethical managerial behaviour? Would it be ethical if the staff were informed in advance that this would happen? What difference might it make to the inspection process?
1086. Apply a "stepwise refinement process" to develop three different levels of procedural abstraction for developing a cheque writer that, given a numeric rupees amount, will print the amount in words that is normally required on a cheque.
1087. Derive a set of test cases for a code which sorts arrays of integers. Draw a flow graph for an algorithm of your choice and derive its cyclomatic complexities
1088. A university intends to procure an integrated student management system holding all details of registered students including personal information, courses taken, and examination marks achieved. The alternative approaches to be adopted are either  
a) buy a database management system and develop an in-house system based on this

database.

- b) buy a system from another university and modify it to local requirements
- c) join a consortium of other universities, establish a common set of requirements and contract a software home to develop a single system for all of the universities in the consortium. Identify two possible risks in each of these strategies.

1089. Consider the error messages produced by MS-DOS or UNIX or WINDOWS operating system. Suggest how they might be improved.

1090. Develop at least two levels of procedural abstraction for implementing the savings bank transactions in a banking system.

1091. Draw a flow graph for the following and find its cyclomatic complexity : Given 1000 numbers, arrange them in ascending order using any one of the sorting methods.

1092. Design test cases for the following problem : Given a quadratic equation, solve it to find the roots.

1093. Oxford College of Commerce is an undergraduate college. The college receives sufficiently large number of application for admission to FY, SY and TY B. Com. classes.

1094. The college has decided to computerize its admission procedure. The standard admission procedure requires adhering to the norms set by concerned government agencies, the university and the college administration. The procedure also involves disbursing admission forms at a cost, collecting duly completed forms, preparing merit lists and admitting the students as per norms, notifying student, collecting fees, preparing and submitting reports to concerned authorities.

By carefully studying the case you are required to solve the following:

- i. Draw a context level and first level DFD
- ii. Identify the various reports required

1095. Draw the context level diagram for a payroll system

1096. Prepare Context diagram for the saving bank deposit and withdrawal system in a nationalized bank. Also draw the first level DFD for the same.

1097. Ratanlal College of Commerce is an undergraduate College. The college receives sufficiently large number of applications for admission to FY, SY and TY. Bcom classes. The college has decided to computerize its admission program. The standard admission procedure requires adhering to the norms set by concerned government agencies, the university and the college administration. The procedure also involves disbursing admission forms at a cost, collecting duly completed forms, preparing merit list and admitting students as per norms, notifying students, collecting fees, preparing and submitting reports to the concerned authorities

You are required to identify :

- (i) Entities:
- Processes
- Data flows
- Data Stores

1098. Quality control

- a) Focuses on inspections, testing and removal of defects before release.

b) Is a set of planned and systematic actions to provide confidence that a product or service will satisfy given requirements for quality.

- d) is to check the system for its interface errors.

1099. Analysis phase is

- a) not to actually solve the problem
- b) not to determine exactly what must be done to solve the problem
- c) to move quickly to program design

1100. Four important characteristics of a software product are

- a) dependability, usability, reliability, robustness
- b) maintainability, dependability, efficiency, usability
- c) Supportability, maintainability, visibility, rapididity

1101. Object models

- a) should include details of the individual objects in the system
- b) are part of design
- c) are natural ways of reflecting the real world entities that are manipulated by the system.

1102. Equivalence partitioning is

- a) A white-box testing method
- b) A black-box testing method
- c) Neither white-box nor black-box testing method

1103. The typical elements of the requirements engineering process are

- i) Problem analysis
  - ii) Software design
  - iii) Analysis of staffing needs
  - iv) Externalbehavior specification
- A) i and iv  
B) ii and iii  
C) i, iii and iv  
D) i, ii and iii

1104. In object models, information hiding conceals

- A) Operations
- B) Attributes
- C) methods
- D) state and behaviour

1105. Which of the following types of test plans is most likely to arise form the requirements specification process?

- A) system integration test plan
- B) acceptance test plan
- C) sub-system integration test plan
- D) module test plan

**Answers the followings in detail:**

1106. Explain why maximising cohesion and minimising coupling leads to more maintainable Systems

1107. Show using a small example, why it is practically impossible to exhaustively test a code.

1108. List at least five distinct tests to exercise the various features of the Powerpoint software used for slide preparation and projection.

1109. State the importance of requirements management in a software development

1110. Develop a high level data flow diagram for an airline reservation system

1111. Discuss the trade-off between error checking execution time / memory space overhead. How can the overhead be reduced or eliminated?

1112. Give some reasons for using global variables than parameters. What are the potential problems created by the use of global variables?

1113. Develop test plan for the library management system (List at least five test cases).

1114. Rewrite the following requirements so that they may be objectively validated. You may make any reasonable assumptions about the requirements.

a) The software system should provide acceptable performance under maximum load conditions

b) Structured programming should be used for program development

c) The software must be developed in such a way that it can be used by inexperienced users.

1115. Model the data processing which might take place in an electronic mail system that can send and receive messages from remote computers.

1116. Discuss the advantages of incremental model as compared to waterfall model. Can a program be correct and still not be reliable ? Explain

1117. Discuss how you would approach the top-down design of a software system.

1118. Discuss the advantages and disadvantages of using the "antibugging" technique to provide built-in debugging assistance to uncover errors.

1119. Discuss at least three reasons that would highlight the importance of software maintenance.

1191. Compare and contrast the white-box and black-box testing methods.

1192. Discuss the importance of documentation in software development.

1193. Discuss the pros and cons of the COCOMO model for cost estimation

1194. Make a structure chart for the following:

Given an array of integers, arrange them in ascending order using quick sort method.

1192. Develop a software review checklist for use by the designer and the implementor. What issues are important to each of these roles?

1193. Develop a high-level data flow diagram and a structure chart for an airline reservation system.

1194. Develop an architecture and also flow diagrams (up to 2 levels) for the following:  
"Consider the automation of the transaction at the registration counter of a post-office. A scanner is provided to capture the "from" and "to" addresses from the envelop. The clerk uses your software to issue receipts to the customers. This is expected to reduce the waiting time at the counter."

1195. Suppose that a 50-KDSI (Thousands of delivered source instructions) application program can be purchased for Rs. 2,000,000/- . Assuming that your in-house programmers cost Rs.30,000/- per programmer month (including overheads), would it be more cost effective to buy the product or to build it ?

1196. A Manager decides to use the reports of code inspections as an input to the staff appraisal process. These reports show who made and who discovered program errors. Is this ethical managerial behaviour? Would it be ethical if the staff were informed in advance that this would happen? What difference might it make to the inspection process?

1197. Apply a "stepwise refinement process" to develop three different levels of procedural abstraction for developing a cheque writer that, given a numeric rupees amount, will print the amount in words that is normally required on a cheque.

1198. Derive a set of test cases for a code which sorts arrays of integers. Draw a flow graph for an algorithm of your choice and derive its cyclomatic complexities

1199. A university intends to procure an integrated student management system holding all details of registered students including personal information, courses taken, and examination marks achieved. The alternative approaches to be adopted are either

- a) buy a database management system and develop an in-house system based on this database.
- b) buy a system from another university and modify it to local requirements
- c) join a consortium of other universities, establish a common set of requirements and contract a software home to develop a single system for all of the universities in the consortium. Identify two possible risks in each of these strategies.

1200. Consider the error messages produced by MS-DOS or UNIX or WINDOWS operating system. Suggest how they might be improved.

1201. Develop at least two levels of procedural abstraction for implementing the savings bank transactions in a banking system.

1202. Draw a flow graph for the following and find its cyclomatic complexity : Given 1000numbers, arrange them in ascending order using any one of the sorting methods.

1203. Design test cases for the following problem : Given a quadratic equation, solve it to find the roots.

1204. Oxford College of Commerce is an undergraduate college. The college receives sufficiently large number of application for admission to FY, SY and TY B. Com. classes. The college has decided to computerize its admission procedure. The standard admission procedure requires adhering to the norms set by concerned government agencies, the

university and the college administration. The procedure also involves disbursing admission forms at a cost, collecting duly completed forms, preparing merit lists and admitting the students as per norms, notifying student, collecting fees, preparing and submitting reports to concerned authorities.

By carefully studying the case you are required to solve the following:

- i. Draw a context level and first level DFD
- ii. Identify the various reports required

1192. Draw the context level diagram for a payroll system

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1192. Ratanlal College of Commerce is an undergraduate College. The college receives sufficiently large number of applications for admission to FY, SY and TY. Bcom classes. The college has decided to computerize its admission program. The standard admission procedure requires adhering to the norms set by concerned government agencies, the university and the college administration. The procedure also involves disbursing admission forms at a cost, collecting duly completed forms, preparing merit list and admitting students as per norms, notifying students, collecting fees, preparing and submitting reports to the concerned authorities

You are required to identify :

- (i) Entities:  
Processes  
Data flows  
Data Stores
- (ii) Draw E-R Model of the System

1193. Which SDLC Model is best suited when only part/some of the requirements are known at the beginning

- a. Waterfall Model
- b. Incremental Model
- c. Prototype Model
- d. Spiral Model

1194. \_\_\_\_\_ is an entity that is external to the system & directly interacts with the system and deriving some benefits from the interaction.

- A. Actor
- B. Use case
- C. Class
- D. Relationship

1195. Review activity of any software is under which kind of Testing?

- A. Black Box Testing
- B. Static Testing
- C. Dynamic Testing
- D. White Box Testing

1196. Equivalence Partitioning is a test case generation technique, for \_\_\_\_\_ kind of Testing Technique.

- A. Static Testing
- B. White Box Testing
- C. Black Box Testing
- D. Red Box Testing

1197. In the Project Management Triangle. Which parameter is most important?

- a. Time
- b. Scope
- c. Cost
- d. All of the above are equally important

1198. Quality assurance help for

- a. Process improvement
- b. Testing
- c. Removal of defects before release
- d. All of the above

1199. Refers to the support phase of software development.

- A. Adaption
- B. Enhancement
- C. Maintenance
- D. Actions

1200. Which one of the following is the process of factoring the design module?

- A. Software re-engineering
- B. Configuration management
- C. Software maintenance
- D. Software Refactoring

1201. which of the following process is not part of Project Risk Management?

- A. Risk Identification
- B. Effort estimation
- C. Risk Anaiysis
- D. Risk Response Development

1202. enhances performance & functionality of the software after delivery.

- A. Re-design
- B. Re-engineering
- C. Maintenance
- D. Post checking

1203. Which of the following is not a stage of requirement engineering process?

- A. Feasibility study
- B. Requirement analysis
- C. Requirement definition
- D. Implementation

1204. Which of the following are objectives for formal technical reviews?

- a. Allow senior staff members to correct errors
- b. Uncover errors in software work products
- c. Assess programmer productivity
- d. Determining who introduced an error into a program

1205. Which of the following meetings is not part of Scrum?

- A. Product review meeting
- B. Sprint review meeting
- C. Sprint planning meeting
- D. Sprint retrospective meeting

1206. In Scrum, the prioritized work to be done is referred to as

- a. sprint planning
- b. product backlog
- c. sprint retrospective
- d. standup meetings

1207. Software risk impact assessment should focus on consequences affecting

---

- A. planning.resources. oost& schedule
- B. matketability.oost& personnel
- C. business, technology & process
- D. performance.support, oost& schedule

1208. The process starting with the terminal modules is called\_\_\_\_\_

- a. Top-down integration
- b. Bottom-up integration
- c. Module integration
- d. None of the above

1209. To check whether we are developing the right product according to the customer requirements or not. This is known as static process .

Validation

- a. Quality Assurance
- b. Verification
- c. Quality Control

1210. A reliable system will be one:

that is unlikely to be completed on schedule  
that is unlikely to cause a failure

that is likely to be fault-free

that is likely to be liked by the users

\$3.051'?

1211. To test a function, the programmer has to write a passes it test data.

Stub

Proxy

Driver

None of the above

1212. which calls the function and

90?'?

When a new testing tool is purchased.it should be used first by:

A small team to establish the best way to use the tool  
Everyone who may eventually have some use for the tool  
The independent testing team

The vendor contractor to write the initial scripts

1213. Pick up IEEE the best definition of software engineering?

Set of computer programs. procedures and possibly associated document concerned with the operation of data processing.

Software engineering is Design. Coding. Development

Software engineering implement a single independent function

Software engineering is the establishment and use of sound engineering practice in order to produce economical and reliable software that will perform efficiently on real machine

1214. The identification of stakeholders and user classes in requirements engineering is carried out in

Elicitation

Analysis

Verification

Specification

1215. Which among the following gives a chronological record of relevant details about the execution of tests?

A. Test incident report

B. Test log

C. Test summary report

D. None of the above

1216. What is not included in a System Requirement Specification Document?

Scope

Specific Requirements

Design Solutions

References

1217. Project risk factor is considered in

- a. Spiral Model
- b. Waterfall Model
- c. Prototyping Model
- d. Iterative enhancement Model

1218. Formal Reviews of an individual product. used to evaluate correctness. based on its input criteria are .

Inspections

Checkpoint review

Testing

Walkthrough

1219. which of the below listed processes is not part of Project Planning?

Identify Constraints

Identify Algorithms

Identify Risks  
Identify Milestones

1220. Which one of the following is false statement?

- A. Software is developed or engineered. it is not manufactured in the classic sense
- B. Replacement of parts is always an ideal solution
- C. Software does not 'wear out' though it may deteriorates over a period
- D. None of the above

1221. which of these is not one of the phase names defined by the Unified Process model for software development?

Inception phase  
Elaboration phase  
Construction phase  
Validation phase

1222. which of the following is not one of Hookers core principles of software engineering practice?

All design should be as simple as possible, but no simpler  
A software system exists only to provide value to its users.  
Pareto principle (20% of any product requires 80% of the effort)  
Remember that you produce others will consume

1223. Which of the following is valid reason(s) for collecting customer feedback concerning delivered software?

- a) Allows developers to make changes to the delivered increment
- b) Delivery schedule can be revised to reflect changes
- c) Developers can identify changes to incorporate into next increment
- d) All of the above

1224. Which of the following is not generally considered a player in the software process?

- A. Customers
- B. End-users
- C. Sales people
- D. Project managers

## Part III - Software Engineering Concepts

### Session 1

#### Developing an application in a team

Establishing a clear software development team structure is an important first step into an overall success of your project or any application, and then next is deciding the team size.

#### Decide on the software development team size:

when it comes to assembling the team, it all depends on the following key factors:

- Complexity of your project
- Budget
- Deadline
- Available resources

The general structure of a development team looks and includes the following roles:



- **Project manager** is a person responsible for managing and leading the whole team. Their role is to efficiently optimize the work of the team, ensure the product is meeting the requirements and identify the goals for the team.
- **Software architect** is a highly-skilled software developer that has to think through all the aspects of the project and is responsible for making high level design choices, as well as select technical standards
- **Developers or software engineers** are team members that apply their knowledge of engineering and programming languages in software development.
- **Experience designers** ensure that the product is easy and pleasant to use. They conduct user interviews, market research, and design a product with end-users in mind.
- **QA or tester** is responsible for the Quality Assurance and makes sure the product is ready to use.

- **Business Analyst's** role is to uncover the ways to improve the product. They interact with stakeholders to understand their problems and needs, and later document and analyze them to find a solution.

## Issues developers face when working in a team

1. Getting used to the environment and team
2. Understanding Customers and end user
3. Coding and Programming
4. Testing and Debugging
5. Keeping up with technology
6. Managing Delivery Schedules
7. Long working hours
8. Handling Data Security Threats
9. Using understanding another person's code
10. Multi-Tasking

## The following can be the solution to deal with the above issues for the software developer

- **Communication**

Communication skills are as important in a Software Developer's life as technical skills. Your team will judge you based on how proactive you are and how you communicate with them.

By mingling with your teammates, you can get accustomed to the workplace faster. You learn from other's experiences. This will give you an opportunity, to understand the customer and his need, in a better way. Communicate with those members of your team who have experience in handling customers.

- **Practice with Simple Target**

When it comes to difficulties faced, when you write your first code, there is no need to panic or feel defeated. Failures are stepping stones for success. Instead of writing full code, try breaking down the project into simple parts. Distribute your final program into small targets. Completing your first target is an achievement by itself. To get a more confident feel, test your programs, as soon as you finish reaching your target. Testing will throw errors. Fixing one error will guide you in fixing the next and so on. There is no harm in requesting for help when you are not able to decide how to go about testing.



- **Being Updated with New Technology**

It is always a good idea to keep in touch with newer technologies as and when they arise. Customers will also appreciate your work if they get to see something new and different.

- **Find Smart Way to Work**

It is always good to work smart and not work long to meet your delivery schedules. Hence, it is good to assess the situation and work in a smart way, then putting in too many long hours at work. Try not to get glued down to your workplace. It is good to have regulated time off from work and come back with a fresh mind and fresh ideas

- **Detain the Access**

The life of a Software developer can get easier if he/she can keep their work stations secure. There is always a chance of stealing data and project code or it misusing it. Hence, it is always good to limit the access of the data to you alone and let no one access it, apart from you, as a developer.

- **Involve Deeper Analysis**

If there is a situation, where you have to work on a working program, as a developer, take time to understand the code. Analyze what the expected end result is and then start attempting to work on the code.

## **Introduction to code versioning system**

### **What is Version Control?**

As the name implies, Version Control is about the management of multiple versions of a project. To manage a version, each change (addition, edition, or removal) to the files in a project must be tracked. Version Control records each change made to a file (or a group of files) and offers a way to undo or roll back each change.

For an effective Version Control, you have to use tools called Version Control Systems. They help you navigate between changes and quickly let you go back to a previous version when something isn't right.

One of the most important advantages of using Version Control is teamwork. When more than one person is contributing to a project, tracking changes becomes a nightmare, and it greatly increases the probability of overwriting another person's changes. With Version Control, multiple people can work on their copy of the project (called branches) and only merge those changes to the main project when they (or the other team members) are satisfied with the work.



## Why do you need one?

Have you ever worked on a text project or on a code that requires you to recall the specific changes made to each file? If yes, how did you manage and control each version?

Following are the different approaches that were used for Version Control.

- Duplicate and rename the files with suffixes like “review,” “fixed,” or “final”?  
(But with this approach it is very easy to forget which file is which and what has changed between them)

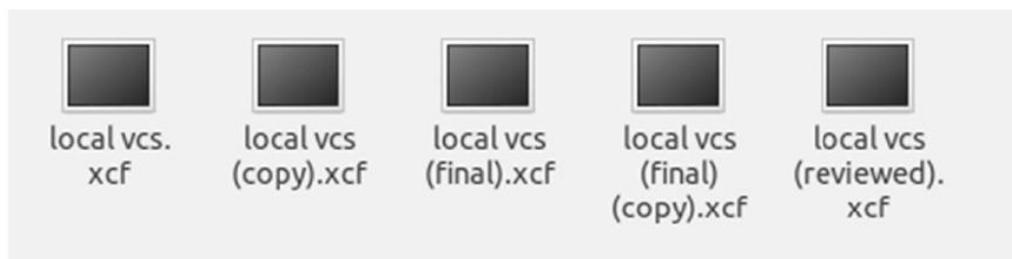


Figure 1-1. Gimp files with suffixes like “final,” “final (copy),” and “reviewed”

- To track versions, one idea is to compress the files and append timestamps to the names so that the versions are arranged by date of creation.  
(But with this approach there is no way to know what are the contents and descriptions of each version.)

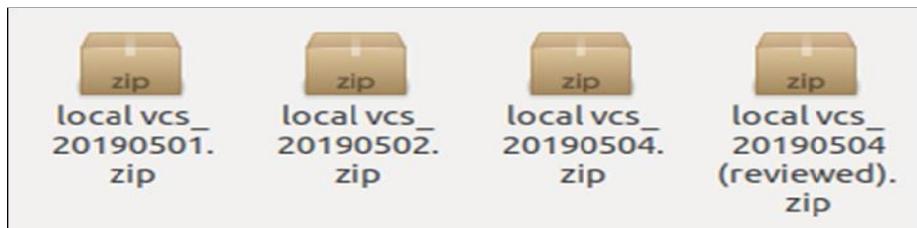


Figure 1-2. Compressed version files sorted by dates

- Separate History file accompanies the project folder with a short description of the change made. Also note the many compressed files which contain the previous versions of the project.



**Figure 1-3. A separate file where each version is tracked**

Not a perfect approach again you would still need a way to compare each version and every file change. There is no way to do this in that system; you just need to memorize everything you did. And if the project gets big, the folder just gets bigger with each version. What happens when another developer or writer joins your team? Would you email each other the files or versions you edited? Or work on the same remote folder? In the last case, how would you know who is working on which file and what changed? And lastly, have you ever felt the need to undo a change you made years ago without breaking everything in the process?

All those problems are solved by using a Version Control System or VCS.

A VCS tracks each change you made to every file of your project and provides a simple way to

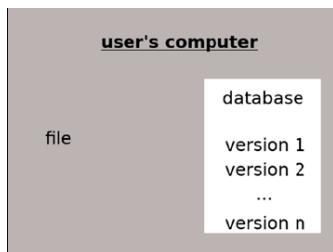
Compare and roll back those changes. One popular example of VCS is Git.

## Flavors of Version Control Systems

A VCS can be:

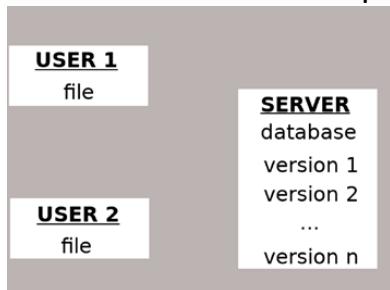
- Local
- Centralized
- Distributed.

**Local VCS:** everything is on the user's computer, and only one file is tracked. The versioning is stored in a database managed by the local VCS. No way to track an entire project with them.



**Centralized VCS:** works by storing the change history on a single server that the clients (authors) can connect to. This offers a way to work with a team and also a way to monitor the general pace of a project.

The main problem is that, a server error can cost the team all their work. A network connection was also required since the main project was stored in a remote server.



**Distributed VCS:** works nearly the same as centralized VCS but with a big difference: there is no main server that holds all the history. Each client has a copy of the repository (along with the change history) instead of checking out a single server. This greatly lowers the chance of losing everything as each client has a clone of the project.

There is also a slight difference with how it works: instead of tracking the changes between versions, it tracks all changes as “patches.” This means that those patches can be freely exchanged between repositories, so there is no “main” repository to keep up with.



## Introduction to git

### What is Git?

Git is a distributed Version Control System, but it is faster and works better with large projects. The Git community is very active, and there are many contributors involved in its development.

### What can Git do?

First, it works great with tracking changes. You can

- Go back and forth between versions
- Review the differences between those versions
- Check the change history of a file
- Tag a specific version for quick referencing

Git is also a great tool for teamwork. You can

- Exchange “changesets” between repositories
- Review the changes made by others

One of the main features of Git is its Branching system. A branch is a copy of a project which you can work on without messing with the repository. This concept has been around for some time, but with Git, it is way faster and more efficient. Branching also comes along with Merging, which is the act of copying the changesets done in a branch back to the source.

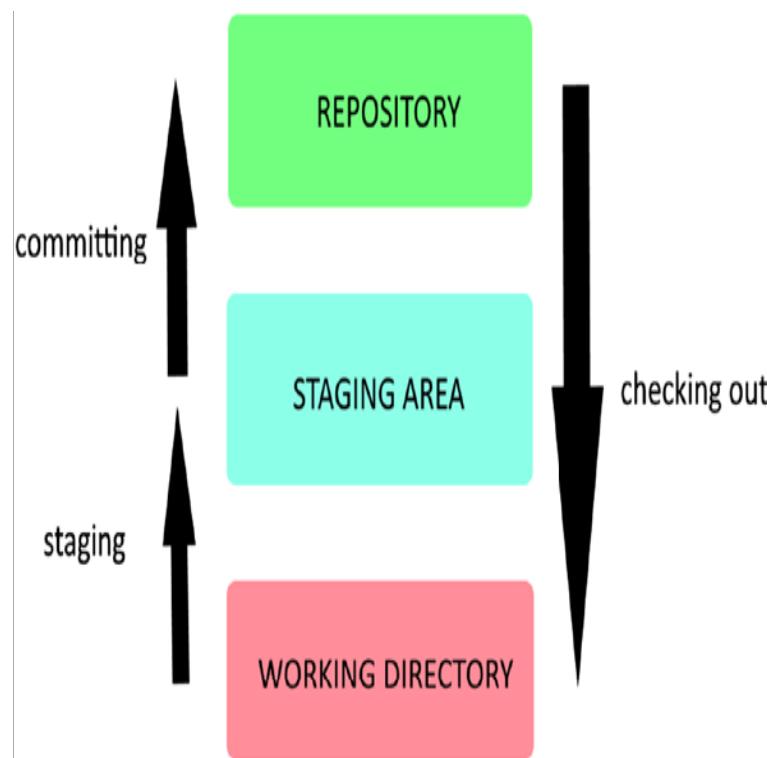
### The typical Git workflow

The main feature of Git is its “Three States” system.

The states are: the working directory, the staging area, and the git directory

- The working directory is just the current snapshot that you are working on.
- The staging area is where modified files are marked in their current version, ready to be stored in the database.
- The git directory is the database where the history is stored.

So, basically Git works as follows: you modify the files, add each file you want to include in the snapshot to the staging area (git add), then take the snapshot and add them to the database (git commit). For the terminology, we call a modified file added to the staging area “staged” and a file added to the database “committed.” So, a file goes from “modified” to “staged” to “committed.”

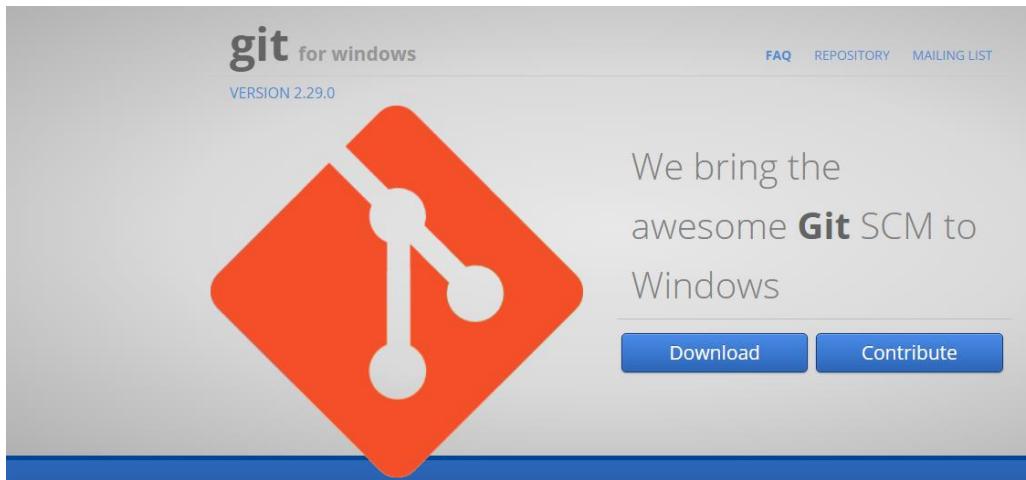


## **Git Installations:**

The files necessary to install Git are on <https://git-scm.com/downloads> for all systems.  
Just follow the link and choose your Operating System.

GUI clients for Git also available there , You need to familiarize yourself with Git commands before using GUI clients

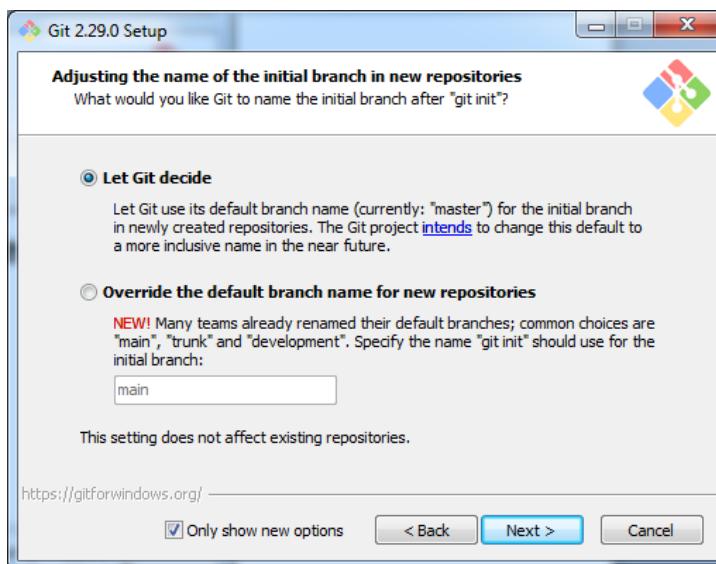
### **Installation and setup for Windows:**

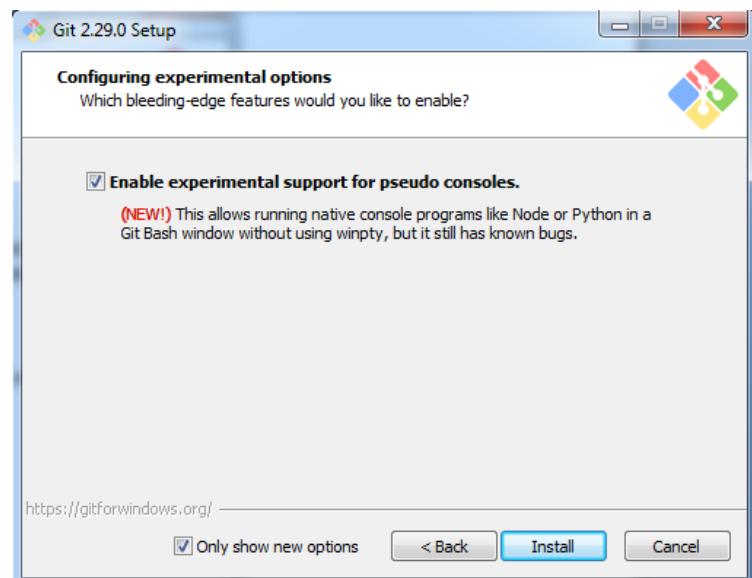
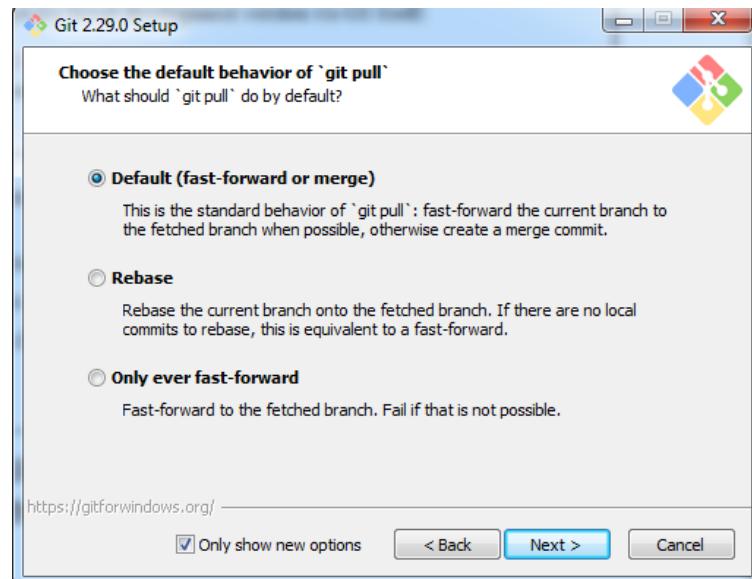


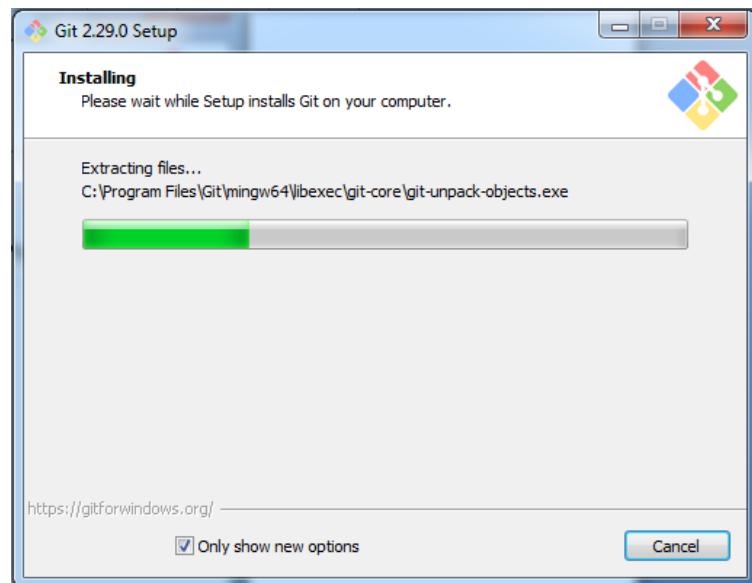
Download exe for windows



Then just simple click run and follow the simple wizards as follows:







Once finished you will get a shortcut icon on desktop and also the GUI You can check in program list.



Before beginning to use Git, you need a little bit of setup first. You will probably only do this once since all the setup is stored on an external global file, meaning that all your projects will share the same configs

Since Git is a distributed Version Control System, you will one day need to connect to other remote repositories.

To set up Git, open Git Bash

In the command prompt, just tell Git your name and email address:

```
$ git config --global user.name "Prit Wadpalli"
$ git config --global user.email "shriramwar.priti@gmail.com "
```

A screenshot of a Windows command-line interface (CMD) window titled "MINGW64:/c/Users/Administrator". The window contains the following text:

```
Administrator@Priti-PC MINGW64 ~
$ git version
git version 2.29.0.windows.1

Administrator@Priti-PC MINGW64 ~
$ git config --global user.name "Priti Wadpalli"

Administrator@Priti-PC MINGW64 ~
$ git config --global user.email "shriramwar.priti@gmail.com"

Administrator@Priti-PC MINGW64 ~
$ |
```

The text shows the user running several Git commands to set their global user name and email. The "git config" command is used twice, once for the name and once for the email, both with the "--global" option.

Notice the “global” argument; it means that the setup is for all future Git repositories, so you don’t have to set this up again in the future.

## Introduction to git repository and git structure

### Repositories

A repository is a storage where all your project and all the changes made to it are kept. You can think of it as a “change database.” it is only a normal folder on your system, so it is very easy to manipulate.

For each project you want to manage with Git, you have to set up a repository for it. Setting up a repository is very easy. Just navigate to the folder you want to track and tell Git to initiate a repository there.

So for each project you want to start, you should



- Create the directory containing your project
- Navigate into the directory
- Initialize a Git repository

To get started right click in your workspace where you want to keep your projects and say git bash here

And then follow the commands on git bash

```
$ mkdir mynewproject  
$ cd mynewproject/  
$ git init
```

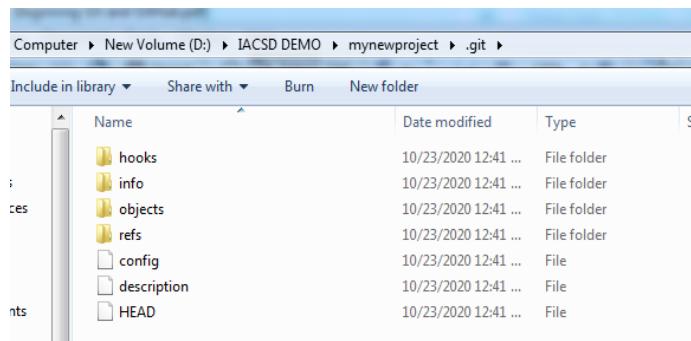
The screenshot shows a Windows desktop environment. In the center, there is a terminal window titled 'MINGW64:/d/IACSD DEMO/mynewproject' displaying the command history for initializing a Git repository:

```
Administrator@Priti-PC MINGW64 /d/IACSD DEMO  
$ mkdir mynewproject  
Administrator@Priti-PC MINGW64 /d/IACSD DEMO  
$ cd mynewproject  
Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject  
$ git init  
Initialized empty Git repository in D:/IACSD DEMO/mynewproject/.git/  
Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)  
$
```

Below the terminal window, another terminal window titled 'MINGW64:' shows the same command history:

```
Administrator$ mkdir myne  
Administrator$ cd mynewpr  
Administrator$ git init  
Initialized  
Administrator$ |
```

In the background, a file explorer window is open, showing a folder named 'mynewproject' under 'D:\IACSD DEMO'. A red circle highlights the '.git' folder icon in the file list.



Git will create a directory called “.git” that will contain all your changesets and snapshots.

all those snapshots are stored in the “.git” directory. Each snapshot is called “commit,” and we’ll look into that shortly after this section. The HEAD file in this “.git” directory points to the current “branch” or subversion of the project that you are working on. The default branch is called “master,” You should also know that initializing is the only way to get a repository. You can copy an entire repository with all its history and snapshots. It is called “cloning,”

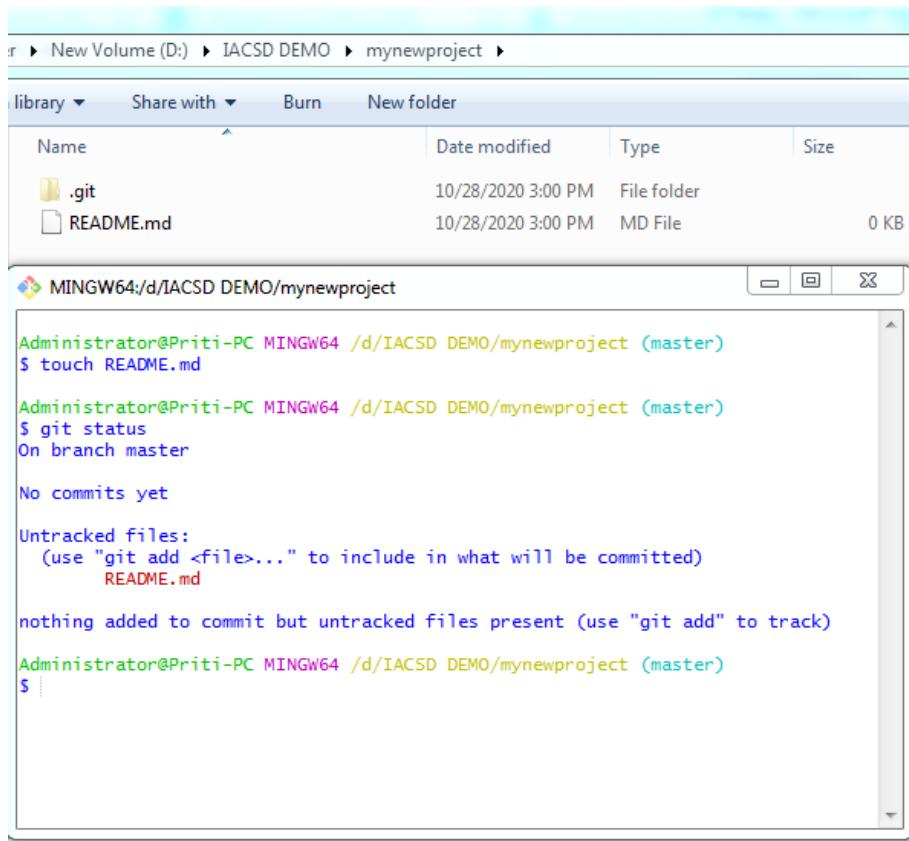
## Working Directory

What about the empty area outside the “.git” directory? It is called the Working Directory, and the files you will be working on will be stored there. Generally, your most recent version will be on the Working Directory. Each file you work on is on the Working Directory. There is nothing particular about this place except the fact that you will only manipulate the files here directly. Never modify the files inside the “.git” directory! Git will detect any new file you will place in the Working Directory. And you check the status of the directory by using the Git command “status.”

### \$ git status

For example, if we create a new file called README.md in the Working Directory, we will see that Git will know that the project has changed

Figure: *The status of the Working Directory*



New Volume (D:) ▶ IACSD DEMO ▶ mynewproject ▶

library Share with Burn New folder

Name	Date modified	Type	Size
.git	10/28/2020 3:00 PM	File folder	
README.md	10/28/2020 3:00 PM	MD File	0 KB

MINGW64:/d/IACSD DEMO/mynewproject

```
Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ touch README.md

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    README.md

nothing added to commit but untracked files present (use "git add" to track)

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ ...
```

So essentially, that is the Working Directory: the area where you directly interact with your project files.

## Adding code to git

### **Staging Area**

The Staging Area is where your files go before the snapshots are taken. Not every file you modified on the Working Directory should be taken into account when taking a snapshot of the current state of the project. Only the files placed in the Staging Area will be snapshotted.

So, before taking a snapshot of the project, you select which changed files to take account of. A change in a file can be creating, deleting, or editing. Think of it as designating which files get to be in the family photo. To add a file to the Staging Area, we use the Git command “add.”



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## \$ git add nameofthefile

It's that simple. If we wanted to stage the README.md that we created earlier, we would use “git add README.md.” Or if you created multiple files, you can add them one after another or together like “git add file1 file2 file3.” Let’s stage our new file by using the command:

## \$ git add README.md

Then let’s check the status with git status command.

## \$ git status

Adding a file to the staging area won’t produce any visible result, but checking the status will get you a result similar to Figure

**Figure: Staging a file**

A screenshot of a Windows terminal window titled "MINGW64:/d/IACSD DEMO/mynewproject". The window shows the following command-line session:

```
Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ git add README.md

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
    new file:   README.md

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ |
```

The terminal uses color-coded syntax highlighting for commands and file paths.

you will notice that after staging the file, the Working Directory is clean again. That’s because “git status” only keeps track on “unstaged” files.

you can unstage a file using the Git command “git rm” with the option “--cached.”

## \$ git rm --cached README.md

Don’t forget the option “--cached” when unstaging a file. If you forget it, you could lose your file!

After you stage all the files that you want the changes to be taken into account, you are now ready to take your first snapshot!

## Commits



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A commit is just a snapshot of the entire project at a certain time. Git doesn't record the individual changes done to the files; it takes a picture of the entire project. In addition to the snapshot, a commit also contains information about the "author" of the content and the "committer" or who put the changeset into the repository.

(Note : "author" and "committer" are usually the same person, unless the committer took the changeset from another team member. Remember that Git commits are exchangeable since it is a distributed VCS)

Since a commit is a snapshot from the state of the project, the previous state of the project is another commit called "parent." The very first commit is created by Git when the repository is created, and it's the one commit that has no parents. All future commits are then linked to each other via parentage. The ensemble of those commits that are parents to each other is called "branch."

(Note If a commit has two parents, that means that it was created by merging two branches.)

A reference to a specific commit is called "head," and it also has a name. And the head you are currently working on is called "HEAD" (see the previous section). We can now commit the files we staged earlier. Before each commit, you should check the status of the Working Directory and the Staging Area. If all the files you want to commit are in the Staging Area (under the phrase "Changes to be committed"), you can commit. If not, you have to stage them with "git add." To commit all the changes we made, we use "git commit." This will take a snapshot of our current state of the project.

**\$ git commit**

If we execute this command, it will open our default editor and ask us for a commit message. A commit message is a short description of what has changed in the commit compared to the previous one.



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▶ New Volume (D:) ▶ IACSD DEMO ▶ mynewproject ▶

Copy Share with Burn New folder

Name	Date modified	Type	Size
.git	10/29/2020 10:22 ...	File folder	
README.md	10/28/2020 3:00 PM	MD File	0 KB

MINGW64:/d/IACSD DEMO/mynewproject

```
Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
    new file: README.md

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ git commit
[master (root-commit) eb3db53] Adding README.md to the newporject first commit
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 README.md

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$
```

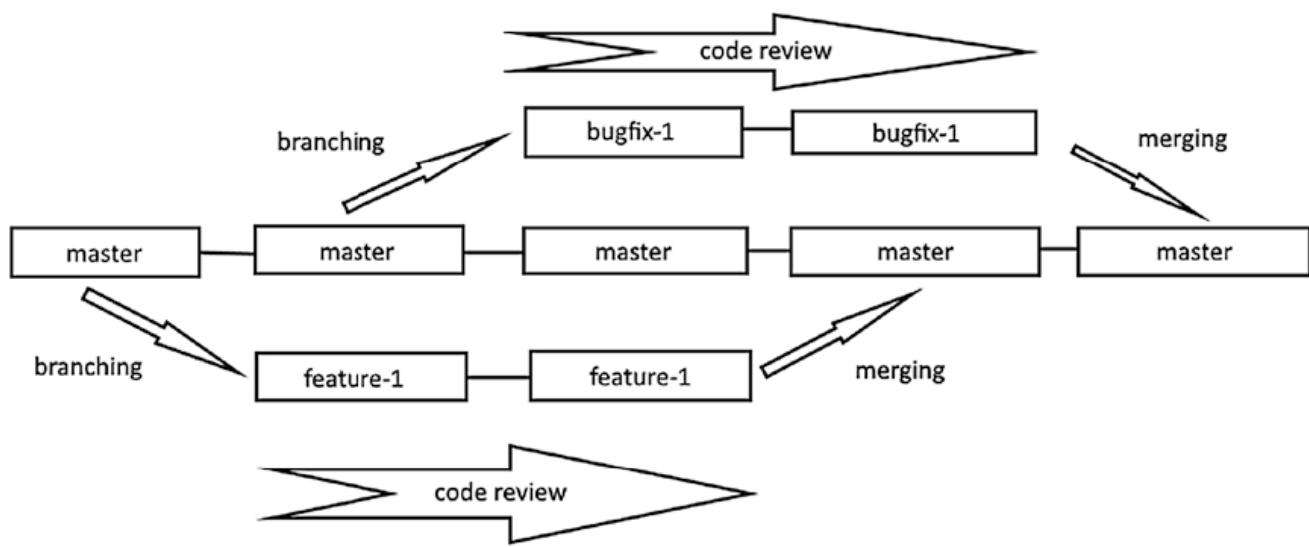
After commit if you check

**\$ git status**

```
Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ git status
On branch master
nothing to commit, working tree clean
```

## Creating and merging different git branches

As you can see, we can create branch from any branch in our project. Git created a branch called master for us at the initialization of the repository. We then can create more branches (e.g. a bugfix branch or a feature branch) to introduce changes in the master branch.



## Branches

As we said earlier, branches are the main feature behind code reviews. You have to work on your own branch before publishing your work, so that it won't be bothered by other people's changes. Put simply, a branch is just your own independent copy of the project at a certain time.

The logic behind branches is simple: take the current state of the project and make a copy of it. In this copy, you can make your changes without impacting other people. You can use branches to have distinct channels of distributions or just to try new things with the project.



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When creating a repository, you get a branch by default: master. When working on very small projects, this branch is enough; but most projects need more branches to get the best results.

- First, they need a **production branch**, where clients can get the last stable version of the software; this is the master branch. The production branch is only updated when the project is sure to be stable as this is the release branch.
- Then, there is the **development branch**, where all the progress is recorded and all the commits tested. You will mostly work on the development branch as it is where most of the fun is.
- Finally there are the short-lived **patching branches** which you will create to hold your commits before merging them to the development branch. Those patching branches live and die with a pull request; you create one when you are solving an issue and delete it afterward.

(Summary Note:

- Production branch, where you will release stable versions of your project
- Development branch, where you will test your latest version
- Patching branch, where you will work on your issues)

## Creating a branch

You just need to use the “git branch” command followed by the branch name. Keep in mind that the branch name should only contain alphanumeric values and dashes or underscores; no spaces allowed.

**\$ git branch <name>**

let's create a development branch for our project. Let's name it “develop.”

After you execute that command, you will notice that nothing has changed in your project. That's because creating a branch is just about creating a reference to the last commit of the current branch and nothing else. To begin working with a branch, you have to switch to it

A screenshot of a Windows terminal window titled "MINGW64:/d/IACSD DEMO/mynewproject". The window contains the following text:

```
Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ git branch
  develop
* master

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ |
```

Figure: List of branches in our project

## Switching to another branch

To work on a particular branch you need to switch into it first. To check the list of available branches in the project use git branch command without any parameter .

### \$ git branch

This command will give you the list branches you currently have and will put a little star next to the one you're currently on (the HEAD). Check out above figure.

You will notice that we still are on the master branch because we haven't made anything other than creating a branch.

Simply use “git checkout” with the name of the branch as parameter.

### \$ git checkout <name>

So, if we want to switch to the develop branch, we will have to execute:

### \$ git checkout develop

After checking out the new branch, you will get a confirmation message from Git and you can also check the result of git status to make sure. Figure 11-3 shows the result of those commands.



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```
Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ git checkout develop
Switched to branch 'develop'

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (develop)
$ git status
On branch develop
nothing to commit, working tree clean

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (develop)
$ |
```

(Note : Like when we navigated between versions, you can't switch branches if you have uncommitted changed files. Commit before you move. Or use a technique called “stashing” that we will see in later chapters.)

## Deleting a branch

To delete a branch, simply use the same command as to create one but with the option “-d.”

**\$ git branch -d <name>**

So, to delete our testing branch, we will use

**\$ git branch -d testing**

Just like a real tree branch, you don't cut the Git branch you are currently standing on. Check out another branch before deleting the branch; and for this reason, you can't have less than one branch in a project.

---

```
Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (develop)
$ git checkout master
Switched to branch 'master'

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ git branch -d develop
Deleted branch develop (was eb3db53).

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (master)
$ |
```



If you try to delete a current branch you will get an error like this

```
Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (develop)
$ git branch -d develop
error: Cannot delete branch 'develop' checked out at 'D:/IACSD DEMO/mynewproject'

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (develop)
$ |
```

So always checkout to some other branch before you delete the current one.

## Merging branches

Let's imagine that you want to improve the README file of the project by adding a few information. This The next step is to create a new branch from the development branch so we can merge them later. You have to create a new branch from the develop branch instead of the master because we won't touch the master branch until everything is properly tested. If everything is clear and clean, we will merge the development branch into the master branch.

### **Ex for Merger:**

create the new branch where we will work on. Let's name it "improve-readme-description." Don't forget to checkout out the develop branch before creating a new branch from it.

**\$ git checkout develop**

**\$ git branch improve-readme-description**

Now that the branch has been created, switch to it so we can begin to work.

**\$ git checkout improve-readme-description**

Open the README.md file and change its content to

# TODO list

A simple app to manage your daily tasks.

It uses HTML5 and CSS3.

## Features

\* List of daily tasks

Now, stage the file and get ready to commit.

**\$ git add README.md**

**\$ git commit**



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After you made the commit, check the Git history to put all of we did in perspective. Execute the git log command to see our project history.

### \$ git log

As you can see in the figure, HEAD now points to the last commit of our new branch; it means that every commit we will create will have that as a parent. You will also notice that the master and develop branch didn't change; that's because we only worked on our newly created branch.

```
MINGW64:/d/IACSD DEMO/mynewproject
Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (improve-readme-description)
$ git add README.md

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (improve-readme-description)
$ git commit -m "We added Discription in to README file"
[improve-readme-description 84878c4] We added Discription in to README file
 1 file changed, 5 insertions(+)

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (improve-readme-description)
$ git log
commit 84878c4061c5d2363e145ac0f862068a78d72dee (HEAD -> improve-readme-description)
Author: Priti Wadpalli <shriramwar.priti@gmail.com>
Date:   Mon Nov 2 10:29:42 2020 +0530

    We added Discription in to README file

commit eb3db53cbcd8349af93544c17176503039f031b3 (master, develop)
Author: Priti Wadpalli <shriramwar.priti@gmail.com>
Date:   Thu Oct 29 10:16:39 2020 +0530

    Adding README.md to the newporject first commit

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (improve-readme-description)
```

Now that we are satisfied with our fix, let's merge the branch to the develop branch so we can test it. To merge our branch into develop, we first have to check it out. So, navigate there by using the git checkout command.

### \$ git checkout develop

Now let's try to merge the branch into the develop one. Merging just means reproducing all the commits on one branch on another. To do so, we will use the git merge command followed by the name of the branch be merged.

### \$ git merge <name>

Since we are looking to merge "improve-readme-description" into "develop," our command to execute on the develop branch is

### \$ git merge improve-readme-description



This command will recreate your commits from “improve-readme-description” into “develop.”

```
MINGW64:/d/IACSD DEMO/mynewproject
Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (improve-readme-description)
$ git checkout develop
Switched to branch 'develop'

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (develop)
$ git merge improve-readme-description
Updating eb3db53..84878c4
Fast-forward
 README.md | 5 +++++
 1 file changed, 5 insertions(+)

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (develop)
$ |
```

Let's recheck the git log to have a clearer idea of what happened. As you can see, HEAD now points to develop because it's the checked-out branch. You can also notice that develop and improve-readme-description now point to the same commit; that's because of the merge.

```
MINGW64:/d/IACSD DEMO/mynewproject
Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (develop)
$ git log
commit 84878c4061c5d2363e145ac0f862068a78d72dee (HEAD -> develop, improve-readme-description)
Author: Priti Wadpalli <shriramwar.priti@gmail.com>
Date:   Mon Nov 2 10:29:42 2020 +0530

    We added Discription in to README file

commit eb3db53cbcd8349af93544c17176503039f031b3 (master)
Author: Priti Wadpalli <shriramwar.priti@gmail.com>
Date:   Thu Oct 29 10:16:39 2020 +0530

    Adding README.md to the newporject first commit

Administrator@Priti-PC MINGW64 /d/IACSD DEMO/mynewproject (develop)
$ |
```

## Session 2

### Introduction to software engineering

#### What is Software Engineering?

The application of a systematic, disciplined, quantifiable approach to development, operation, and maintenance of software; that is, the application of engineering to software. (IEEE (Institute of Electrical and Electronics Engineers.)Standard Computer Dictionary, 610.12, ISBN 1-55937-079-3, 1990)

#### In Simple Words

- Software Engineering It is nothing but a set of best practices
- Where so best practices come from? From experience of excellent people
- Helps fresher or less experienced people perform much better like excellent experienced people

#### Software Programming ≠ Software Engineering

Software programming i.e. What we did in academics: the process of translating a problem from its physical environment into a language that a computer can understand and obey.

(Webster's New World Dictionary of Computer Terms) say Programming is having following features

- Single developer
- "Toy" applications
- Short lifespan
- Single or few stakeholders
- Architect = Developer = Manager = Tester = Customer = User
- One-of-a-kind systems
- Built from scratch
- Minimal maintenance

Whereas Software engineering i.e. what we need to do in Industry has following features

- Teams of developers with multiple roles
- Complex systems
- Indefinite lifespan



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- Numerous stakeholders
- Architect ≠ Developer ≠ Manager ≠ Tester ≠ Customer ≠ User
- Maintenance accounts for over 60% of overall costs

## Three key Challenges

**Software engineering in the 21st century faces three key challenges:**

► **Legacy systems**

Old, valuable systems must be maintained and updated

► **Heterogeneity**

Systems are distributed and include a mix of hardware and software

► **Delivery**

There is increasing pressure for faster delivery of software

## Software Myths from Different Perspectives

Understanding the myths of different people involved in software development process is important

In order to evolve into a solutions of these myths

### Software Myths (Customer Perspectives)

- A general statement of objectives is sufficient to get started with the development of software. Missing/vague requirements can easily be incorporated/detailed out as they get concretized.  
**Reality:** Application requirements can never be stable; software can be and has to be made flexible enough to allow changes to be incorporated as they happen.

### Software Myths (Developer Perspectives)

- Once the software is (Designed, Developed, Tested and then) deployed, the job is done.  
**Reality:** Usually, the problems just begin!
- Until the software is coded and is available for testing, there is no way for assessing its quality.  
**Reality:** Usually, there are too many tiny bugs inserted at every stage that grow in size and complexity as they progress thru further stages!
- The only deliverable for a software development project is the tested code.



**Reality:** The code is only the externally visible component of the entire software complement!

## Software Myths (Management Perspectives)

- As long as there are good standards and clear procedures in my company, I shouldn't be too concerned.  
**Reality:** However, they are frequently ignored by developers because they are irrelevant and incomplete, and sometimes incomprehensible.
- As long as my software engineers have access to the fastest and the most sophisticated computer environments and state-of-the art software tools, I shouldn't be too concerned.  
**Reality:** Tools may help, but there is no magic. Problem solving requires more than tools, it requires great understanding.
- When my schedule slips, what I have to do is to start a fire-fighting operation: add more software specialists, those with higher skills and longer experience - they will bring the schedule back on the rails!  
**Reality:** Unfortunately, increasing team size increases communication overhead. New workers must learn project details taking up the time of those who are already immersed in the project.  
``adding people to a late project makes it later.''

## Unique Characteristics of Software

- Software is malleable (flexible)
- Software construction is human-intensive
- Software is intangible and hard to measure
- Software problems are usually complex
- Software directly depends upon the hardware
- Software doesn't wear out but will deteriorate
- So Software solutions require unusual thoroughness

## Importance of Software Engineering

- 1. Reduces complexity



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- **2. To minimize software cost**
- **3. To decrease time**
- **4. Handling big projects**
- **5. Reliable software**
- **6. Effectiveness**

Software Engineering is very important, as it is the backbone of all software systems. It links technologies and practices.

## Software Development Life Cycle SDLC

The entire SDLC process divided into the following stages:



- Phase 1: Requirement collection and analysis
- Phase 2: Feasibility study:
- Phase 3: Design:
- Phase 4: Coding:
- Phase 5: Testing:
- Phase 6: Installation/Deployment:
- Phase 7: Maintenance:

### Phase 1: Requirement collection and analysis:

The requirement is the first stage in the SDLC process. It is conducted by the senior team members with inputs from all the stakeholders and domain experts in the industry. Planning for the quality assurance requirements and recognition of the risks involved is also done at this stage.

This stage gives a clearer picture of the scope of the entire project and the anticipated issues, opportunities, and directives which triggered the project.

Requirements Gathering stage need teams to get detailed and precise requirements. This helps companies to finalize the necessary timeline to finish the work of that system.

### Phase 2: Feasibility study:



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Once the requirement analysis phase is completed the next step is to define and document software needs. This process conducted with the help of 'Software Requirement Specification' document also known as 'SRS' document. It includes everything which should be designed and developed during the project life cycle.

**There are mainly five types of feasibilities checks:**

- **Economic:** Can we complete the project within the budget or not?
- **Legal:** Can we handle this project as cyber law and other regulatory framework/compliances?
- **Operation feasibility:** Can we create operations which is expected by the client?
- **Technical:** Need to check whether the current computer system can support the software
- **Schedule:** Decide that the project can be completed within the given schedule or not.

### **Phase 3: Design:**

In this third phase, the system and software design documents are prepared as per the requirement specification document. This helps define overall system architecture.

This design phase serves as input for the next phase of the model.

There are two kinds of design documents developed in this phase:

#### High-Level Design (HLD)

- Brief description and name of each module
- An outline about the functionality of every module
- Interface relationship and dependencies between modules
- Database tables identified along with their key elements
- Complete architecture diagrams along with technology details

#### Low-Level Design (LLD)



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- Functional logic of the modules
- Database tables, which include type and size
- Complete detail of the interface
- Addresses all types of dependency issues
- Listing of error messages
- Complete input and outputs for every module

## **Phase 4: Coding:**

Once the system design phase is over, the next phase is coding. In this phase, developers start build the entire system by writing code using the chosen programming language. In the coding phase, tasks are divided into units or modules and assigned to the various developers. It is the longest phase of the Software Development Life Cycle process.

In this phase, Developer needs to follow certain predefined coding guidelines. They also need to use programming tools like compiler, interpreters, debugger to generate and implement the code.

## **Phase 5: Testing:**

Once the software is complete, and it is deployed in the testing environment. The testing team starts testing the functionality of the entire system. This is done to verify that the entire application works according to the customer requirement.

During this phase, QA and testing team may find some bugs/defects which they communicate to developers. The development team fixes the bug and send back to QA for a re-test. This process continues until the software is bug-free, stable, and working according to the business needs of that system.

## **Phase 6: Installation/Deployment:**

Once the software testing phase is over and no bugs or errors left in the system then the final deployment process starts. Based on the feedback given by the project manager, the final software is released and checked for deployment issues if any.

## **Phase 7: Maintenance:**



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Once the system is deployed, and customers start using the developed system, following 3 activities occur

- Bug fixing - bugs are reported because of some scenarios which are not tested at all
- Upgrade - Upgrading the application to the newer versions of the Software
- Enhancement - Adding some new features into the existing software

The main focus of this SDLC phase is to ensure that needs continue to be met and that the system continues to perform as per the specification mentioned in the first phase.

## Requirements Engineering

### What is the Requirements Analysis?

- It is the process of defining the expectations of the users for an application that is to be built or modified.
- Identify the needs of different stakeholders.
- Requirements analysis means to analyze, document, validate and manage software or system requirements.
- High-quality requirement analysis helps to identify business opportunities, and are defined to facilitate system design.

### Requirements analysis process

#### ➤ Eliciting requirements

The process of gathering requirements by communicating with the customers is known as eliciting requirements.

#### ➤ Analyzing requirements

This step helps to determine the quality of the requirements. It involves identifying whether the requirements are unclear, incomplete, ambiguous, and contradictory. These issues resolved before moving to the next step.

#### ➤ Requirements modeling

In Requirements modeling, the requirements are usually documented in different formats such as:

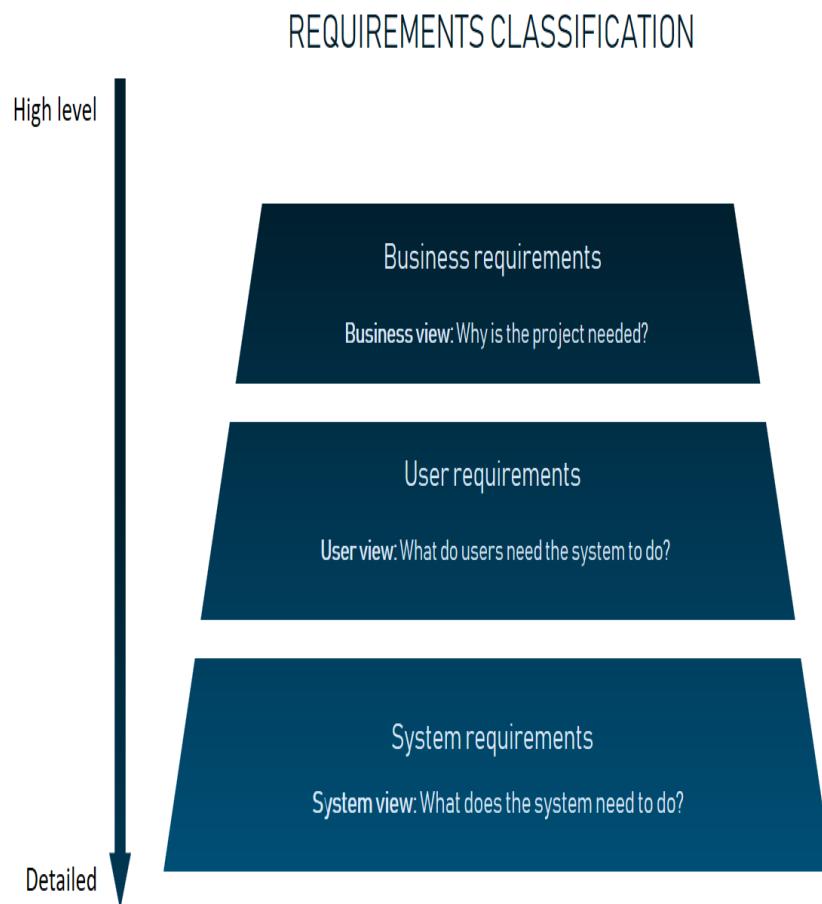
1. Use cases,
2. User stories,
3. Natural-language documents,



#### 4. Process specification.

##### ➤ Review and retrospective

This step is conducted to reflect on the previous iterations of requirements gathering in a bid to make improvements in the process going forward.



#### Types of Requirements

- **Business Requirements (BR)**
- **Market Requirements (MR)**
- **Functional Requirements (FR)**
- **Non-Functional Requirements (NFR)**
- **UI Requirements (UIR)**

- ▶ **Business requirements.** These include high-level statements of goals, objectives, and needs.
- ▶ **Stakeholder requirements.** The needs of discrete stakeholder groups are also specified to define what they expect from a particular solution.
- ▶ **Nonfunctional** requirements describe the general characteristics of a system. They are also known as ***quality attributes***.
- ▶ **Functional** requirements describe how a product must behave, what its features and functions.

#### **Functional Requirements:**

- ▶ These are the requirements that the end user specifically demands as basic facilities that the system should offer. All these functionalities need to be necessarily incorporated into the system as a part of the contract
- ▶ Ex: in a hospital management system, a doctor should be able to retrieve the information of his patients.

#### **Non-functional requirements:**

- ▶ These are basically the quality constraints that the system must satisfy according to the project contract.
- ▶ Ex They basically deal with issues like:  
Portability, Security, Maintainability, Reliability, Scalability,  
Performance Reusability Flexibility



Once the requirements are gathered, we document the requirements in a Software Requirements Specification (**SRS**) document, **use cases** or as **User Stories**, which are shared with the stakeholders for approval. This document is **easy to understand** for both **normal users** and **developers**.

### User Stories Template

STORY ID:	STORY TITLE:
User Story: As a <role> I want to <goal> So that I can <purpose>	Importance:
Acceptance criteria: I know I am done when...	Estimate

## Sample User Story

<b>Title:</b>	Customer Inter Account Transfer
<b>Value Statement:</b>	As a bank customer, I want to transfer funds between my linked accounts, So that I can fund my credit card.
<b>Acceptance Criteria:</b>	<p><u>Acceptance Criterion 1:</u>  Given that the account has sufficient funds  When the customer requests an inter account transfer  Then ensure the source account is debited  AND the target account is credited.</p> <p><u>Acceptance Criterion 2:</u>  Given that the account is overdrawn,  When the customer requests an inter account transfer  Then ensure the rejection message is displayed  And ensure the money is not transferred.</p>
<b>Definition of Done:</b>	<ul style="list-style-type: none"> <li>• Unit Tests Passed</li> <li>• Acceptance Criteria Met</li> <li>• Code Reviewed</li> <li>• Functional Tests Passed</li> <li>• Non-Functional Requirements Met</li> <li>• Product Owner Accepts User Story</li> </ul>
<b>Owner:</b>	MR   Owner
<b>Iteration:</b>	Unscheduled
<b>Estimate:</b>	5 Points

## Use Case Approach

- ▶ It's a methodology **used** in system analysis to identify, clarify, and organize system requirements.
- ▶ The **use case** is made up of a set of possible sequences of interactions between systems and users in a particular environment and related to a particular goal.
- ▶ A **use case specification** represents the sequence of events along with other information that relates to this use case.
- ▶ A typical use case specification template includes the following information:
  - Description
  - Pre- and Post- interaction condition
  - Basic interaction path
  - Alternative path
  - Exception path

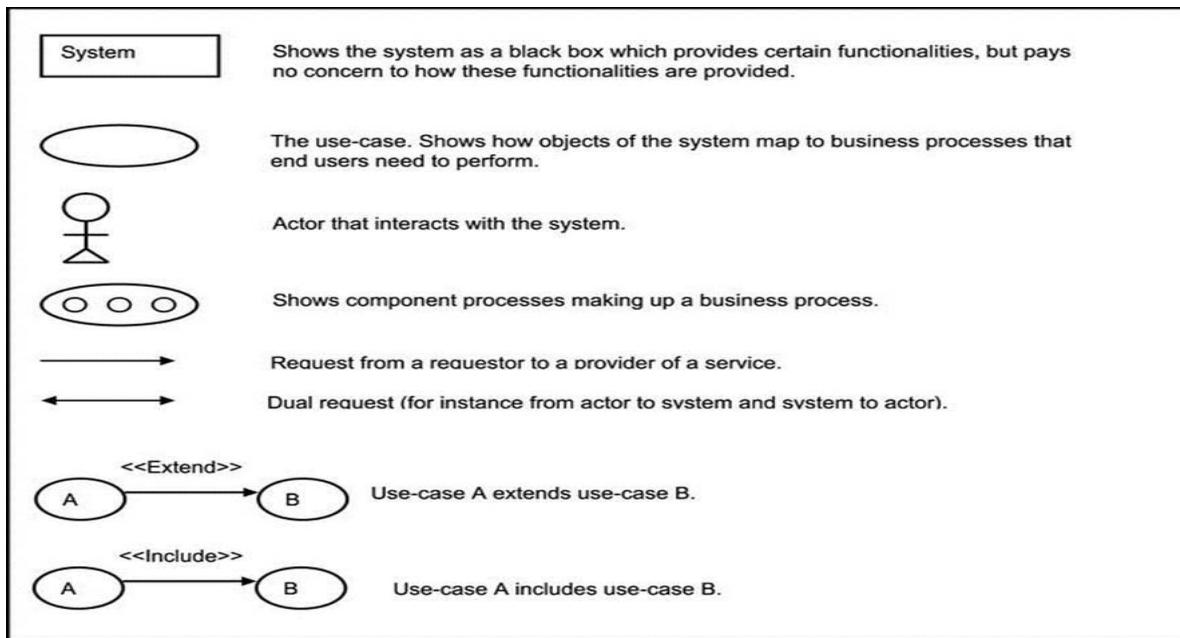
## Use Case Diagrams:

A use case diagram contains four components.



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- The **boundary**, which defines the system of interest in relation to the world around it.
- The **actors**, usually individuals involved with the system defined according to their roles.
- The **use cases**, which the specific roles are played by the actors within and around the system.
- The **relationships** between and among the actors and the use cases.



Note:

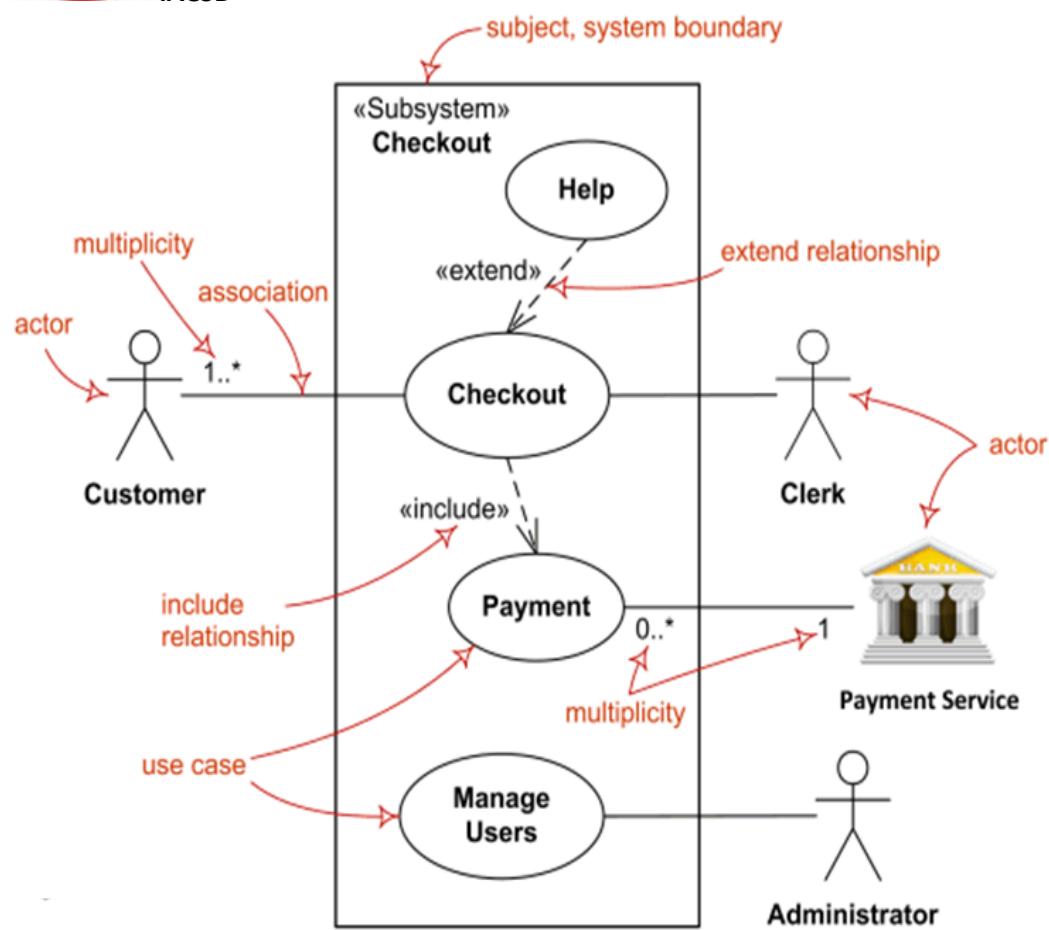
extend:

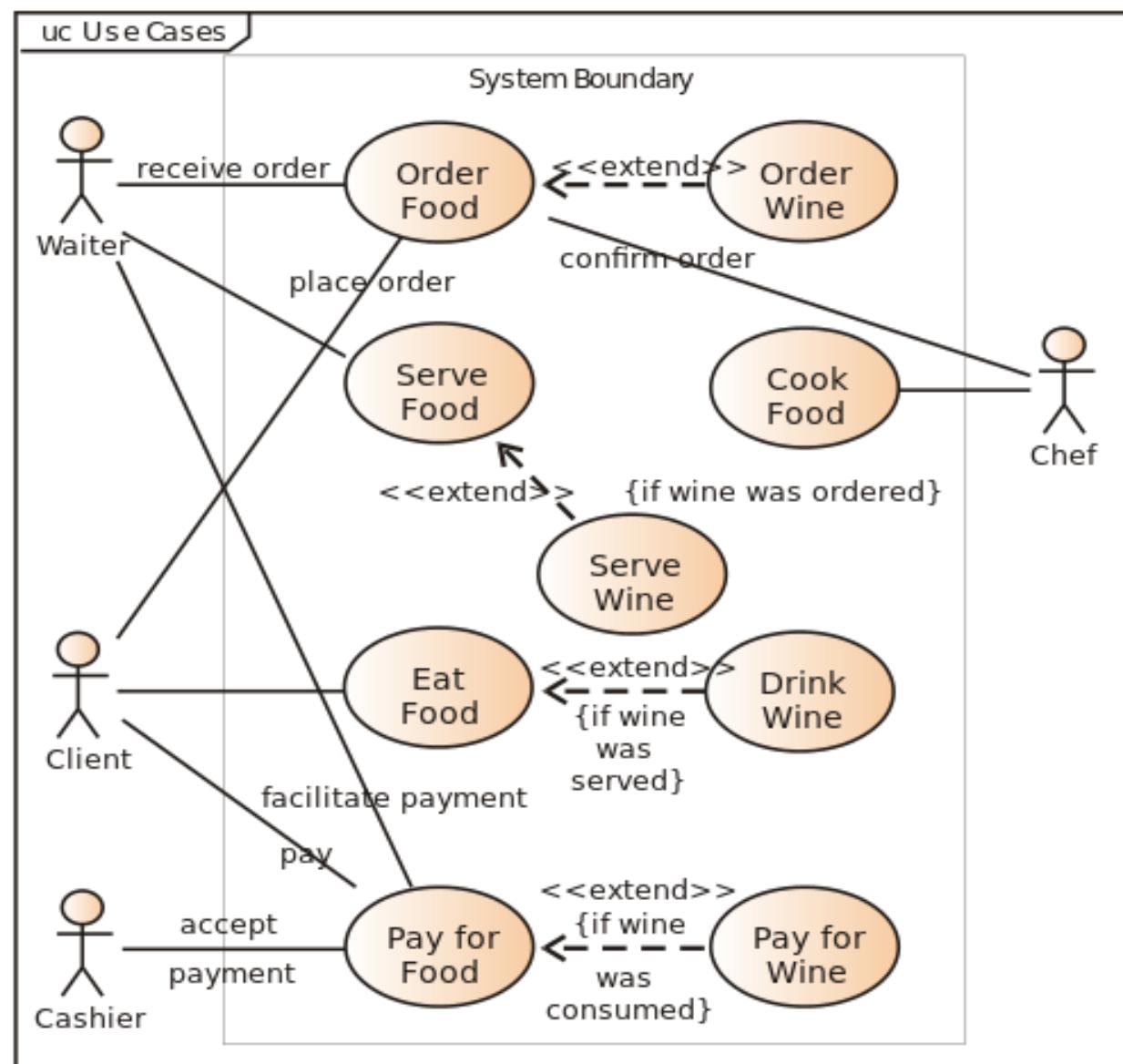
- The extending use case is dependent on the base use case; it literally extends the behavior described by the base use case. The base use case should be a fully functional use case in its own right

include

- A base use case is dependent on the included use case(s); without it/them the base use case is incomplete as the included use case(s) represent sub-sequences of the interaction that may happen always OR sometimes

Sample Diagrams:





## Usage Scenarios

The basic strategy is to identify a path through a use case, or through a portion of a use case, and then write the scenario as an instance of that path.

Ex:

- ▶ **Scenario: A successful withdrawal attempt at an automated teller machine (ATM).**
  - John Smith presses the "Withdraw Funds" button
  - ▶ The ATM displays the preset withdrawal amounts (\$20, \$40, and so on)
  - ▶ John chooses the option to specify the amount of the withdrawal
  - ▶ The ATM displays an input field for the withdrawal amount
  - ▶ John indicates that he wishes to withdraw \$50 dollars
  - ▶ The ATM displays a list of John's accounts, a checking and two savings accounts
  - ▶ John chooses his checking account
  - ▶ The ATM verifies that the amount may be withdrawn from his account
  - ▶ The ATM verifies that there is at least \$50 available to be disbursed from the machine
  - ▶ The ATM debits John's account by \$50
  - ▶ The ATM disburses \$50 in cash
  - ▶ The ATM displays the "Do you wish to print a receipt" options
  - ▶ John indicates "Yes"
  - ▶ The ATM prints the receipt

## Benefits of Use Cases

- ▶ **Use case** help to capture the functional requirements of a system.
- ▶ **Use cases** are traceable.
- ▶ **Use cases** can serve as the basis for the estimating, scheduling, and validating effort.

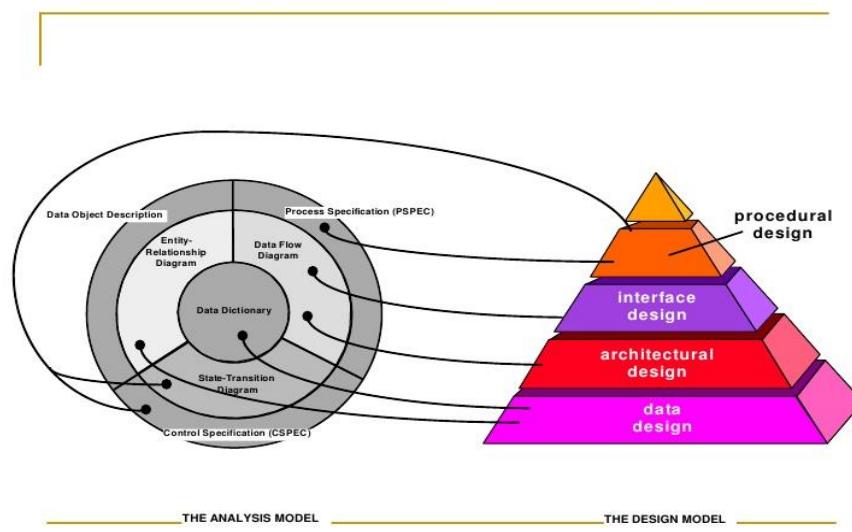
# Design and Architectural Engineering

## Design process

Aim of design engineering is to generate a model which shows firmness  
 Software design is an iterative process through which requirements are translated into the blueprint for building the software.

### Process of Design Engineering

- During the design process the software specifications are transformed into design models
- Models describe the details of the data structures, system architecture, interface, and components.
- Each design product is reviewed for quality before moving to the next phase of software development.
- At the end of the design process a design model and specification document is produced.
- This document is composed of the design models that describe the data, architecture, interfaces and components.



Developing a Design Model

### Data design:

- This specifies the data structures for implementing the software by converting data objects and their relationships identified during the analysis phase. Various



studies suggest that design engineering should begin with data design, since this design lays the foundation for all other design models. (**data dictionary and ERD**)

### **Architectural design:**

- This specifies the relationship between the structural elements of the software, design patterns, architectural styles, and the factors affecting the ways in which architecture can be implemented. (**DFD**)

### **Component-level design:**

- This provides the detailed description of how structural elements of software will actually be implemented.

### **Interface design:**

- This depicts how the software communicates with the system that interoperates with it and with the end-users.

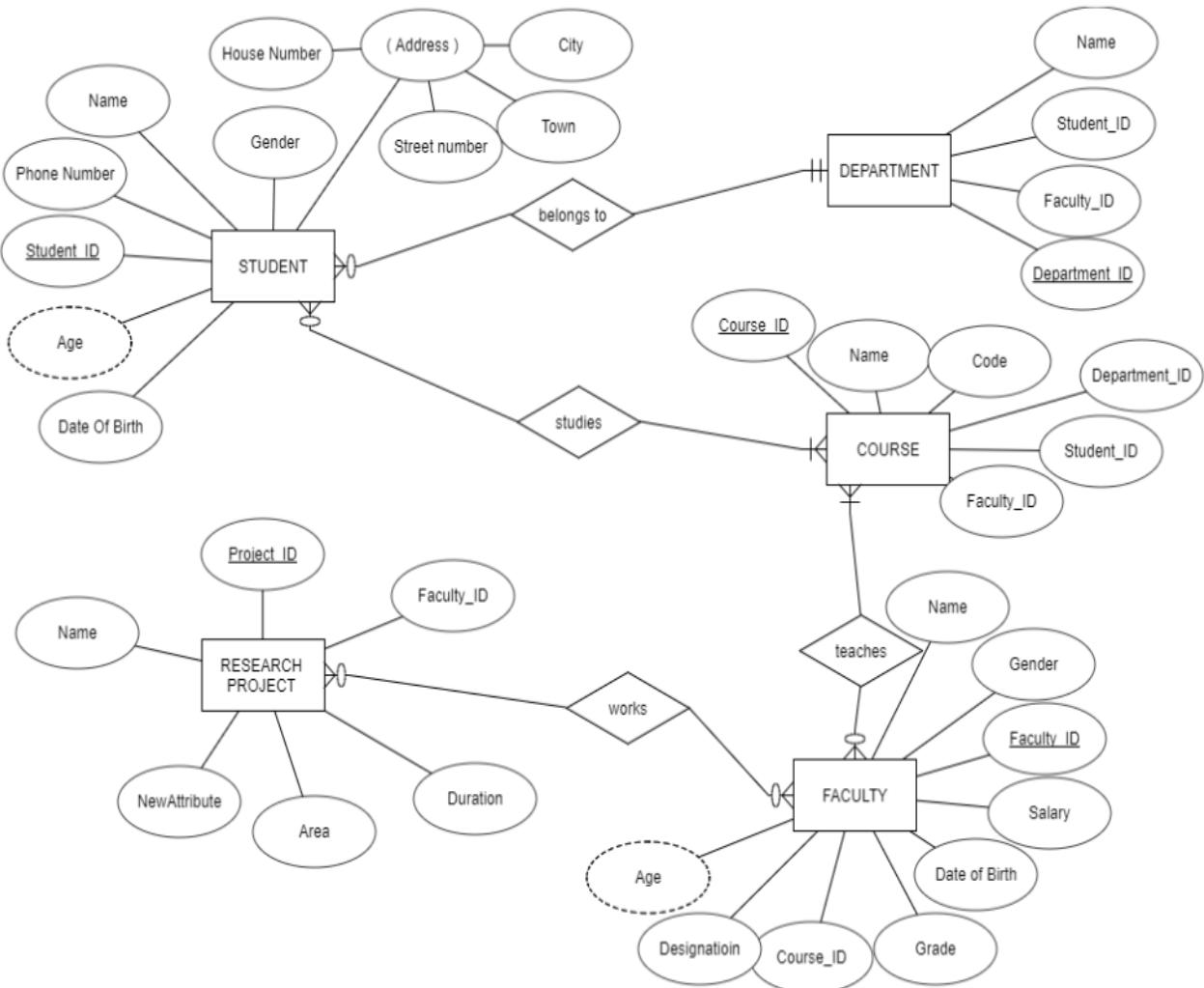
### **ERD: --relational modeling**



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ER Diagram is a graphical representation of a data model using *entities*, their *attributes* and *relationships* between those entities

	Represents Entity
	Represents Attribute
	Represents Relationship
	Links Attribute(s) to entity set(s) or Entity set(s) to Relationship set(s)
	Represents Multivalued Attributes
	Represents Derived Attributes
	Represents Total Participation of Entity
	Represents Weak Entity
	Represents Weak Relationships
	Represents Composite Attributes
	Represents Key Attributes / Single Valued Attributes



## Information Engineering Style

one to one

one to many (mandatory)

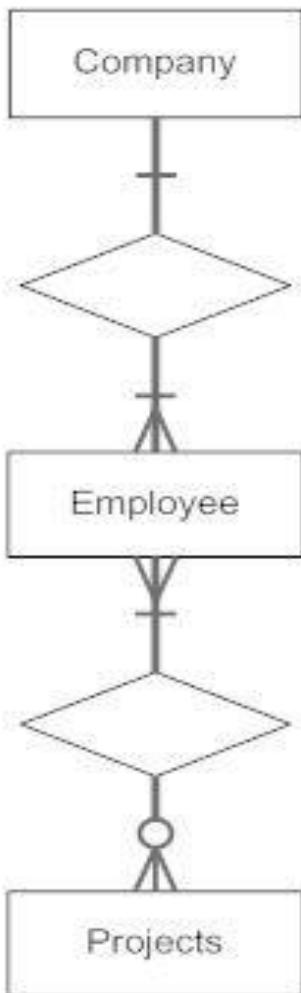
many

one or more (mandatory)

one and only one (mandatory)

zero or one (optional)

zero or many (optional)



- **Data Dictionary**

Is a list of data elements (entity/table and attribute/column) with their attributes and descriptions. It has a form of a set of **tables**.

**Table Name**  
*tbl\_persons\_mst*

**Description**  
*This table will have all the details of person entity*

**Dictionary**

Field Name	Datatype	Description	Constraint
pk_person_id	bigint	Unique key of the table	Not Null (auto_increment)
firstname	varchar(50)	Person's first name	Non Null
lastname	varchar(50)	Person's last name	Non Null
createddate	datetime	UTC Date and time on which entry is created	Non Null
modifieddate	datetime	UTC Date and time on which entry gets modified	Non Null
createdby	integer	Unique id of user who has created this entry	Non Null
modifiedby	integer	Unique id of user who has modified this entry	Non Null
status	tinyint(1)	Status (0-Inactive,1-Active)	Non Null

## Entity-Relationship Diagram

### Pros

- Easier to see the big picture
- Easier to understand table relations
- Possible to use visual cues to communicate information (e.g. location, proximity, color, shape)

### Cons

- Doesn't work with large data models due to space constraints and clutter
- Supports limited amount of details
- May contain very little descriptions (as notes on a diagram)
- Requires careful layout and fitting into canvas
- Hard to search

## Data Dictionary

### Pros

- May include many data attributes (e.g. list of values, default values, owner, etc.)
- Includes detailed descriptions of each element (table, column)
- Easily searchable

### Cons

- Less visually appealing
- More difficult to read

## Characteristics of Good Design

- Correctness
- Understandability
- Efficiency
- Maintainability

## Basic Design Concepts:

There are seven main principles to keep in mind in the **design model in object-oriented programming (OOP)**:

- Abstraction
- Patterns
- Separation of Data
- Modularity



- Data Hiding
- Functional Independence
- Refactoring

## Abstraction

Abstraction refers to a powerful design tool, which allows software designers to consider components at an abstract level, while neglecting the implementation details of the components.

- **Functional abstraction:** This involves the use of parameterized subprograms. Functional abstraction can be generalized as collections of subprograms referred to as 'groups'.
- **Data abstraction:** This involves specifying data that describes a data object. For example, the data object *window* encompasses a set of attributes (window type, window dimension)
- **Control abstraction:** This states the desired effect, without stating the exact mechanism of control. For example, if and while statements in programming languages (like C and C++)

## Patterns

We use **patterns** to identify solutions to design problems that are recurring and can be solved reliably. A pattern must be guaranteed to work so that it may be reused many times over, but it also must be relevant to the current project at the same time.

There are three main patterns:

- **Architectural** - High-level pattern type that can be defined as the overall formation and organization of the software system itself.
- **Design** - Medium-level pattern type that is used by the developers to solve problems in the design stage of development. Can affect how objects or components interact with one another.
- **Idioms** - Low-level pattern type, often known as **coding patterns**, they are used as a workaround means of setting up and defining how components will be interacting with the software itself without being dependent on the programming language

## Separation of Data

Known as **separation of concerns**,

- To ensure proper implementation, the two sections must have little to no overlap between them and must have a defined purpose for each component.
- This principle allows each component to be developed, maintained, and reused independently of one another.
- It allows the code to be modified without needing to know the specifics of other components.

## Modularity

- Modularity is achieved by dividing the software into uniquely named and addressable components, which are also known as **modules**.
- A complex system (large program) is partitioned into a set of discrete modules in such a way that each module can be developed independent of other modules.
- After developing the modules, they are integrated together to meet the software requirements. Note that larger the number of modules a system is divided into, greater will be the effort required to integrate the modules.

## Data Hiding

- data hiding allows modules to pass only the required information between themselves without sharing the internal structures and processing
- Data hiding leads to following benefits:
- Leads to low coupling
- Emphasizes communication through controlled interfaces
- Restricts the effects of changes in one component on others

## Functional independence

Functional independence is the concept of separation and related to the concept of modularity, abstraction and information hiding.

- The functional independence is accessed using two criteria i.e Cohesion and coupling.

**Cohesion:** The degree to which a module performs one and only one function.

**Coupling:** The degree to which a module is “connected” to other modules in the system

## Refactoring

Refactoring is the process of changing a software system in such a way that it does not alter the external behavior of the code [design] yet improves its internal structure.

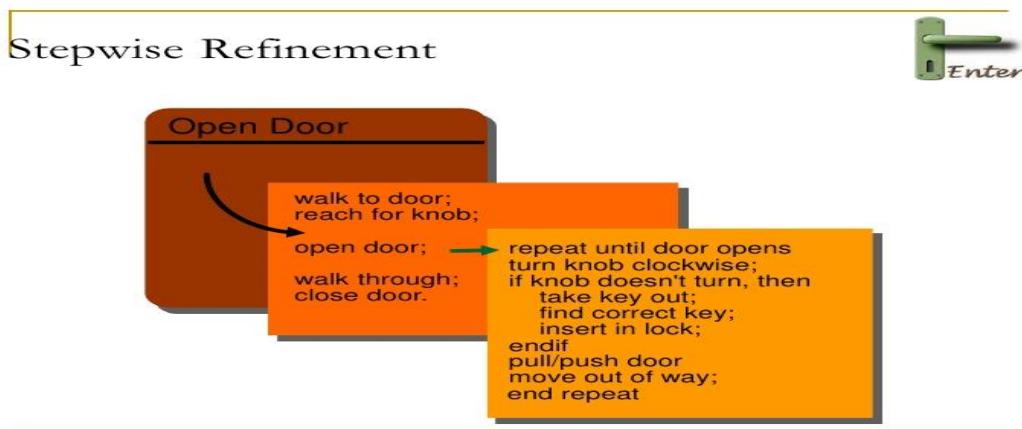
### When software is refactored, the existing design is examined for

- Redundancy.
- Unused design elements
- Inefficient or unnecessary algorithms.

- Poorly constructed or inappropriate data structures
- Or any other design failure that can be corrected to yield a better design.

### Also Termed as Refinement

- Refinement is a top-down design approach.
- It is a process of elaboration.
- A program is established for refining levels of procedural details.
- A hierarchy is established by decomposing a statement of function in a stepwise manner till the programming language statement are reached.



### Functional independence in Details

#### Ways Components can be dependent

References made from one to another

- Component A invokes B
- A depends on B for completion of its function or process

Amount of data passed from one to another

- Component A passes to B : a parameter ,contents of an array, block of data

Amount of control one has over the other

- Component passes a control flag to B

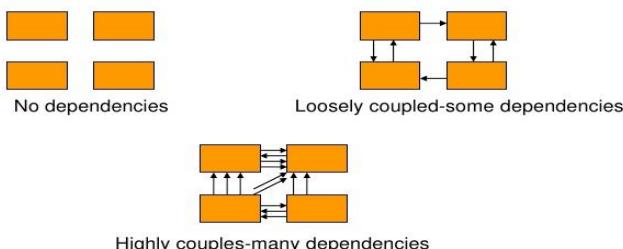
- Value of flag tells B the state of some resource or subsystem, process to invoke or whether to invoke a process

Degree of Complexity in the interface between components

- Component C and D exchange value before D can complete execution

## Coupling

- Degree of dependence among components.



### 1. Data Coupling –

Data coupling simply means the coupling of data i.e. interaction between data when they are passed through parameters using or when modules share data through parameters. When data of one module is shared with other modules or passed to other modules, this condition is said to be data coupling.

### 2. Control Coupling –

Control coupling simply means to control data sharing between modules. If the modules interact or connects by sharing controlled data, then they are said to be control coupled. The controlled coupling means that one module controls the flow of data or information by other modules by them the information about what to do.

### 3. Common Coupling –

Common coupling simply means the sharing of common data or global data between several modules. If two modules share the information through global data items or interact by sharing common data, then they are said to be commonly coupled.

### 4. Content Coupling –

Content coupling simply means using of data or control information maintained in other modules by one module. This coupling is also known as pathological coupling. In these coupling, one module relies or depends upon the internal workings of another module. Therefore, if any changes have to be done in the

inner working of a module then this will lead to the need for change in the dependent module.

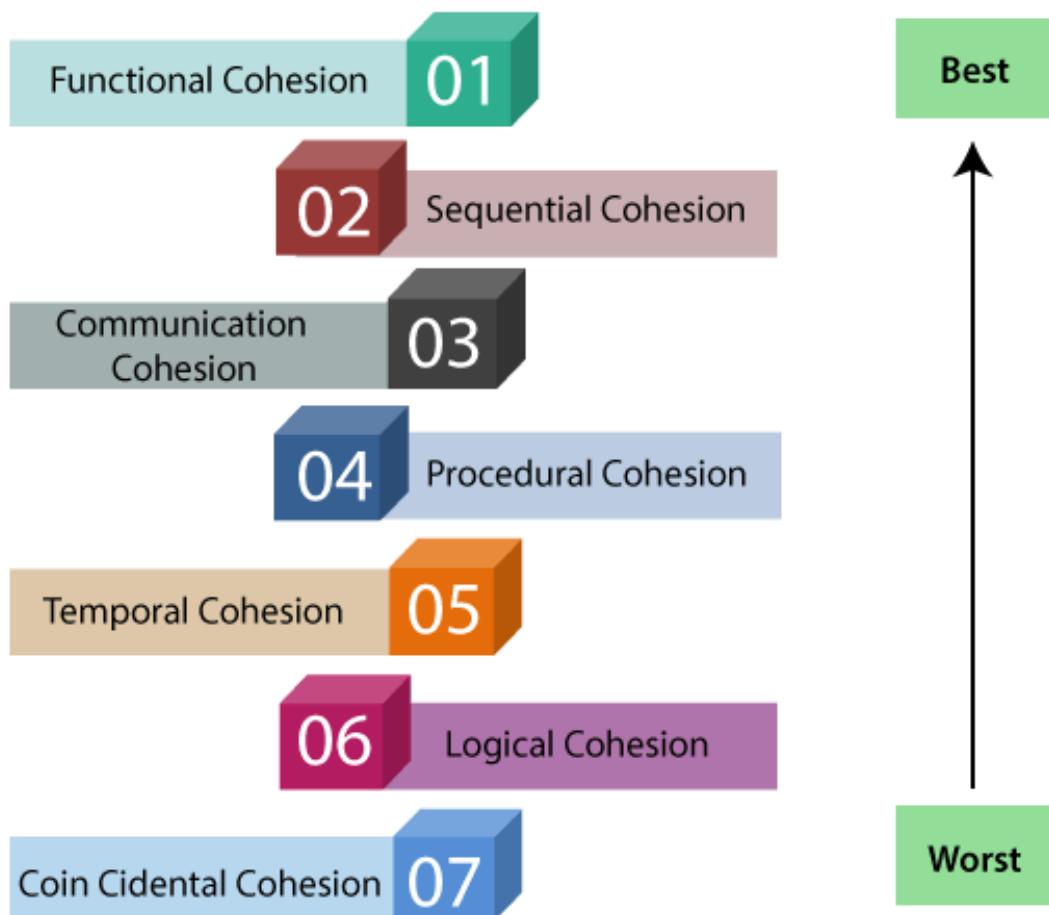
#### 5. Stamp Coupling –

Stamp coupling simply means the sharing of composite data structure between modules. If the modules interact or communicate by sharing or passing data structure that contains more information than the information required to perform their actions, then these modules are said to be stamp coupled.

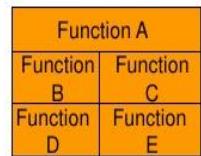
#### 6. External Coupling –

The external coupling means the sharing of data structure or format that are imposed externally between the modules. External coupling is very important but there should be a limit also. It should be limited to less number of modules with structures.

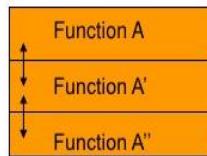
## Types of Modules Cohesion



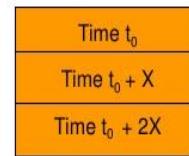
## Examples of Cohesion-1



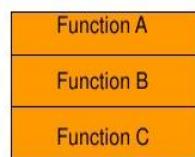
Coincidental  
Parts unrelated



Logical  
Similar functions

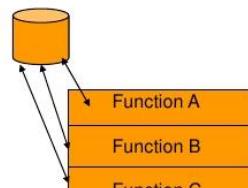


Temporal  
Related by time

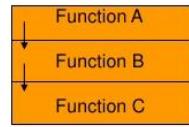


Procedural  
Related by order of functions

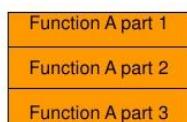
## Examples of Cohesion-2



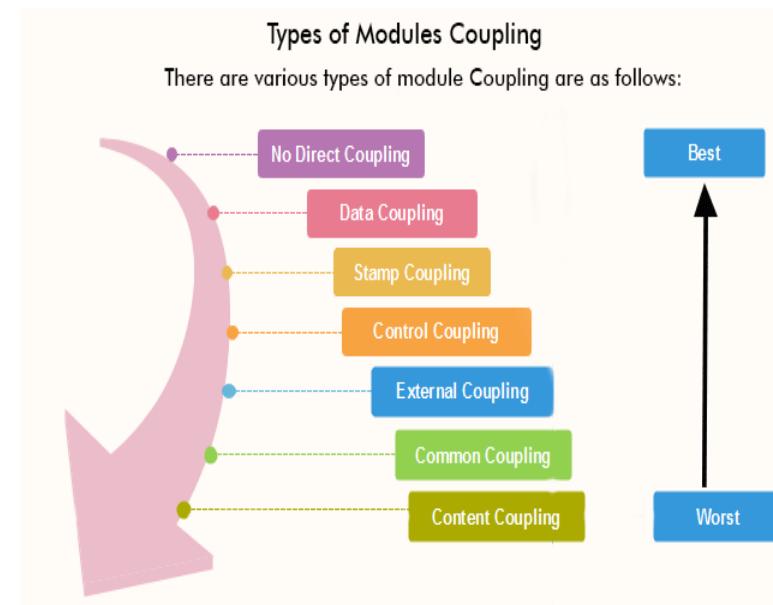
Communicational  
Access same data



Sequential  
Output of one is input to another



Functional  
Sequential with complete, related functions



- **Functional Cohesion:** Functional Cohesion is said to exist if the different elements of a module, cooperate to achieve a single function.
- **Sequential Cohesion:** A module is said to possess sequential cohesion if the element of a module form the components of the sequence, where the output from one component of the sequence is input to the next.
- **Communicational Cohesion:** A module is said to have communicational cohesion, if all tasks of the module refer to or update the same data structure.
- **Procedural Cohesion:** A module is said to be procedural cohesion if the set of purpose of the module are all parts of a procedure in which particular sequence of steps has to be carried out for achieving a goal
- **Temporal Cohesion:** When a module includes functions that are associated by the fact that all the methods must be executed in the same time, the module is said to exhibit temporal cohesion.
- **Logical Cohesion:** A module is said to be logically cohesive if all the elements of the module perform a similar operation. For example Error handling, data input and data output, etc.
- **Coincidental Cohesion:** A module is said to have coincidental cohesion if it performs a set of tasks that are associated with each other very loosely, if at all.

### COHESION

- The measure of strength of the association of elements within a module
- It is the degree to which the responsibility of a single component form a meaningful unit
- It is a property or characteristic of an individual module

### COUPLING

- The measure of interdependence of one module to another
- It describes the relationship between software components
- It is a property of a collection of modules

## UML

- What is UML
- UML building blocks
- Common mechanisms of UML

### What is UML

*(A picture is worth a thousand words)*

- UML is a standard language for specifying, visualizing, constructing, and documenting the artifacts of software systems.
- UML was created by the Object Management Group (OMG) and UML 1.0 specification draft was proposed to the OMG in January 1997.
- UML stands for **Unified Modeling Language**.
- UML is different from the other common programming languages such as C++, Java.
- UML is a pictorial language used to make software blueprints.
- UML can be described as a general purpose visual modeling language to visualize, specify, construct, and document software system.

## Object Oriented Analysis and Design

OO can be defined as an investigation and to be more specific, it is the investigation of objects. Design means collaboration of identified objects.

Purpose:

- Identifying the objects of a system.
- Identifying their relationships.

Making a design, which can be converted to executable using OO languages.

## UML building blocks

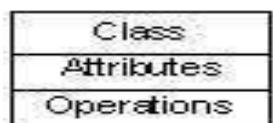
- Things
- Relationships
- Diagrams

**Things** are the most important building blocks of UML. Things can be –

- Structural
- Behavioral
- Grouping
- Annotational

### Structural Things:

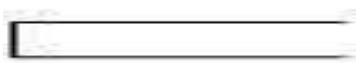
**Class** – Class represents a set of objects having similar responsibilities.



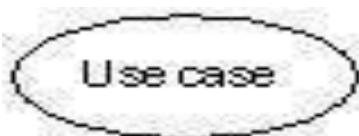
**Interface** – Interface defines a set of operations, which specify the responsibility of a class.



**Collaboration** – Collaboration defines an interaction between elements.



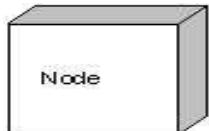
**Use case** – Use case represents a set of actions performed by a system for a specific goal.



**Component** – Component describes the physical part of a system.



**Node** – A node can be defined as a physical element that exists at run time.



### **Behavioral Things**

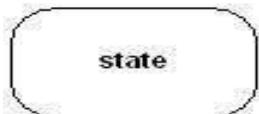
- **A behavioral thing** consists of the dynamic parts of UML models.

Following are the behavioral things –

- **Interaction** – Interaction is defined as a behavior that consists of a group of messages exchanged among elements to accomplish a specific task.



- **State machine** – State machine is useful when the state of an object in its life cycle is important. It defines the sequence of states an object goes through in response to events. Events are external factors responsible for state change



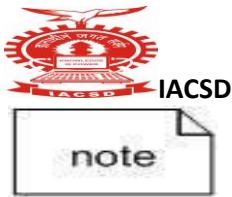
### **Grouping Things**

- **Grouping things** can be defined as a mechanism to group elements of a UML model together. There is only one grouping thing available –
- **Package** – Package is the only one grouping thing available for gathering structural and behavioral things.



### **Annotational Things**

- Annotational things can be defined as a mechanism to capture remarks, descriptions, and comments of UML model elements.
- Note - It is the only one Annotational thing available. A note is used to render comments, constraints, etc. of an UML element.

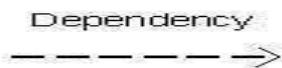


## Relationship

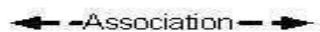
- **Relationship** is another most important building block of UML. It shows how the elements are associated with each other and this association describes the functionality of an application.

There are four kinds of relationships available.

- **Dependency** is a relationship between two things in which change in one element also affects the other.



- **Association** is basically a set of links that connects the elements of a UML model. It also describes how many objects are taking part in that relationship.



- **Generalization** can be defined as a relationship which connects a specialized element with a generalized element. It basically describes the inheritance relationship in the world of objects.



- **Realization** can be defined as a relationship in which two elements are connected. One element describes some responsibility, which is not implemented and the other one implements them. This relationship exists in case of interfaces.





## Diagrams

UML diagrams are organized into two distinct groups:

- structural diagrams
- behavioral or interaction diagrams

### Structural UML diagrams

- Class diagram
- Package diagram
- Object diagram
- Component diagram
- Composite structure diagram
- Deployment diagram

### Behavioral UML diagrams

- Activity diagram
- Sequence diagram
- Use case diagram
- State diagram
- Communication diagram
- Interaction overview diagram
- Timing diagram

### Class Diagram Symbols and Notations

- Classes

Classes represent an abstraction of entities with common characteristics.



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Class Name
attributes
operations()
responsibility

Class

- **Visibility**

Use visibility markers to signify who can access the information contained within a class.

Class Name
attributes
+ public operation - private operation # protected operation

Visibility

Marker	Visibility
+	public
-	private
#	protected
~	package

- **Associations**

• Associations represent static relationships between classes. Place association names above, on, or below the association line.

- **Constraint**

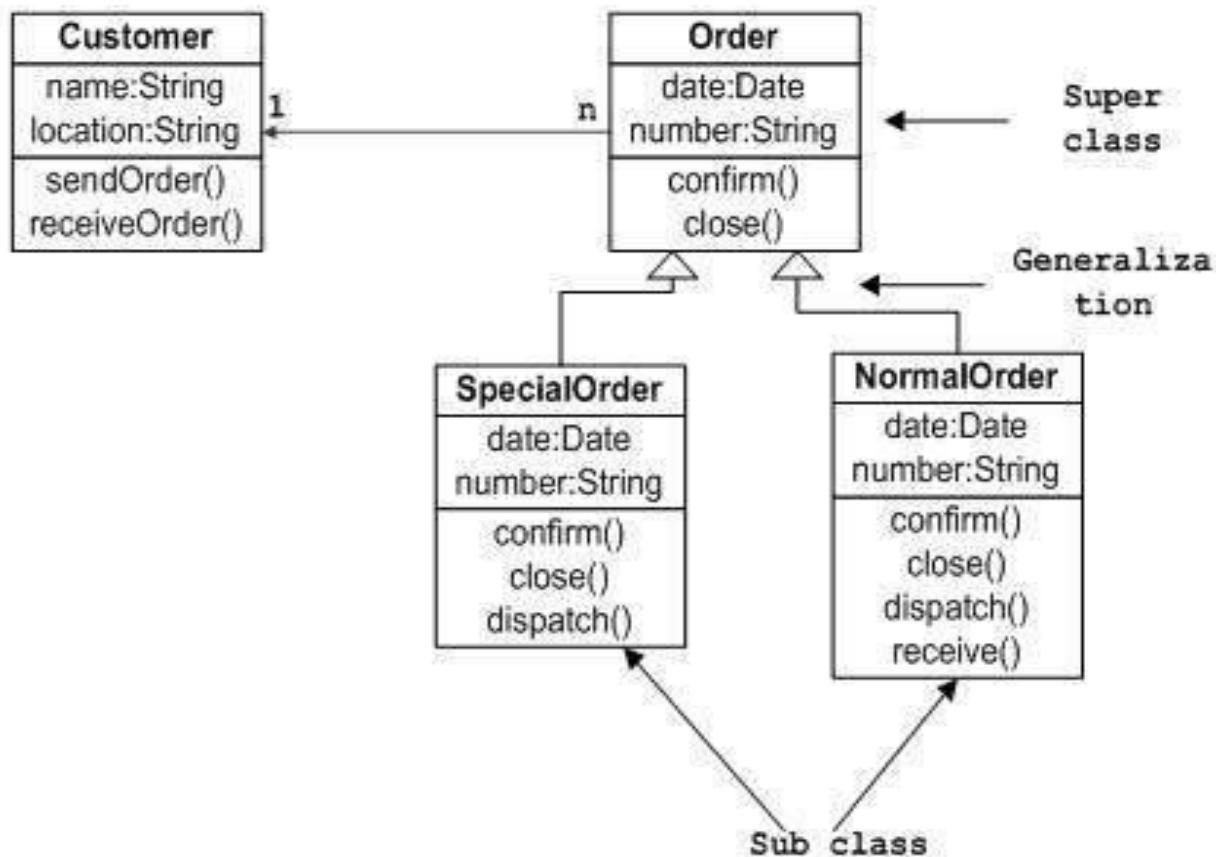
• Place constraints inside curly braces {}.

Multiplicity

Class Name		Class Name
attributes	1	attributes
operations()	*	operations()
responsibility		responsibility

Indicator	Meaning
0..1	Zero or one
1	One only
0..*	0 or more
1..*   *	1 or more
0..n	Only n (where n > 1)
0..n	Zero to n (where n > 1)
1..n	One to n (where n > 1)

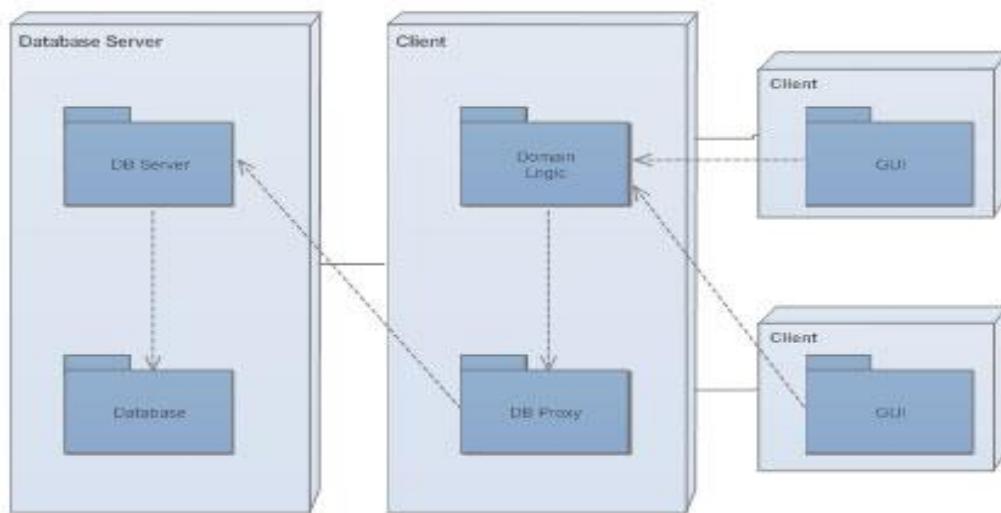
### Sample Class Diagram



## Package Diagram

Package diagrams are a subset of class diagrams, but developers sometimes treat them as a separate technique. Package diagrams organize elements of a system into related groups to minimize dependencies between packages.

UML Package Diagram - Encapsulation



## Object Diagram

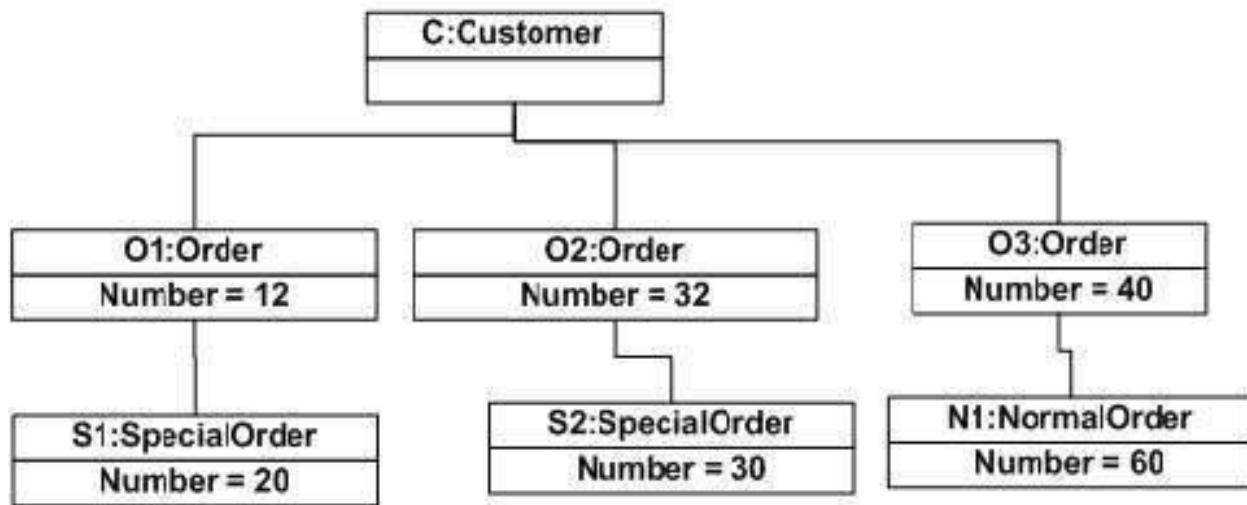
Object diagrams describe the static structure of a system at a particular time. They can be used to test class diagrams for accuracy.

object diagram is an instance of a class diagram.



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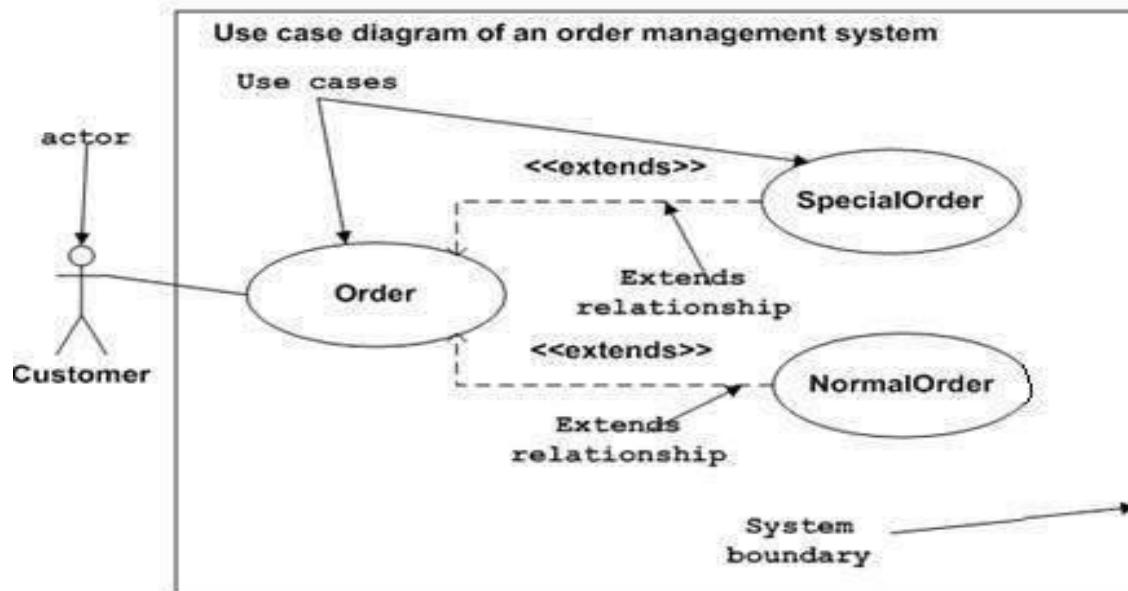
## Object diagram of an order management system



## Use Case Diagram

[Use case diagrams](#) model the functionality of a system using actors and use cases.

- Used to gather the requirements of a system.
- Used to get an outside view of a system.
- Identify the external and internal factors influencing the system.
- Show the interaction among the requirements are actors.

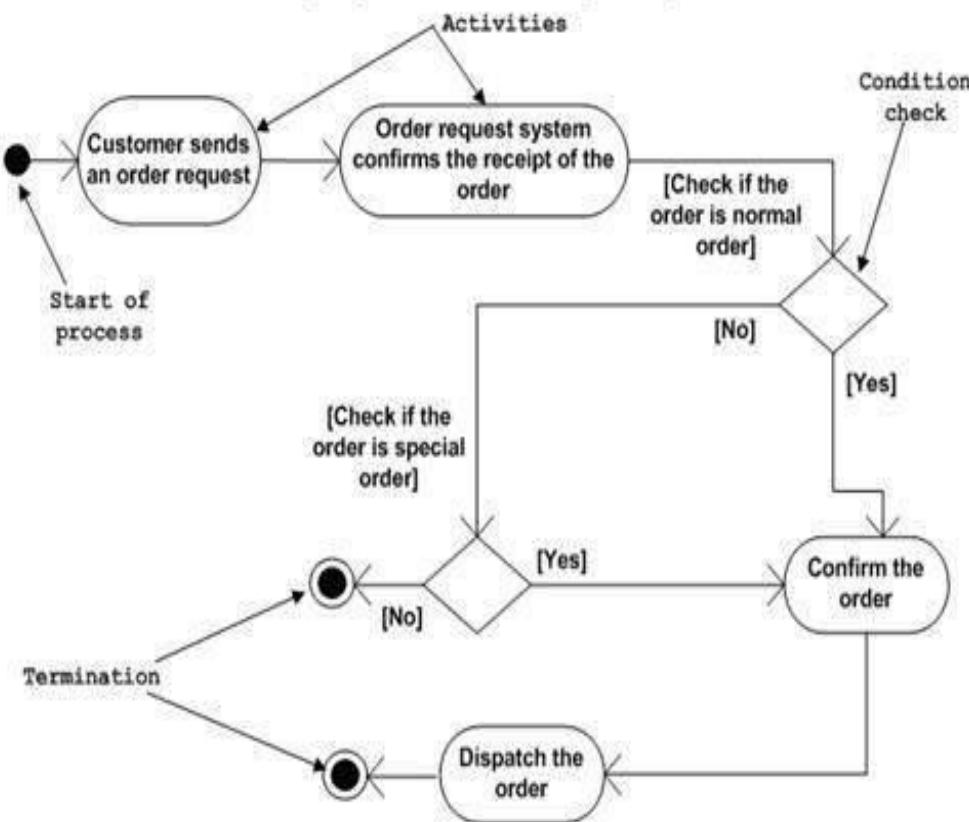


**Figure: Sample Use Case diagram**

## Activity Diagram

- [Activity diagrams](#) illustrate the dynamic nature of a system by modeling the flow of control from activity to activity.
- An activity represents an operation on some class in the system that results in a change in the state of the system.
- Typically, activity diagrams are used to model workflow or business processes and internal operation

Activity diagram of an order management system



### Sequence Diagram

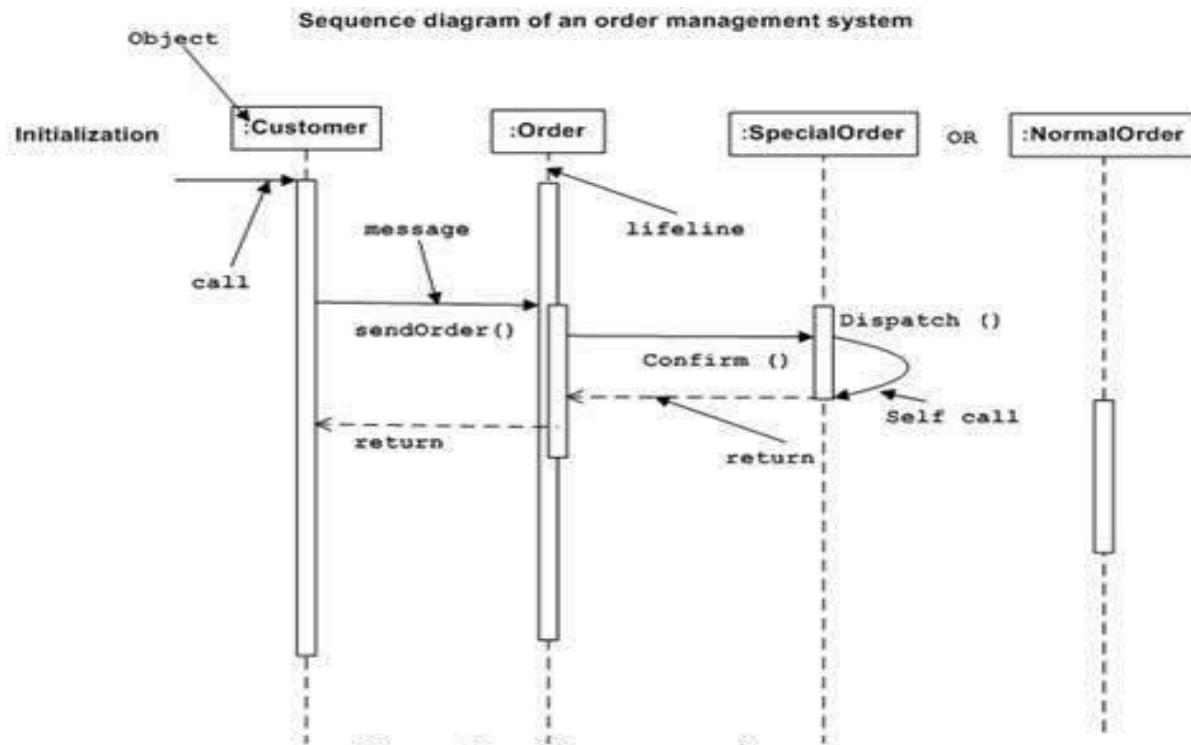
- [Sequence diagrams](#) describe interactions among classes in terms of an exchange of messages over time.

It Represents:

- Objects taking part in the interaction.
- Message flows among the objects.



- The sequence in which the messages are flowing.
- Object organization.



- **Interaction Overview Diagram**

Interaction overview diagrams are a combination of activity and sequence diagrams.

- **Timing Diagram**

A timing diagram is a type of behavioral or interaction UML diagram that focuses on processes that take place during a specific period of time. They're a special instance of a sequence diagram, except time is shown to increase from left to right instead of top down.

- **Communication Diagram**

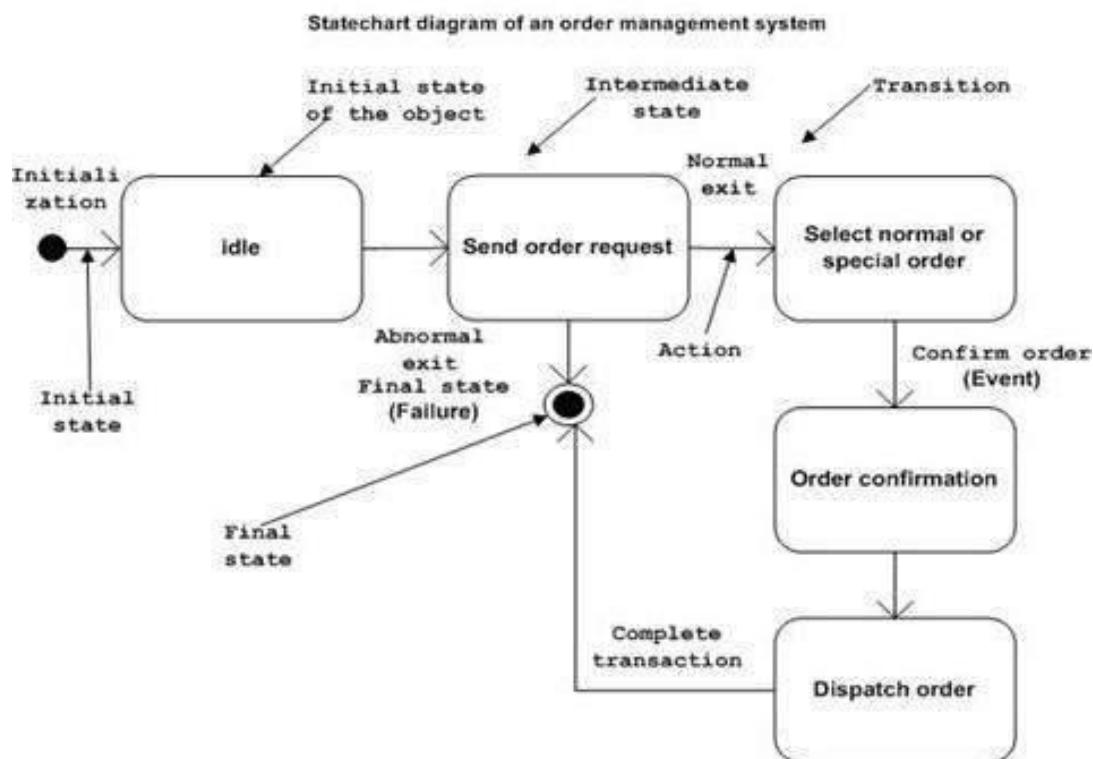
Communication diagrams model the interactions between objects in sequence. They describe both the static structure and the dynamic behavior of a system.

## State Diagram

- [Statechart diagrams](#), now known as state machine diagrams and state diagrams describe the dynamic behavior of a system in response to external stimuli. State diagrams are especially useful in modeling reactive objects whose states are triggered by specific events.

To Draw This:

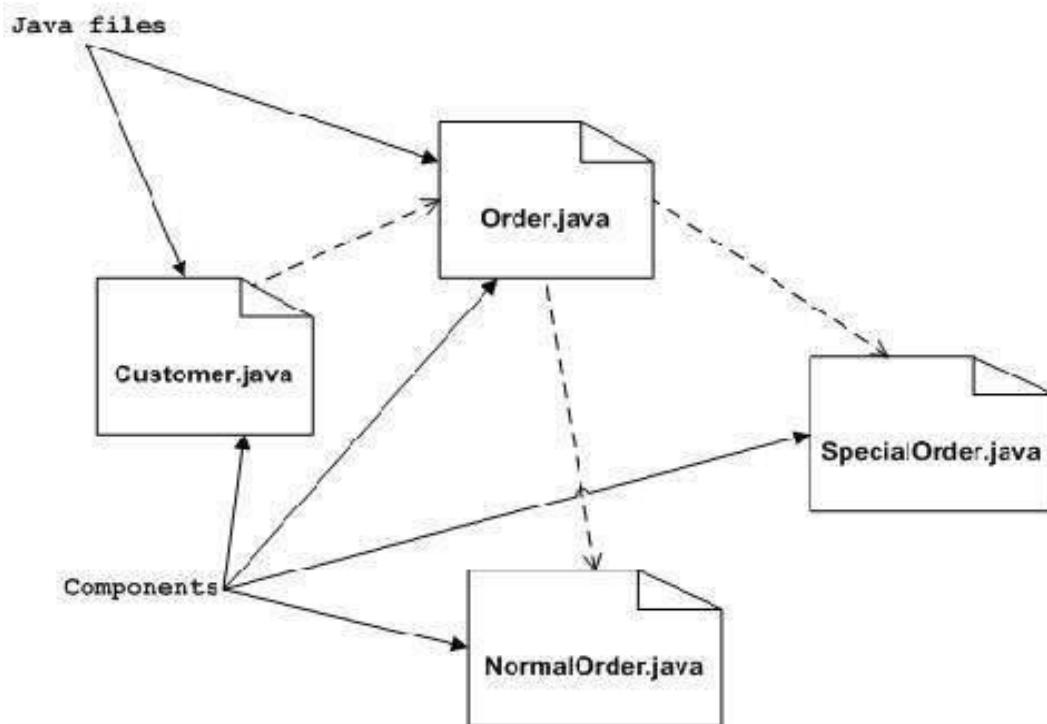
- Identify the important objects to be analyzed.
- Identify the states.
- Identify the events.



- [Component Diagram](#)

[Component diagrams](#) describe the organization of physical software components, including source code, run-time (binary) code, and executables.

Component diagram of an order management system



- **Deployment Diagram**

Deployment diagrams depict the physical resources in a system, including nodes, components, and connections.

The purpose of deployment diagrams –

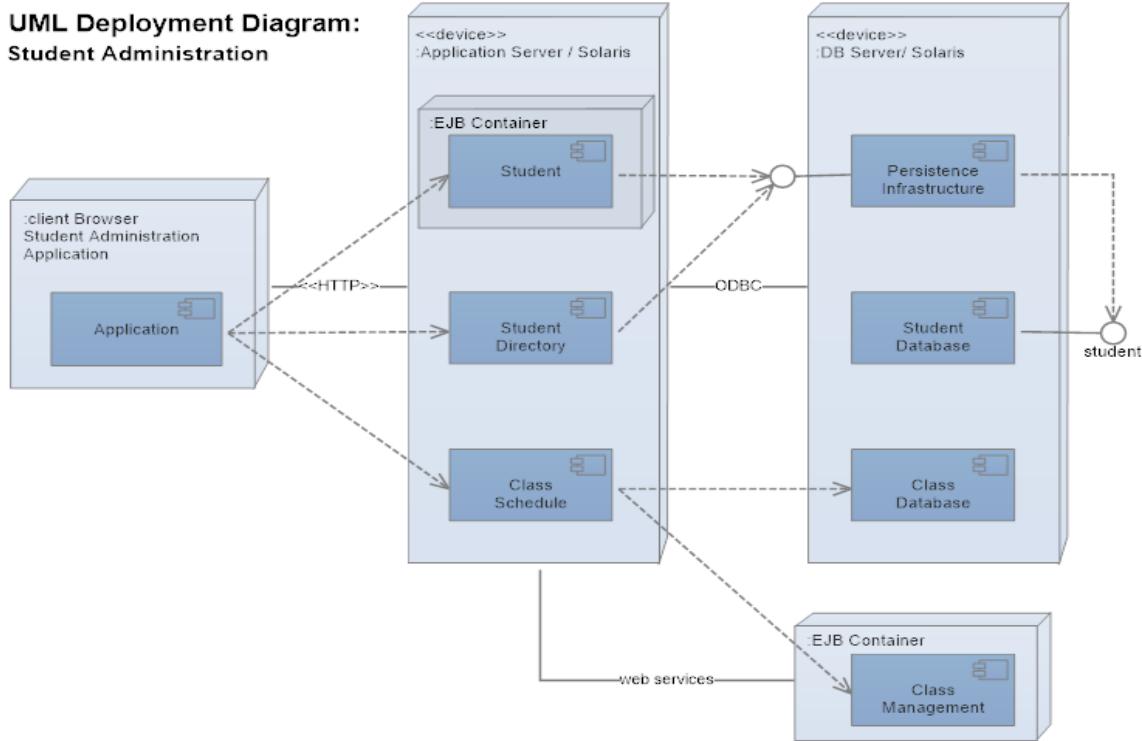
- Visualize the hardware topology of a system.



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- Describe the hardware components used to deploy software components.
- Describe the runtime processing nodes.

**UML Deployment Diagram:**  
**Student Administration**



## Session 3

### Introduction to Agile development model

#### ► WHAT IS AGILE?



Agile software development refers to software development methodologies centered round the idea of iterative development, where requirements and solutions evolve through collaboration between self-organizing cross-functional teams. The ultimate value in agile development is that it enables teams to deliver value faster, with greater quality and predictability, and greater aptitude to respond to change.

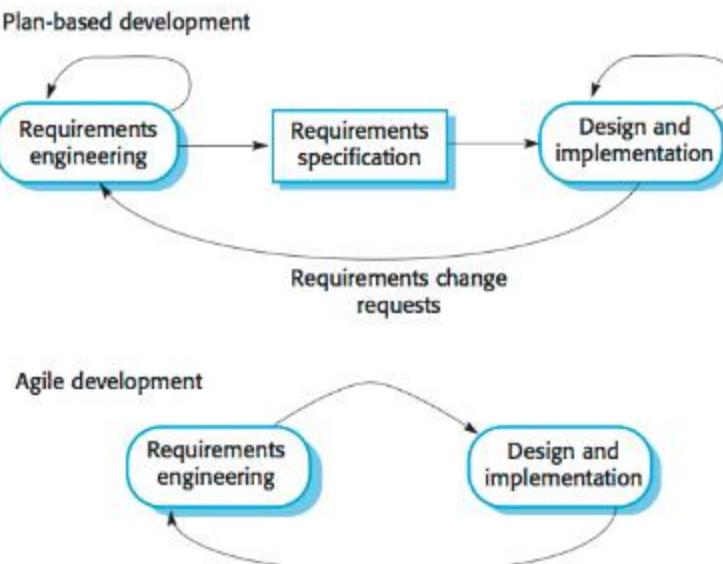
### **Plan-driven development**

A plan-driven approach to software engineering is based around separate development stages with the outputs to be produced at each of these stages planned in advance. Not necessarily waterfall model: plan-driven, incremental development is possible. Iteration occurs within activities.

### **Agile development**

Specification, design, implementation and testing are inter-leaved and the outputs from the development process are decided through a process of negotiation during the software development process.

Most projects include elements of plan-driven and agile processes. Deciding on the balance depends on many technical, human, and organizational issues.



Parameter	Traditional	Agile
Requirements	Fixed	Evolve
Time & People	May vary	Fixed
Customer Involvement	Before, After	During
Negotiable	Estimates	Schedule
Testing	After code	Integrated
Feedback	After	During
Concentration on	Processes; reviews	Workable software
Focus	Plan driven	Value driven
Stages	Requirements, Design, Code, Test, Feedback	(Plan-do-adapt)*

Figure: plan-driven vs. Agile methodologies

## Agile Manifesto

Better ways of developing software by doing it and helping others do it.

### Agile Says value to:

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation
- Customer collaboration over contract negotiation
- Responding to change over following a plan

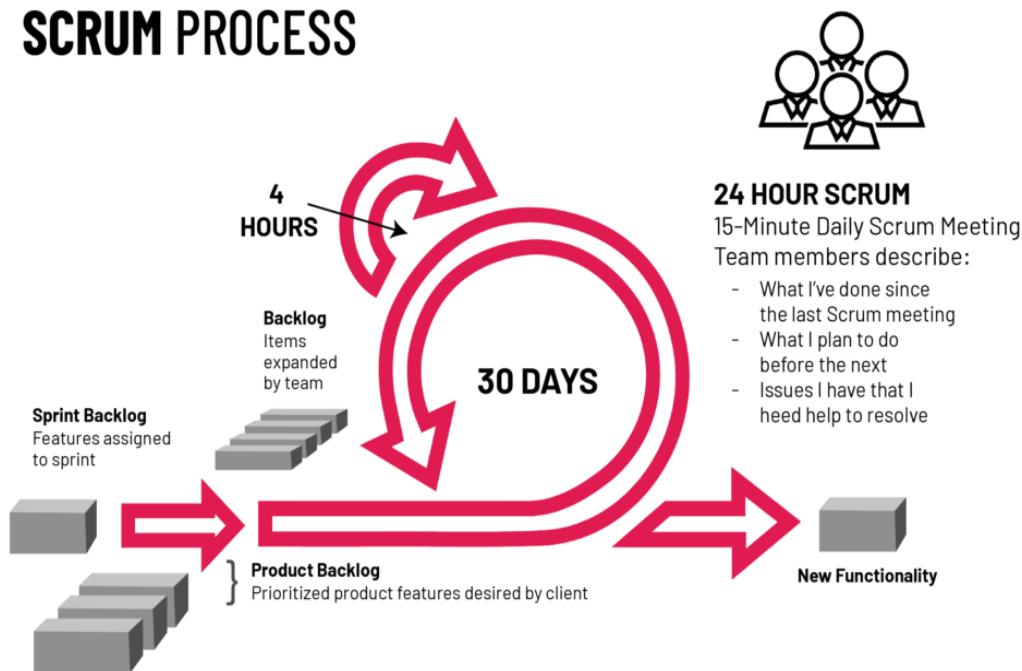
## Agile Methodology: Types

- Scrum
- eXtreme Programming (XP)
- Feature Driven Development(FDD)
- Dynamic Systems Development Method (DSDM)

## Agile Methodology: SCRUM

- ▶ Scrum is a **subset** of Agile. It is a lightweight process framework for agile development, and the most widely-used one.
- ▶ A “**process framework**” is a particular set of practices that must be followed in order for a process to be consistent with the framework.
- ▶ Scrum process framework requires the use of development cycles called **Sprints**
- ▶ “**Lightweight**” means that the overhead of the process is kept as small as possible, to maximize the amount of productive time available for getting useful work done.

## SCRUM PROCESS



## WHAT ARE THE SCRUM REQUIREMENTS?

- ▶ Scrum does not define just what form requirements are to take, but simply says that they are gathered into the Product Backlog, and referred to generically as “Product Backlog Items,” or “PBIs” for short
- ▶ Most Scrum projects borrow the “XP” (Extreme Programming) practice of describing a feature request as a “User Story,”



## User Stories

STORY ID:	STORY TITLE:
User Story: As a <role> I want to <goal> So that I can <purpose>	Importance:   
Acceptance criteria: I know I am done when...	Estimate   

## XP eXtream Programming

- **Definition - What does *Extreme Programming (XP)* mean?**
- Extreme Programming (XP) is an intense, disciplined and agile software development methodology focusing on coding within each software development life cycle (SDLC) stage
- These stages are: Continuous integration to discover and repair problems early in the development process Customer involvement and rapid feedback

These XP methodology disciplines are derived from the following four key values of Kent Beck, XP's originator:

- **1. Communication:** Communication between team members and customers must occur on a frequent basis and result in open project discussion without fear of reprisal.
- **2. Simplicity:** This involves using the simplest design, technology, algorithms and techniques to satisfy the customer's needs for the current project iteration.
- **3. Feedback:** Feedback must be obtained at multiple, distinct levels, e.g., unit tests, code review and integration.
- **4. Courage:** Implement difficult but required decisions.

## WHAT ARE THE BENEFITS OF AGILE?

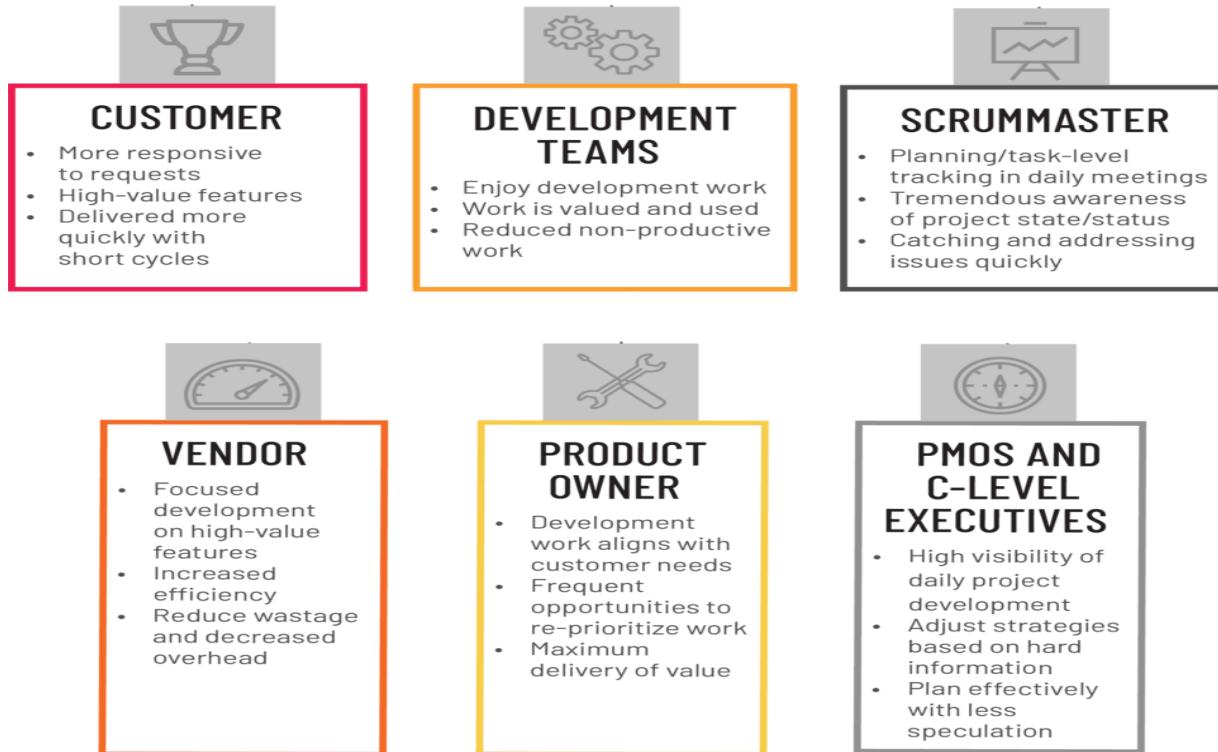


Figure: Benefits of Agile.

## 4 essential components of Agile Project

### 1. An agile project plan is divided into releases and sprints

Agile planners define a release, which involves creating a new product or substantially updating an existing product. Each release is broken down into several iterations, also called *sprints*. Each sprint has a fixed length, typically 1-2 weeks, and the team has a predefined list of work items to work through in each sprint. The work items are called *user stories*. The release plan is broken down into several iterations (sprints) that include user stories (items)



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## 2. Planning is based on user stories

A *user story* briefly describes a need experienced by your users. For example:

- “As a team member, I need to know which tasks are currently assigned to me”
- “As a team leader, I need to receive email notification when a task is stuck or behind schedule”

Unlike in traditional project management methodologies like *waterfall*, in which teams would create detailed technical specifications of exactly what they would build, in agile planning, the team only documents **what the user needs**. Throughout the sprint, the team figures out together how to address that specific need in the best way possible.

## 3. Planning is iterative and incremental

The agile process is focused on the concept of iteration. All sprints are of equal length, and an agile team repeats the same process over and over again in every sprint. Each sprint should result in working features that can be rolled out to end users.

An iterative process allows the team to learn what they are capable of, estimate how many stories they can complete in a given timeframe (the team’s *velocity*) and learn about problems that impede their progress. These problems can be taken care of in subsequent sprints.

## 4. Estimation is done by team members themselves

A core ethic of agile planning is that development teams should participate in planning and estimation, and not have the work scope “dictated” to them by management.

In this spirit, agile planning allows teams to assign *story points* to user stories in the release plan.



## What is a story point?

In agile methodology, a story point is a number which reflects the complexity or amount of work involved in developing a user story. For example, a team can assign 1 point to a simple user story, 2-3 points for moderately complex and 4-5 points for a big story – based on their understanding of the work involved.

An alternative estimation unit for agile stories is *ideal time*: how long a user story should take to develop, assuming zero interruptions.

## Sprint Planning Process

Here is how an agile team plans at the beginning of a new sprint, as part of an existing release plan:

1. **Do a retrospective meeting** to discuss the previous sprints and lessons learned.
2. **Run a sprint planning meeting** to analyze the release plan and update it according to velocity in recent sprints, changes to priorities, new features, or idle time that wasn't planned for in the release.
3. **Make sure user stories are detailed enough** to work on. Elaborate on tasks that are not well defined, to avoid surprises.
4. **Break down user stories into specific tasks.** For example, the user story “view tasks assigned to me” can be broken up into UX design of a “my tasks screen”, back-end implementation, and front-end development of the interface. Keep size of tasks small, no more than one work day.
5. **Assign tasks to team members** and confirm that they are committed to performing them. In the agile/scrum framework this is done by the Scrum Master.
6. **Write the tasks on (physical) sticky cards** and hang them up on a large board visible to the entire team. All the user stories in the current sprint should be up on the board.
7. **Track progress of all the tasks** on a grid, by recording who is responsible for completing each task, estimated time to complete it, remaining hours, and actual hours used. This time tracking should be updated by all team members and visible to everyone.
8. **Track velocity using a burndown chart.** During the sprint, use the team's time tracking to calculate a chart showing the number of tasks or hours remaining, vs.



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the plan. The slope of the burndown chart shows if we are on schedule, ahead, or behind schedule.

## What is JIRA?

JIRA is a tool developed by Australian Company Atlassian. This software is used for **bug tracking, issue tracking, and project management**. The name "JIRA" is actually inherited from the Japanese word "Gojira" which means "Godzilla". The basic use of this tool is to track issue and bugs related to your software

It is also used for project management. The JIRA dashboard consists of many useful functions and features which make handling of issues easy. Some of the key features are listed below.

### Important Points to Note

The following points explain some interesting details of JIRA. JIRA is an incident management tool.

- JIRA is developed by Atlassian Inc., an Australian Company.
- JIRA is a platform independent tool; it can be used with any OS.
- JIRA is multi-lingual tool – English, French, German, Japanese, Spanish, etc.
- JIRA supports MySQL, Oracle, PostgreSQL and SQL server in the backend.
- JIRA can be integrated with many other tools – Subversion, GIT, Clearcase, Team Foundation Software, Mercury, Concurrent Version System and many more.

### Following are some of the most significant uses of JIRA:

- JIRA is used in Bugs, Issues and Change Request Tracking.
  - JIRA can be used in Helpdesk, Support and Customer Services to create tickets and
  - track the resolution and status of the created tickets.
- JIRA is useful in Project Management, Task Tracking and Requirement Management.
- JIRA is very useful in Workflow and Process management.

### JIRA – Project

A Project contains issues; a JIRA project can be called as a collection of issues. A JIRA Project can be of several types. For example –

- Software Development Project
- Migration to other platform project



## • Help Desk Tracking Project

## • Leave Request Management System

## • Employee Performance System

## • Website Enhancement

## What is Sprint?

A sprint is a fixed time period in a continuous development cycle where teams complete work from their product backlog. At the end of the sprint, a team will typically have built and implemented a working product increment. Jira Software makes your backlog the center of your sprint planning meeting, so you can estimate stories, adjust sprint scope, check velocity, and re-prioritize issues in real-time.

## Step 1: Creating New Project.

To create a project, the user should login as a JIRA Service Desk Admin and then Click on Create Project.

The following screenshot shows how to reach to the Create Project button from the Dashboard.

The screenshot shows the Jira Software dashboard. At the top, there is a navigation bar with links for Apps, BITS Virtual Unive..., Admission Notificat..., CCVIS Home, Gmail, Google Accounts, Google, and a search bar. Below the navigation bar, the Jira Software logo and the word "Your work" are displayed. A "Projects" dropdown menu is open, showing a "RECENT" section with a card for "MyDemo (MYD) Software project". Below this, there are options to "View all projects" and "Create project". The "Create project" option is highlighted with a light gray background. To the right of the dropdown, there is a "Create" button. The main dashboard area features a "TO DO" board with a large blue circular arrow icon and the text "You haven't started a sprint". Below the TO DO board, there is a message: "You can't do anything on your board because you haven't started a sprint yet. Go to the". On the left side of the dashboard, there is a sidebar with icons for MyDemo (Next-gen software project), Roadmap, Backlog, Board (which is selected and highlighted in gray), Code, Project pages, Add item, and Project settings. At the bottom of the sidebar, it says "You're in a next-gen project" and provides links for Give feedback and Learn more.



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## Create project

Name

Key  
 ⓘ

Share settings with an existing project

Template  
 Scrum  
Manage stories, tasks, and workflows for a scrum team. For teams that deliver work on a regular schedule.

[Change template](#)

[Create](#)

## Step 2: Create a sprint

1. Go to the **Backlog** of your Scrum project.
2. Click the **Create Sprint** button at the top of the backlog.

Note that you can create more than one sprint, if you want to plan work several weeks in advance.

← → ⌛ 🏠 🔒 iacsd-akurdi.atlassian.net/secure/RapidBoard.jspa?projectKey=IAC&rapidView=2#  
\_apps VU BITS Virtual Unive... 📰 Admission Notificat... 🗃 CCVIS Home 🗣 Gmail Email from... 🗣 Google Accounts 🗣 Google 🌐 List of sUkta-s from...

Jira Software Your work Projects [Create](#) Search

IACSDemo Classic software project

IAC board Board

Backlog

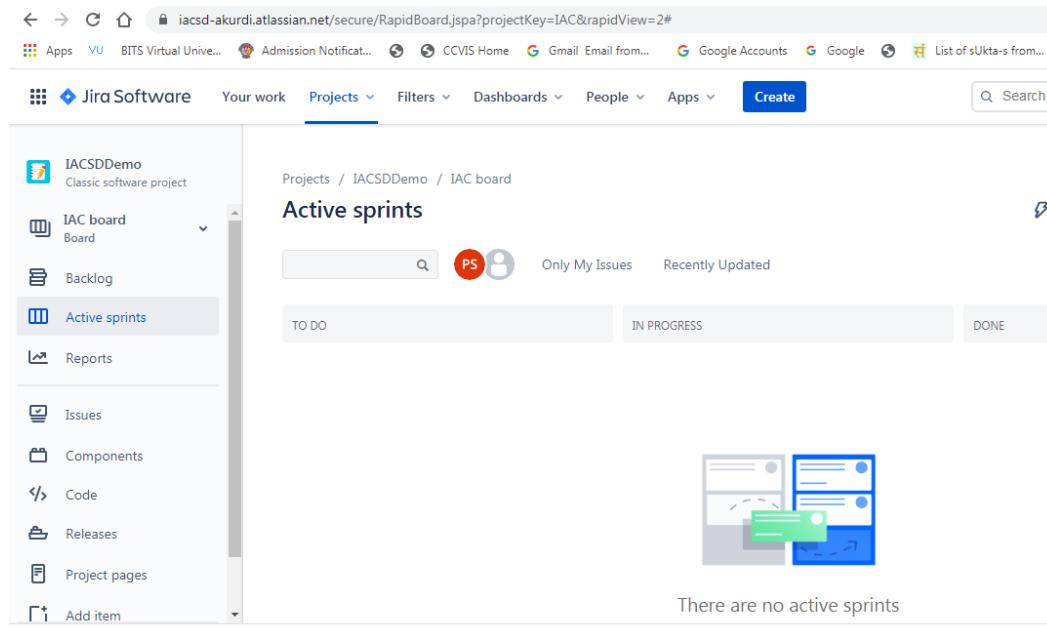
Active sprints

Projects / IACSDemo / IAC board

Active sprints

TO DO IN PROGRESS DONE

There are no active sprints





Jira Software Your work Projects Filters Dashboards People Apps Create

Search Share ...

IACSDemo Classic software project

IAC board Board

Backlog Active sprints Reports

Issues Components Code Releases Project pages Add item Project settings

Projects / IACSDemo / IAC board Backlog

PS Only My Issues Recently Updated

Start sprint Plan sprint ...

VERSIONS SPRINTS

IAC Sprint 1 0 issues

Plan your sprint  
As a team, agree on what work needs to be completed, and drag these issues to the sprint.

SRS needs to be prepared for Demo Project  
New Story in IAC Sprint 1

Cancel ...

Quickstart

### Step 3: Fill your sprint with stories from the backlog

Once you've created your sprint, you'll need to fill it with issues. Before you do this, make sure you sit down with your team and discuss what work you'd like to commit to doing. Ensure you add enough work for everyone in the team.

#### To add stories to your sprints

1. Navigate to the Backlog.
2. Drag and drop issues from the Backlog onto your sprint.

Note that you can also add an issue to your sprint by editing the issue and updating the **Sprint** field.

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Create issue

Project\*  
IACSDemo (IAC)

Issue Type\*  
Story

Summary\*  
SRS needs to be prepared for IACSD Demo Project

Components  
None

Attachment  
Drop files to attach, or browse.

Create another  Create Cancel

Press Alt+s to submit this form.

Share ...

Start sprint Plan sprint ...

Quickstart

IAC Sprint 2 0 issues

IACSDemo

Projects / IACSDemo / IAC board

Backlog

Start sprint Plan sprint ...

IAC Sprint 1 3 issues

SRS needs to be prepared for IACSD Demo Project IAC-2 ↑ -

Create Module Level User Stories IAC-3 ↑ -

Test the SRS IAC-4 ↑

+ Create issue

IAC Sprint 2 0 issues

Plan sprint ...

IAC-2

SRS needs to be prepared for IACSD Demo Project

To Do

Description

Add a description...

Add a comment...

Pro tip: press M to comment

## Step 4: Start sprint

Once you've added issues to your sprint and the team is ready to work, you'll need to start the sprint.



Note, you can only start a sprint, if:

- You haven't started one already. If you want to have more than one active sprint at a time, try the [Parallel Sprints](#) feature, and
- The sprint is at the top of the backlog. If you want to start a planned sprint that is lower down, you'll need to reorder your sprints to move it to the top.

### **Step 5: Monitor your team's progress.**

During the sprint, you'll probably want to monitor the team's progress. One way of doing this is by viewing the [Sprint Report](#).

During sprints, teams work together to complete the stories they committed to at the start of the sprint. This typically requires a lot of collaboration, so we recommend doing team standup meetings every day, so you know what everyone in the team is working on.

### **Step 6: Close the sprint**

To close a sprint

1. Navigate to the **Active sprints** of your Scrum board.
2. If necessary, select the sprint you want to complete from the sprint drop-down. Note that if you have multiple sprints in the Active sprints of your board, the 'Complete Sprint' button will not appear until you select one of the sprints.
3. Click **Complete Sprint**. All completed issues will move out of Active sprints.
4. If the sprint has incomplete issues, you'll be asked to move them to one of the following:
  - The backlog
  - Any future sprint, or
  - A new sprint

## JIRA – Workflow

In JIRA, workflow is used to track the lifecycle of an Issue. Workflow is a record of statuses and transitions of an issue during its lifecycle. A status represents the stage of an issue at a particular point. An issue can be in only one status at a given point of time like Opened, To Do, Done, Closed, Assigned, etc. A transition is a link between two statuses when an issue moves from one status to another. For an issue to move between two statuses, a transition must exist. In a simple way, a transition is some kind of work done on the issue, while status is the impact of work on that issue.

### Example

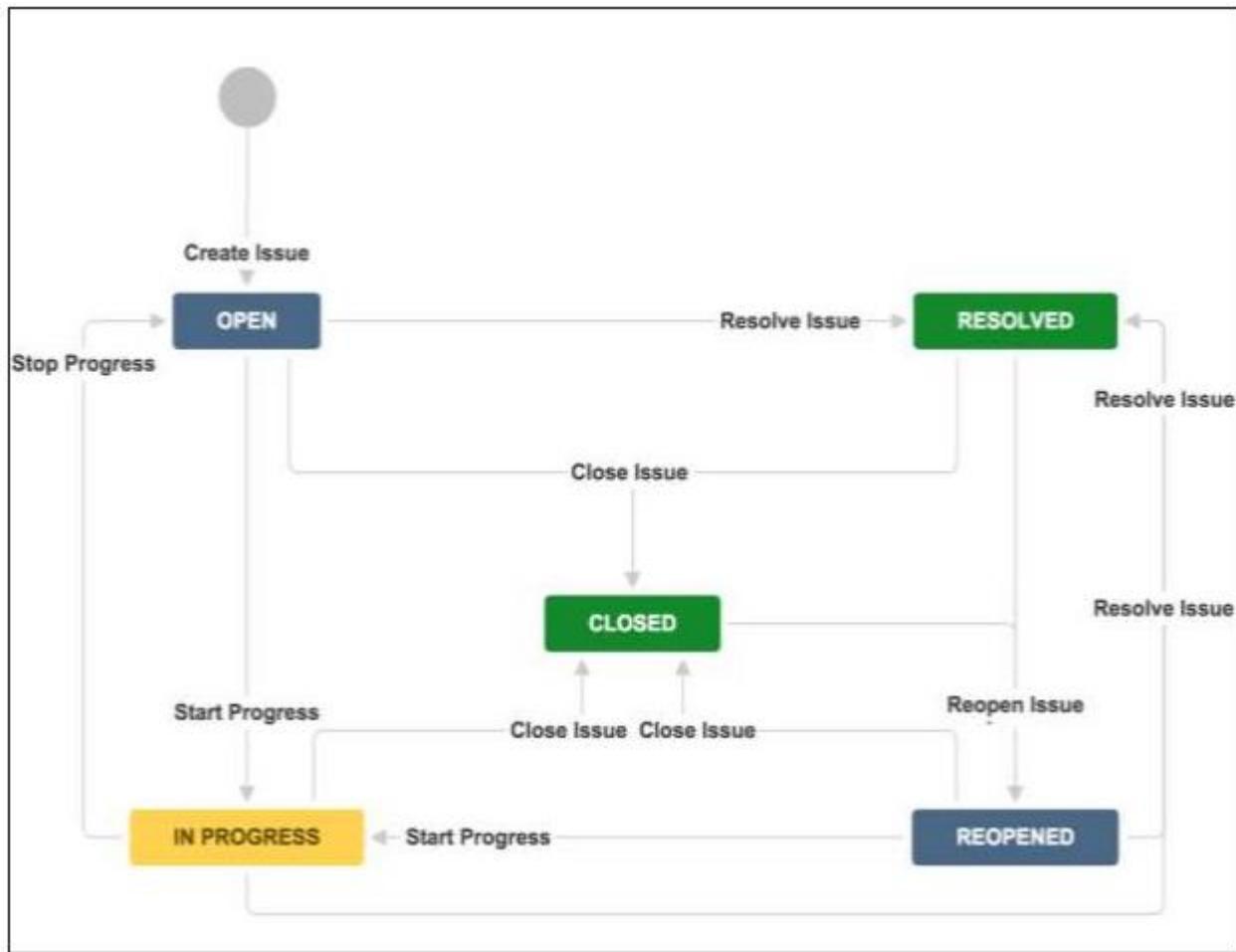
As of now, an issue is created and opened. When the assignee starts working on the issue, the issue moves to the In Progress status. Here, the transition is starting the work, while the status of the issue is now progressive. JIRA workflow has the following stages to track as soon as an issue is created:

Open Issue: After creation, the issue is open and can be assigned to the assignee to

- Start working on it. In Progress Issue: The assignee has actively started to work on the issue.
- Resolved Issue: All sub-tasks and works of that Issue are completed. Now, the issue is waiting to be verified by the reporter. If verification is successful, it will be closed or re-opened, if any further changes are required.
- Reopened Issue: This issue was resolved previously, but the resolution was either incorrect or missed a few things or some modifications are required. From Reopened stage, issues are marked either as assigned or resolved.
- Close Issue: The issue is considered as finished, resolution is correct as of now. Closed issues can be re-opened later based on the requirement.

JIRA Workflow can be referred as a Defect Lifecycle. It follows the same concepts; the only difference is that it is generic for all issues rather than limited to Defects only.

The following diagram shows a standard workflow:



A transition is a one-way link, if an issue moves back and forth between two statuses; two transitions should be created. Example: There are two-way transitions between closed and re-opened statuses. A closed issue can be reopened if any modifications are required at any time until the project completes, while a re-opened issue can be closed directly if additional work is taken care in another issue and no specific work has been done on the re-opened issue.

## Session 4

### Introduction to software testing

#### What is Software Testing?

- Software testing is defined as an activity to check whether the actual results match the expected results and to ensure that the software system is Defect free
- Software testing also helps to identify errors, gaps or missing requirements in contrary to the actual requirements.

Done in two ways:

1. Manual
2. Automated

#### Why is Software Testing Important?

- Testing is important because software bugs could be expensive or even dangerous. Software bugs can potentially cause monetary and human loss, and history is full of such examples.

Ex:

- In April 2015, Bloomberg terminal in London crashed due to software glitch affected more than 300,000 traders on financial markets. It forced the government to postpone a 3bn pound debt sale.
- Nissan cars have to recall over 1 million cars from the market due to software failure in the airbag sensory detectors. There has been reported two accident due to this software failure.

#### Principles of software testing

- **Testing shows presence of defects:**  
Testing shows presence of defects cannot prove absence of defects.
- **Exhaustive testing is not possible:**  
It is impossible to test all input combinations of data and scenarios. Smarter way of testing should be adopted.
- **Early testing:**  
Start testing earlier, it saves a lot of money rather than testing it later.

- **Defect clustering:**  
Equal distribution of the bugs across the modules is not possible; defects may be clustered in small piece of code/module
- **Pesticide paradox:**  
Executing same test case again and again will not help to find more bugs, Review them regularly and modify if changes required.
- **Testing is context dependent:**  
Different websites are tested differently. Ex: Banking sites are tested differently than Shopping websites
- **Absence of errors fallacy:**  
Finding and fixing many bugs does not help. If it fails to meet user's requirements. It is not useful.

## Verification and validation

### What is Verification?

- **Definition:** *The process of evaluating software to determine whether the products of a given development phase satisfy the conditions imposed at the start of that phase.*
- Verification is a static practice of verifying documents, design, code and program. It includes all the activities associated with producing high quality software: inspection, design analysis and specification analysis. It is a relatively objective process.
- Verification will help to determine whether the software is of high quality, but it will not ensure that the system is useful. Verification is concerned with whether the system is well-engineered and error-free.

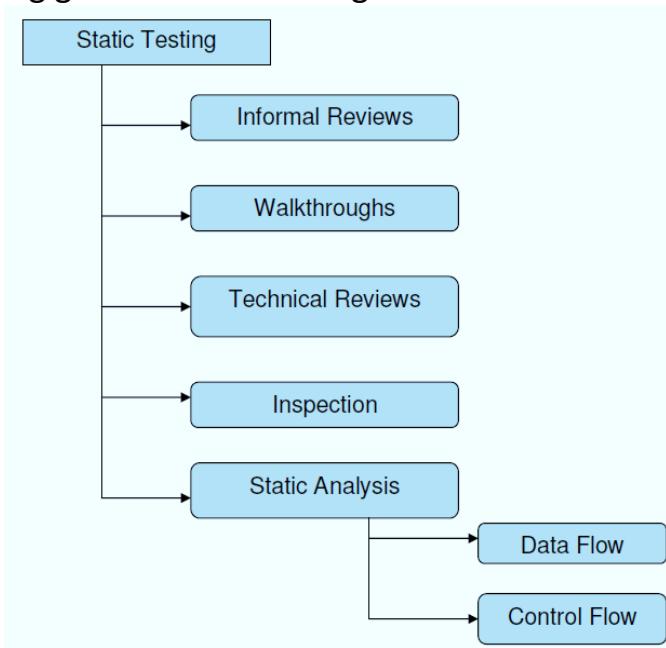
Types of defects which can be easier to find during static testing are:

- Deviations from standards
- Non-maintainable code
- Design defects
- Missing requirements
- Inconsistent interface specifications

### ***Methods of Verification: (Static Testing)***

- **Walkthrough**
  - **Inspection**
  - **Review**
- 
- **Walkthrough:** In this type of technique a meeting is led by author to explain the product. Participants can ask questions and a scribe is assigned to make notes.
  - **Inspection:** Here the main purpose is to find defects. Code walkthroughs are conducted by moderator. It is a formal type of review where a checklist is prepared to review the work documents.
  - **Technical reviews:** In this type of static testing a technical round of review is conducted to check if the code is made according to technical specifications and standards. Generally the test plans, test strategy and test scripts are reviewed here.

The overall static testing goes in the following manner:



## What is Validation?

- **Definition:** *The process of evaluating software during or at the end of the development process to determine whether it satisfies specified requirements.*
- Validation is the process of evaluating the final product to check whether the software meets the customer expectations and requirements. It is a dynamic mechanism of validating and testing the actual product.

## Testing is classified into three categories.

- Functional Testing
- Non-Functional Testing or [Performance Testing](#)
- Maintenance (Regression and Maintenance)

### Functional Testing

**Definition:** *Functional Testing is a type of Software Testing whereby the system is tested against the functional requirements/specifications.*

Functions (or features) are tested by providing appropriate input and examining the output. The actual results are then compared with expected results.

#### Subtypes under this category:

Unit Testing  
Integration Testing  
Smoke  
UAT (User Acceptance Testing)  
Localization  
Globalization  
Interoperability  
So on

- **Unit Testing**

A **unit** is the smallest testable part of an application like functions, classes or procedures. **Unit Testing** is a [\*\*Software Testing\*\*](#) method by which individual units of source code, sets of one or more computer program modules are tested to determine whether they are fit for use. Unit tests are basically written and executed by software developers to make sure that code meets its design and requirements and behaves as expected.

- **Integration testing** is testing of a subsystem which comprises two or more integrating components. It is carried out once the individual components have been unit tested and they are working as expected. It is carried out with an objective to find defects in the interfaces and the interactions between the integrated components.

- **Smoke Testing:** It is performed after software build to ascertain that the critical functionalities of the program is working fine. It is executed “before” any detailed functional or regression tests are executed on the software build.

What is build (After merging of several code file it turns into an executable file which is known as a **Build**. In multiple agile cycles)

*“Can tester able to access software application?”, “Does user navigates from one window to other?”, “Check that the GUI is responsive”*

- **Sanity (Stability)Testing:**

The terminologies such as **Smoke Test** or **Build Verification Test** or **Basic Acceptance Test** or **Sanity Test** are interchangeably used, however, each one of them is used under a slightly different scenario. I



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**Sanity Testing** is a software testing technique performed by the test team for some basic tests. Whenever a new build is received, after minor changes in code or functionality, *Sanity testing* is performed to ascertain that the bugs have been fixed.

**Sanity is done by Tester.**

**Sanity is done for mature builds like build those are just going to hit production and have gone through multiple regression process.**

**Sanity can be removed from the testing process if regression is in the process of testing.**

- **System testing :**

is a testing level that evaluates the behavior of a fully integrated software system based on predetermined specifications and requirements. It is a solution to the question

**“if the complete system works according to its predefined requirements?”**

- **Regression testing :**

is the retesting of a software system to confirm that changes made to a few parts of the codes have not any side effects on existing system functionalities. It is to ensure that old codes are still working as they were before the introduction of the new change.

The ideal process would be to create an extensive test suite and run it after each and every change.

**When to Perform Regression:**

- *Any new feature or new functionality is added to the product.*
  - *Any enhancement is done to previous functionality.*
  - *Any defect is fixed*
- 
- **User Acceptance Testing – UAT**

- It is a type of testing performed by the Client to certify the system with respect to the requirements that were agreed upon. This testing happens in the final phase of testing before moving the software application to the Market or Production environment.
- **User Acceptance Testing** is also known as **End-User Testing, Acceptance Testing** and **Operational Acceptance Testing (OAT)**.

#### **Types of User Acceptance Testing**

- **Alpha Testing** : Alpha Testing is done onsite therefore developers, as well as business analysts, are involved with the testing team.
- **Beta Testing** : Beta Testing is done at the client-side by the real users or customer, therefore developers and business analysts are not at all involved.

### **What is Non-Functional Testing?**

- Non-functional testing is defined as a type of Software testing to check non-functional aspects (performance, usability, reliability, etc) of a software application. It is designed to test the readiness of a system as per nonfunctional parameters which are never addressed by functional testing.

#### **Non Functional Testing Parameters:**

Security, availability, efficiency, Integrity, Reliability, Survivability, Usability, Flexibility, Scalability, Reusability, Interoperability, Portability.

- **Security Testing**

To test system is free from any vulnerabilities, threats, risks that may cause a big loss. Security testing of any system is about finding all possible loopholes and weaknesses of the system which might result into a loss of information, revenue, repute at the hands of the employees or outsiders of the Organization.

- **Reliability Testing**



Reliability testing is defined as a software testing type, that checks whether the software can perform a failure-free operation for a specified period of time in a specified environment.

Reliability means "yielding the same," in other terms, the word "reliable" mean something is dependable and that it will give the same outcome every time.

- **Usability Testing :**

Is defined as a type of software testing where, a small set of target end-users, of a software system, "use" it to expose usability defects. This testing mainly focuses on the user's ease to use the application, flexibility in handling controls and the ability of the system to meet its objectives. It is also called User Experience (UX) Testing.

- There are many software applications/websites, which miserably fail, once launched, due to following reasons -
- Where do I click next?
- Which page needs to be navigated?
- Which Icon or Jargon represents what?
- Error messages are not consistent or effectively displayed
- Session time not sufficient.
- Software Engineering, Usability Testing identifies usability errors in the system early in the development cycle and can save a product from failure.

- **Scalability Testing:**

Is defined as the ability of a network, system or a process to continue to function well when changes are done in the size or volume of the system to meet a growing need.



Scalability testing ensures that an application can handle the projected increase in user traffic, data volume, transaction counts frequency, etc.

## **Quality Assurance vs. Quality Control vs. Testing**

### **Quality assurance**

Is process oriented, it is all about preventing defects by ensuring the processes used to manage and create deliverables works. Not only does it work, but is consistently followed by the team. Moreover, QA is about engineering processes that assure quality is achieved in an effective and efficient way.

For instance, if a defect is found and fixed, there is no guaranteeing it won't pop back up. The role of QA is to identify the process that allowed the error to occur and re-engineer the system so that these defects won't appear for the second time. The QA process verifies that the product will continue to function as the customer expects.

Though QC is absolutely necessary, QA is perhaps more important. By the time you reach the QC stage, for instance, fixing bugs becomes an expensive issue. Because of that, focusing efforts on improved QA processes is one of the best investments an organization can make.

Examples of QA include process definition and implementation, training, audits and selection of tools.

**Quality control**, alternatively, is product oriented. It is the function of software quality that determines the ending result is what was expected. Whereas QA is proactive, QC is reactive. QC detects bugs by inspecting and testing the product. This involves checking the product against a predetermined set of requirements and validating that the product meets those requirements.

Examples of QC include technical reviews, software testing and code inspections.



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**Testing** is a subset of QC. It is the process of executing a system in order to detect bugs in the product so that they get fixed. Testing is an integral part of QC as it helps demonstrate that the product runs the way it is expected and designed for.

To summarize, think of everything as an assembly line. QA can be thought of as the process to ensure the assembly line actually works, while QC is when the products coming off the assembly line are checked to verify they meet the required specifications.

Ultimately, both QA and QC are required for ensuring a successful product. When used together, they can help detect inefficient processes and identify bugs in the product. Moreover, QA and QC can help to develop and deliver a consistently high-quality product to your customers.

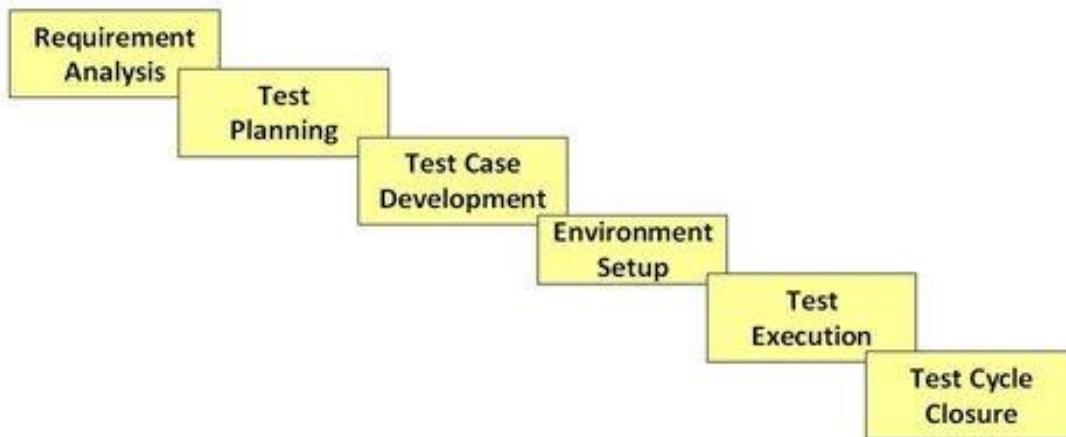
#	Quality Assurance	Quality Control	Testing
1	Activities which ensure the implementation of processes, procedures and standards in context to verification of developed software and intended requirements.	Activities which ensure the verification of developed software with respect to documented (or not in some cases) requirements.	Activities which ensure the identification of bugs/error/defects in the Software.
2	Focuses on processes and procedures rather than conducting actual testing on the system.	Focuses on actual testing by executing Software with intend to identify bug/defect through implementation of procedures and process.	Focuses on actual testing.
3	Process oriented activities.	Product oriented activities.	Product oriented activities.
4	Preventive activities.	It is a corrective process.	It is a corrective process.
5	It is a subset of Software Test Life Cycle (STLC).	QC can be considered as the subset of Quality Assurance.	Testing is the subset of Quality Control.

## Introduction to STLC

### Software Testing Life Cycle

Software Testing Life Cycle (STLC) is defined as a sequence of activities conducted to perform Software Testing.

Contrary to popular belief, Software Testing is not just a single activity. It consists of a series of activities carried out methodologically to help certify your software product.



- Each of these stages has a definite Entry and Exit criteria, Activities & Deliverables associated with it. **What is Entry and Exit Criteria?**



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- **Entry Criteria:** Entry Criteria gives the prerequisite items that must be completed before testing can begin.
- **Exit Criteria:** Exit Criteria defines the items that must be completed before testing can be concluded

### **Requirement Analysis:**

- During this phase, test team studies the requirements from a testing point of view to identify the testable requirements.
- The QA team may interact with various stakeholders (Client, Business Analyst, Technical Leads and System Architects etc) to understand the requirements in detail.
- Requirements could be either Functional (defining what the software must do) or Non Functional (defining system performance /security availability )

### **Activities**

- Identify types of tests to be performed.
- Gather details about testing priorities and focus.
- Prepare [Requirement Traceability Matrix \(RTM\)](#).
- Identify test environment details where testing is supposed to be carried out.
- Automation feasibility analysis (if required).
- **Deliverables**
- RTM
- Automation feasibility report. (if applicable)

### **Test Planning**

- Typically, in this stage, a Senior QA manager will determine effort and cost estimates for the project and would prepare and finalize the Test Plan. In this phase, Test Strategy is also determined.

### **Activities**

- Preparation of test plan/strategy document for various types of testing
- Test tool selection
- Test effort estimation
- Resource planning and determining roles and responsibilities.
- Training requirement
- Deliverables



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- Test plan /strategy document.
- Effort estimation document

### **Test Environment Setup**

- Test environment decides the software and hardware conditions under which a work product is tested. Test environment set-up is one of the critical aspects of testing process and *can be done in parallel with Test Case Development Stage. Test team may not be involved in this activity* if the customer/development team provides the test environment in which case the test team is required to do a readiness check (smoke testing) of the given environment.

### **Activities**

- Understand the required architecture, environment set-up and prepare hardware and software requirement list for the Test Environment.
- Setup test Environment and test data
- Perform smoke test on the build
- Deliverables
- Environment ready with test data set up
- Smoke Test Results.

### **Test Execution**

- During this phase, the testers will carry out the testing based on the test plans and the test cases prepared. Bugs will be reported back to the development team for correction and retesting will be performed.

### **Activities**

- Execute tests as per plan
- Document test results, and log defects for failed cases
- Map defects to test cases in RTM
- Retest the Defect fixes
- Track the defects to closure
- Deliverables
- Completed RTM with the execution status



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- Test cases updated with results
- Defect reports

### **Test Cycle Closure**

- Testing team will meet, discuss and analyze testing artifacts to identify strategies that have to be implemented in the future, taking lessons from the current test cycle. The idea is to remove the process bottlenecks for future test cycles and share best practices for any similar projects in the future.

#### **• Activities**

- Evaluate cycle completion criteria based on Time, Test coverage, Cost, Software, Critical Business Objectives, Quality
- Prepare test metrics based on the above parameters.
- Document the learning out of the project
- Prepare Test closure report
- Qualitative and quantitative reporting of quality of the work product to the customer.
- Test result analysis to find out the defect distribution by type and severity.
- Deliverables
- Test Closure report
- Test metrics

### **What is Requirement Traceability Matrix?**

- Requirement Traceability Matrix (RTM) is a document that maps and traces user requirement with test cases. It captures all requirements proposed by the client.
- The main purpose of Requirement Traceability Matrix is to validate that all requirements are checked via test cases such that no functionality is unchecked during Software testing.



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### RTM parameters

- Requirement ID
- Requirement Type and Description
- Test Cases with Status

### Template RTM:

Req No	Req Desc	Testcase ID	Status
123	Login to the application	TC01,TC02,TC03	TC01-Pass TC02-Pass
345	Ticket Creation	TC04,TC05,TC06, TC07,TC08,TC09 TC010	TC04-Pass TC05-Pass TC06-Pass TC06-Fail TC07-No Run
456	Search Ticket	TC011,TC012, TC013,TC014	TC011-Pass TC012-Fail TC013-Pass TC014-No Run

In typical software testing project, the traceability matrix would have more than these parameters. Sample

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
2	Sno	Req ID	Req Desc	TC ID	TC Desc	Test Design	Test Designer	UAT Test Req?	Test Execution			Defects?	Defect ID	Defect Status	Req Coverage Status
3									Test Env	UAT Env	Prod Env				
5	1	Req01	Login to the Application	TC01	Login with Invalid Username and valid password	Completed	XYZ	No	Passed	No Run	No Run	None	None	N/A	Partial
6	2			TC02	Login with Valid Username and invalid password	Completed	YZA	No	Passed	No Run	No Run	None	None	N/A	Partial
7	3			TC03	Login with valid credentials	Completed	XYZ	Yes	Passed	Passed	No Run	Yes	DFCT001	Test OK	Partial

## **Manual Testing:**

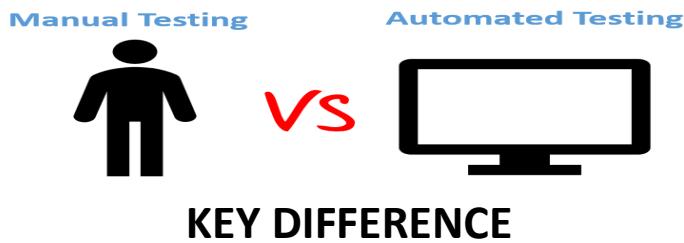
- Manual testing is testing of the software where tests are executed manually by a QA Analysts. It is performed to discover bugs in software under development.
- In Manual testing, the tester checks all the essential features of the given application or software. In this process, the software testers execute the test cases and generate the test reports without the help of any automation software testing tools.

## **Automation Testing:**

- In Automated Software Testing, testers write code/test scripts to automate test execution. Testers use appropriate automation tools to develop the test scripts and validate the software. The goal is to complete test execution in a less amount of time.
- Automated testing entirely relies on the pre-scripted test which runs automatically to compare actual result with the expected results. This helps the tester to determine whether or not an application performs as expected. Automated testing allows you to execute repetitive task and regression test without the intervention of manual tester. Even though all processes are



performed automatically, automation requires some manual effort to create initial testing scripts.



- Manual Testing is done manually by QA analyst (Human) whereas Automation Testing is done with the use of script, code and automation tools (computer) by a tester.
- Manual Testing process is not accurate because of the possibilities of human errors whereas the Automation process is reliable because it is code and script based.
- Manual Testing is a time-consuming process whereas Automation Testing is very fast.
- Manual Testing is possible without programming knowledge whereas Automation Testing is not possible without programming knowledge.
- Manual Testing allows random Testing whereas Automation Testing doesn't allow random Testing.

## WHITE BOX TESTING

- (also known as Clear Box Testing, Open Box Testing, Glass Box Testing, Transparent Box Testing, Code-Based Testing or Structural Testing)
- It is a software testing method in which the internal structure/design/implementation of the item being tested is known to the tester. The tester chooses inputs to exercise paths through the code and determines the appropriate outputs. Programming know-how and the implementation knowledge is essential.

### Definition by ISTQB

(International Software Testing Qualifications Board)

- **White-box testing:** Testing based on an analysis of the internal structure of the component or system.
- **White-box test design technique:** Procedure to derive and/or select test cases based on an analysis of the internal structure of a component or system.
- White Box Testing method is applicable to the following levels of software testing:

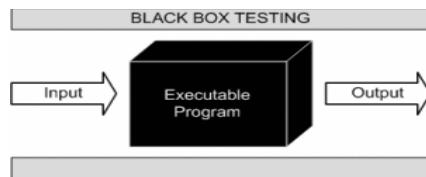


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- Unit Testing: For testing paths within a unit.
- Integration Testing: For testing paths between units.
- System Testing: For testing paths between subsystems.
- However, it is mainly applied to Unit Testing.

## BLACK BOX TESTING

- It is also known as Behavioral Testing, is a software testing method in which the internal structure/design/implementation of the item being tested is not known to the tester. These tests can be functional or non-functional, though usually functional.



- This method is named so because the software program, in the eyes of the tester, is like a black box; inside which one cannot see. This method attempts to find errors in the following categories:
  - Incorrect or missing functions
  - Interface errors
  - Errors in data structures or external database access
  - Behavior or performance errors
  - Initialization and termination errors

### Definition by ISTQB

- **Black box testing:** Testing, either functional or non-functional, without reference to the internal structure of the component or system.
- **Black box test design technique:** Procedure to derive and/or select test cases based on an analysis of the specification, either functional or non-functional, of a component or system without reference to its internal structure.
- Black Box Testing method is applicable to the following levels of software testing:
  - Integration Testing
  - System Testing



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- Acceptance Testing

## GRAY BOX TESTING

- It is a software testing method which is a combination of Black Box Testing method and White Box Testing method
- In Gray Box Testing, the internal structure is partially known
- Levels Applicable To
- Though Gray Box Testing method may be used in other levels of testing, it is primarily used in Integration Testing.

## Session 5

### Introduction to Selenium

#### SELENIUM

Is a free (open-source) automated testing framework used to validate web applications across different browsers and platforms. You can use multiple programming languages like Java, C#, Python etc to create Selenium Test Scripts. Testing done using the Selenium tool is usually referred to as Selenium Testing.

Selenium Software is not just a single tool but a suite of software, each piece catering to different testing needs of an organization. Here is the list of tools

- Selenium Integrated Development Environment (IDE)
- Selenium Remote Control (RC)
- WebDriver



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- Selenium Grid

## Features of Selenium

- Selenium is an open source and portable Web testing Framework.
- Selenium IDE provides a playback and record feature for authoring tests without the need to learn a test scripting language.
- It can be considered as the leading cloud-based testing platform which helps testers to record their actions and export them as a reusable script with a simple-to-understand and easy-to-use interface.
- Selenium supports various operating systems, browsers and programming languages. Following is the list:
  - Programming Languages: C#, Java, Python, PHP, Ruby, Perl, and JavaScript
  - Operating Systems: Android, iOS, Windows, Linux, Mac, Solaris.
  - Browsers: Google Chrome, Mozilla Firefox, Internet Explorer, Edge, Opera, Safari, etc.
- It also supports parallel test execution which reduces time and increases the efficiency of tests.
- Selenium can be integrated with frameworks like Ant and Maven for source code compilation.
- Selenium can also be integrated with testing frameworks like TestNG for application testing and generating reports.
- Selenium requires fewer resources as compared to other automation test tools.
- WebDriver API has been indulged in selenium which is one of the most important modifications done to selenium.
- Selenium web driver does not require server installation, test scripts interact directly with the browser.
- Selenium commands are categorized in terms of different classes which make it easier to understand and implement.
- Selenium Remote Control (RC) in conjunction with WebDriver API is known as Selenium 2.0. This version was built to support the vibrant web pages and Ajax.



## Selenium WebDriver

Selenium WebDriver is the most important component of Selenium Tool's Suite. The latest release "Selenium 2.0" is integrated with WebDriver API which provides a simpler and more concise programming interface.

In WebDriver, test scripts can be developed using any of the supported programming languages and can be run directly in most modern web browsers. Languages supported by WebDriver include C#, Java, Perl, PHP, Python and Ruby.

Selenium WebDriver performs much faster as compared to Selenium RC because it makes direct calls to the web browsers. RC on the other hand needs an RC server to interact with the browser.

WebDriver has a built-in implementation of Firefox driver (Gecko Driver). For other browsers, you need to plug-in their browser specific drivers to communicate and run the test. Most commonly used WebDriver's include:

- Google Chrome Driver
- Internet Explorer Driver
- Opera Driver
- Safari Driver
- HTML Unit Driver (a special headless driver)

### Selenium WebDriver- Features

- **Multiple Browser Support:** Selenium WebDriver supports a diverse range of web browsers such as Firefox, Chrome, Internet Explorer, Opera and many more. It also supports some of the non-conventional or rare browsers like HTMLUnit.
- **Multiple Languages Support:** WebDriver also supports most of the commonly used programming languages like Java, C#, JavaScript, PHP, Ruby, Pearl and Python. Thus, the user can choose any one of the supported programming language based on his/her competency and start building the test scripts.
- **Speed:** WebDriver performs faster as compared to other tools of Selenium Suite. Unlike RC, it doesn't require any intermediate server to communicate with the browser; rather the tool directly communicates with the browser.



- **Simple Commands:** Most of the commands used in Selenium WebDriver are easy to implement. For instance, to launch a browser in WebDriver following commands are used:  
`WebDriver driver = new FirefoxDriver();` (Firefox browser )  
`WebDriver driver = new ChromeDriver();` (Chrome browser)  
`WebDriver driver = new InternetExplorerDriver();` (Internet Explorer browser)
- **WebDriver- Methods and Classes:** WebDriver provides multiple solutions to cope with some potential challenges in automation testing. WebDriver also allows testers to deal with complex types of web elements such as checkboxes, dropdowns and alerts through dynamic finders.

## Installation help:

Selenium WebDriver installation process is completed in four basic steps:

1. Download and Install Java 8 or higher version.
2. Download and configure Eclipse or any Java IDE of your choice.
3. Download Selenium WebDriver Java Client (GekoDriver-Firefox,Chrome,Driver-Chrome)
4. Configure Selenium WebDriver:

First 3 steps are easy and you might be having already Java and Eclipse, so simply last step you have to follow to configure Selenium WebDriver as follows:

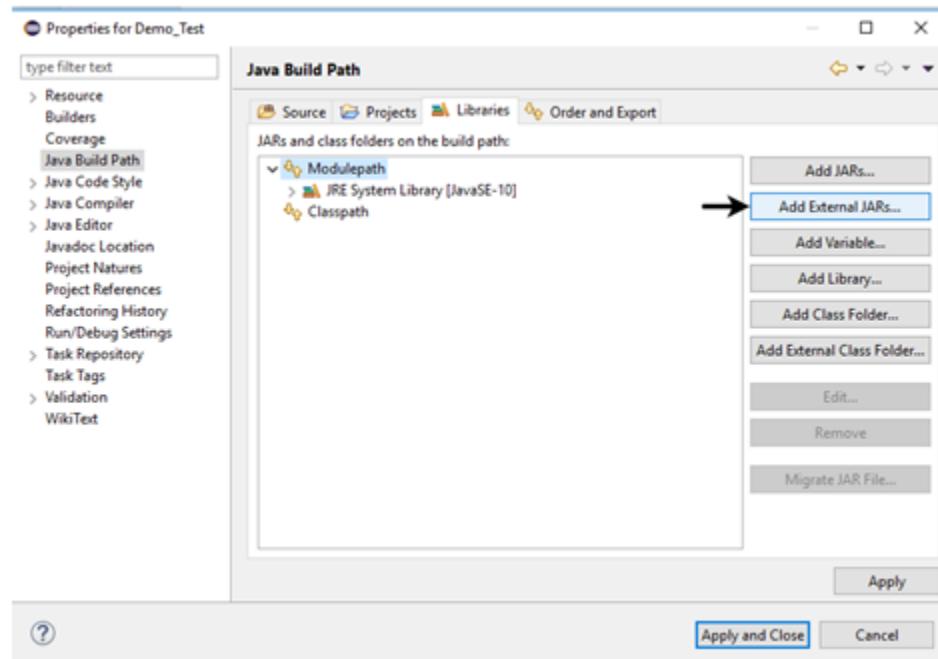
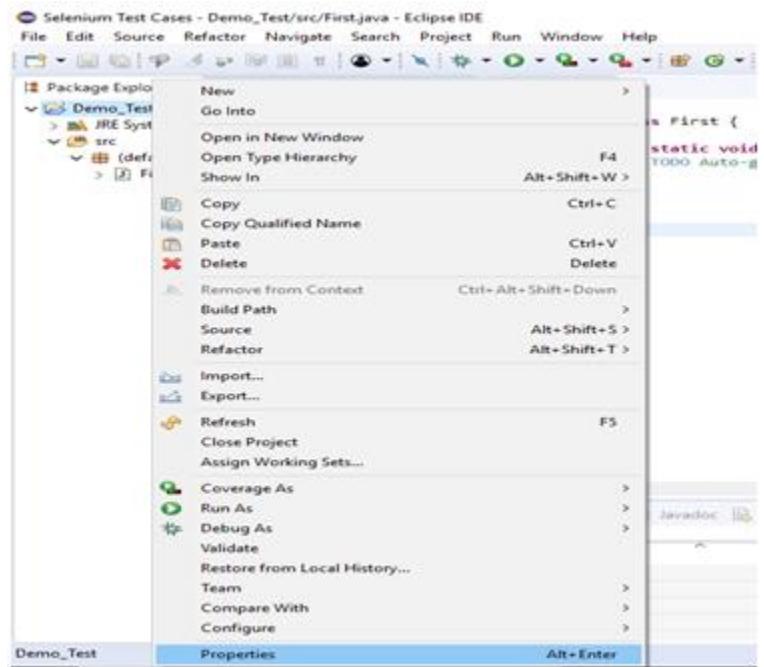
- Open URL: <https://docs.seleniumhq.org/download/>  
It will redirect you to the "downloads page" of Selenium official website.
- Scroll down through the web page and locate **Selenium Client & WebDriver Language Bindings.**
- Click on the "Download" link of Java Client Driver as shown in the image given below.

LANGUAGE	STABLE VERSION	RELEASE DATE	ALPHA VERSION	ALPHA RELEASE DATE	LINKS
Ruby	3.142.6	October 04, 2019	4.0.0alpha6	May 28, 2020	<a href="#">Download Alpha Download</a> <a href="#">Changelog API Docs</a>
Java	3.141.59	November 14, 2018	4.0.0-alpha-6	May 29, 2020	<a href="#">Download Alpha Download</a> <a href="#">Changelog API Docs</a>
Python	3.141.0	November 01, 2018	4.0.0a6.post1	May 28, 2020	<a href="#">Download Alpha Download</a> <a href="#">Changelog API Docs</a>
C#	3.14.0	August 02, 2018	4.0.0-alpha05	March 18, 2020	<a href="#">Download Alpha Download</a> <a href="#">Changelog API Docs</a>
JavaScript	3.6.0	October 06, 2017	4.0.0-alpha.7	March 05, 2020	<a href="#">Download Alpha Download</a> <a href="#">Changelog API Docs</a>

- The downloaded file would be in zipped format. Unpack the contents in a convenient directory. It contains the essential jar files required to configure Selenium WebDriver in Eclipse IDE.
- Launch Eclipse IDE
- Create a new Java Project from **File > New > Java Project**.

Now, we will add the Selenium jar files in our Test Suite (Demo\_Test – Java Project).

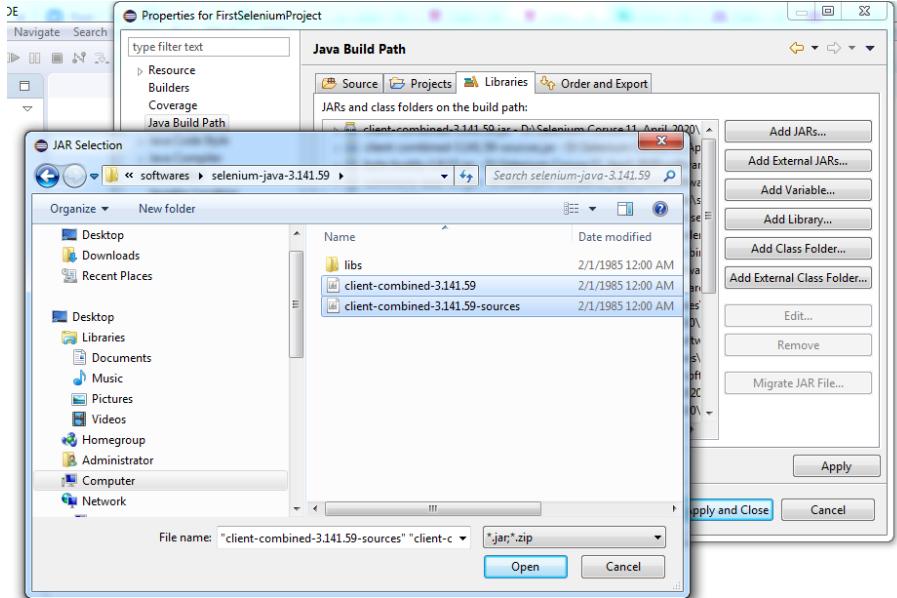
- Right click on "Demo\_Test" folder and select Properties.
- It will launch the Properties window for our "Demo\_Test" Test Suite.
- Click on "Java Build Path" option from the left hand side panel.



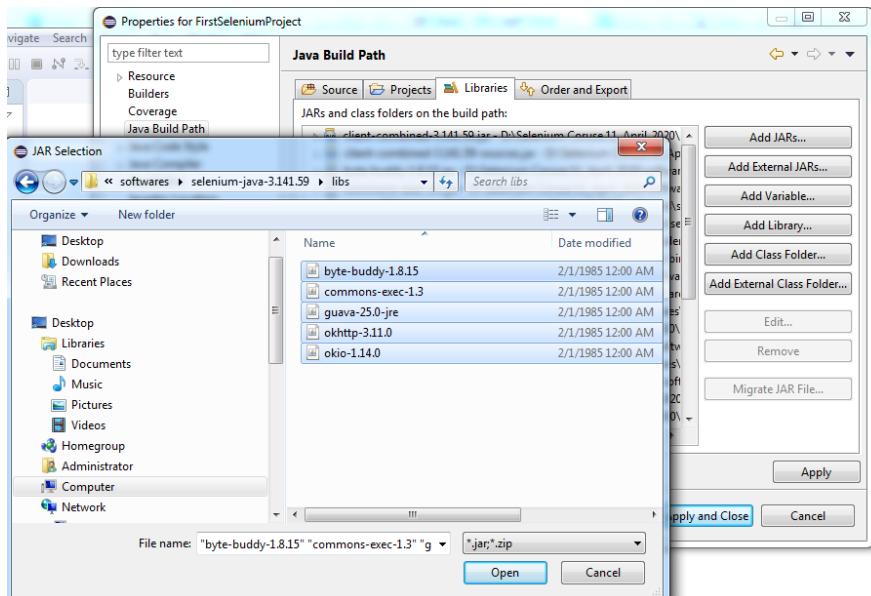
- Locate the directory where you have downloaded the Selenium jar files, select the respective jars and click on "Open" button.



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- Repeat the same steps for the jars which are present under the "libs" folder.
- Open "libs" folder, select all of the respective jar files and click on "Open" button.



- Once you get all the Selenium jar files in your Libraries tab, click on Apply and Close button.

After That



Open

URL: <https://sites.google.com/a/chromium.org/chromedriver/downloads> in your browser.

- Click on the "ChromeDriver 2.41" link. It will redirect you to the directory of ChromeDriver executables files. Download as per the operating system you are currently on.

Name	Last modified	Size	ETag
<a href="#">Parent Directory</a>			
<a href="#">chromedriver_linux64.zip</a>	2018-07-27 19:25:01	3.76MB	fbdb0b9561575054e0e7e9cc53b680a70
<a href="#">chromedriver_mac64.zip</a>	2018-07-27 20:45:35	5.49MB	4c86429625373392bd9773c9d0a1c6a4
<a href="#">chromedriver_win32.zip</a>	2018-07-27 21:44:20	3.39MB	ab047aa361aeb863e5851ia9f16bcd87
<a href="#">notes.txt</a>	2018-07-27 21:58:29	0.02MB	0b595ef8eeec0ed4352c69bba64e0d7c



- For windows, click on the "chromedriver\_win32.zip" download.

Name	Date modified	Type	Size
<a href="#">chromedriver</a>	27-07-2018 12:32	Application	6,580 KB
<a href="#">chromedriver_win32</a>	10-08-2018 11:31	WinRAR ZIP archive	3,469 KB

- The downloaded file would be in zipped format. Unpack the contents in a convenient directory.



Then We can Write The first Test Script in Java Class:

Ex:

```
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class FirstSeleniumProgram {

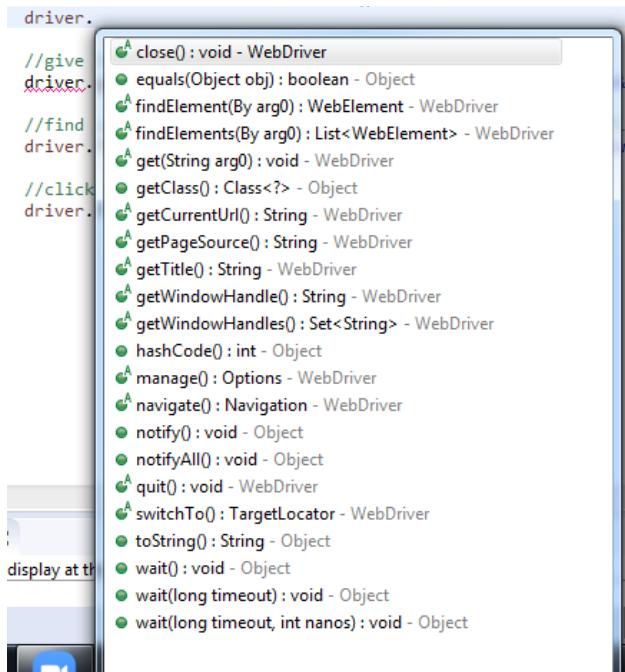
    public static void main(String[] args) {

        //1. add jar of selenium
        //2. open browser,before that tell where is the chrome driver using
        System.setProperty
System.setProperty("webdriver.chrome.driver","D:\\Selenium\\softwares\\chromedriver_win32\\chromedriver.exe");
        WebDriver driver=new ChromeDriver();
        //give the URL in get () to open the site
driver.get("https://login.yahoo.com/config/login?.src=fpctx&.intl=in&.lang=en-
IN&.done=https://in.yahoo.com");
        //find any element from the web page and send text to the field
        driver.findElement(By.id("login-username")).sendKeys("pritiwadpalli");

        //click on next button
        driver.findElement(By.id("login-signin")).click();

    }
}
```

One possible way to view the methods provided by WebDriver is to open the Eclipse IDE loaded with Selenium Webdriver jar files, create a driver object for WebDriver and press the dot key. It will show you all of the possible methods provided by WebDriver.



The commands provided by Selenium WebDriver can be broadly classified in following categories:

1. Browser Commands
2. Navigation Commands
3. WebElement Commands



## Browser Commands:

most commonly used Browser commands for Selenium WebDriver.

Get Command `get(String arg0) : void`

Get Title Command: `getTitle(): String`

Get Current URL Command: `getCurrentUrl(): String`

Get Page Source Command: `getPageSource(): String`

Close Command: `close(): void`

Quit Command: `quit(): void`

## Navigation Commands:

WebDriver provides some basic Browser Navigation Commands that allows the browser to move backwards or forwards in the browser's history

```
driver.navigate().to("www.javatpoint.com");
driver.navigate().forward();
driver.navigate().back();
driver.navigate().refresh();
```

## WebElement Commands

What is Web Element?

The term web element refers to a HTML element. The HTML documents are composed of HTML elements. It consists **a start tag, an end tag** and the **content** in between.

Given are some of the most commonly used WebElement commands for Selenium WebDriver.

`clear() : void`

`sendKeys(CharSequence? KeysToSend) : void`

`click() : void`

`isDisplayed() : boolean`

`isEnabled() : boolean`



isSelected() : boolean

submit() : void

getText() : String

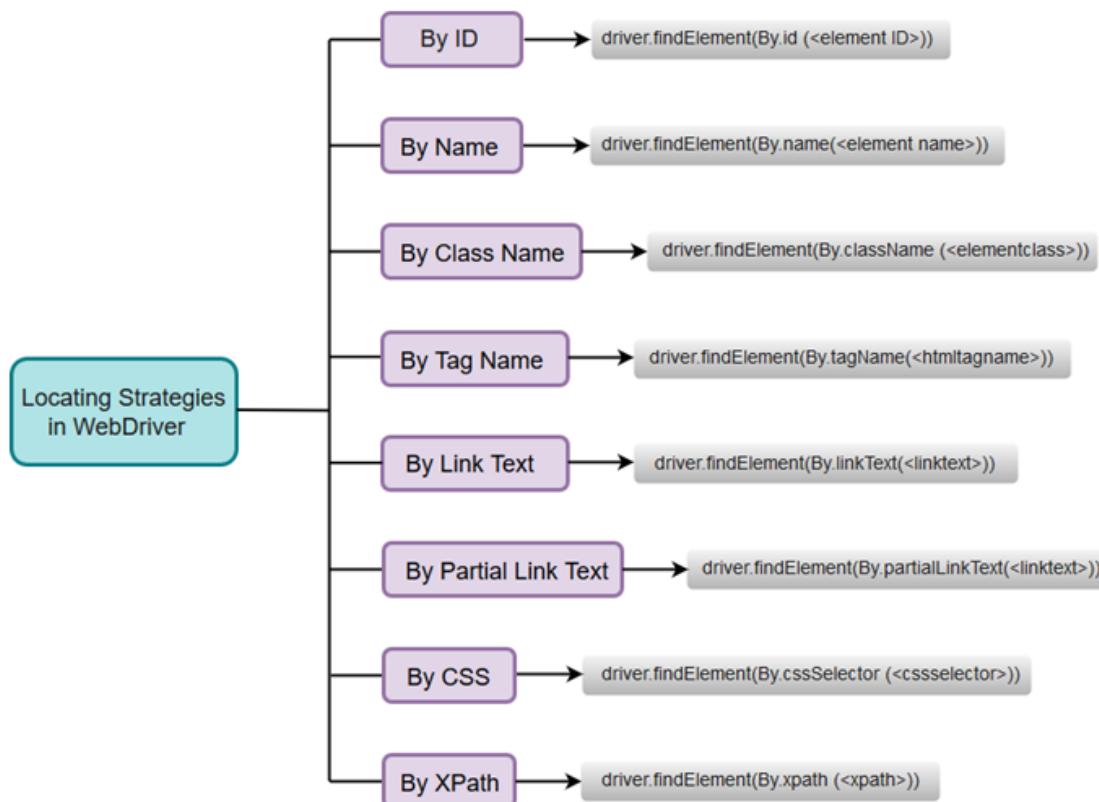
getTagName() : String

getCssvalue() : String

## Locating Strategies

WebDriver uses locating strategies for specifying location of a particular web element.

Since, we are using WebDriver with java; each locating strategy has its own command in Java to locate the web elements.



### By Id:

locate a particular web element using the value of its id attribute.

The Java Syntax for locating a web element using its id attribute is written as:

**driver.findElement(By.id (<element ID>))**

Ex: suppose we want to locate the text box whose id is fname as shown bellow



```
▼ <div class="col-md-12" style="font-size:15px;">
  ▼ <p>
    <b>TextBox :</b>
    <input id="fname" name="firstName" type="text">
  </p>
</div>
```

```
driver.findElement(By.id("fname"));
```

## By Name:

locate a particular web element using the value of its "name" attribute.

The Java Syntax for locating a web element using its name attribute is written as:

```
driver.findElement(By.name(<element ID>));
```

Ex: suppose we want to locate the text box whose name firstName is as shown bellow

```
▼ <p>
  <b>TextBox :</b>
  <input id="fname" name="firstName" type="text">
</p>
```

```
driver.findElement(By.name("firstName"));
```

## By TagName

locate a particular web element using its Tag Name.

The Java Syntax for locating a web element using its Tag Name is written as:

```
driver.findElement(By.tagName (<htmltagname>))
```

Ex:To locate a text box using its tagname

```
driver.findElement(By.tagName("input"));
```

## By Class Name:

locate a particular web element using the value of its Class attribute.

The Java Syntax for locating a web element using its Class attribute is written as:

```
driver.findElement(By.className (<element class>))
```

Ex: To locate Automation testing checkbox by its class

```
▼ <form action="#">
  <input type="checkbox" class="Automation" value="Automation" =>
    " Automation Testing
    "
  <input type="checkbox" class="Performance" value="Performance">
```

```
driver.findElement(By.className("Automation"));
```

## By XPath

Xpath is very popular locator strategy to perform operations on WebElements. Most of the time we need to create xpaths by our own.

Xpaths are of two types “**Relative/partial xpath**” & “**Absolute/complete xpath**” .

### Relative/partial XPath method

A relative xpath is one where the path starts from the node of your choice - it doesn't need to start from the root node. It starts with Double forward slash( // ).

#### Using single attribute

Syntax :- // tagname[@attribute-name='value1'+

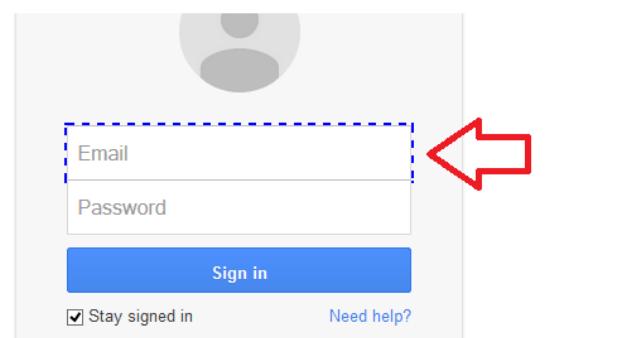
Examples:-

// a[@href='http://www.google.com']

//input[@id='name']

//input[@name='username']

//img[@alt='sometext']



The screenshot shows a login interface with a large black arrow pointing down towards the 'Email' input field. A red arrow points from the 'Email' input field back up towards the FirePath tool interface. The FirePath tool's bottom panel displays the following XML code, with the 'Email' input field highlighted in red:

```
Console HTML CSS Script DOM Net Cookies FirePath ▾
XPath: //input[@id='Email']
<input id="checkConnection" type="hidden" value="youtube:940:1" name="checkConnection"/>
<input id="checkedDomains" type="hidden" value="youtube" name="checkedDomains"/>
<label class="hidden-label" for="Email">Email</label>
<input id="Email" type="email" spellcheck="false" value="" placeholder="Email" name="Email"/>
<label class="hidden-label" for="Password">Password</label>
```

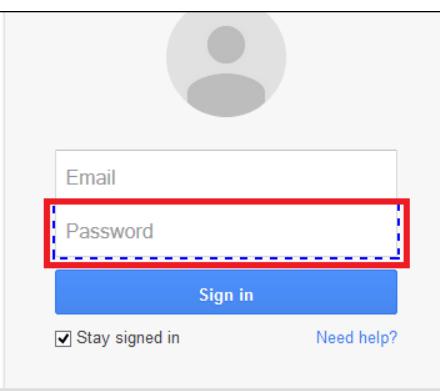
## Using multiple attribute

Syntax :- //tagname[@attribute1='value1'][@attribute2='value2']

Examples :-

//a[@id='id1'][@name='namevalue1']

//img[@src=""][@href=""]



The screenshot shows a login interface with a user profile icon at the top. Below it is a form with fields for 'Email' and 'Password'. A large red arrow points from the bottom left towards the 'Password' input field, which is highlighted with a red border. At the bottom of the form are 'Sign in' and 'Need help?' buttons, and a 'Stay signed in' checkbox.

Below the screenshot is a screenshot of the FirePath tool interface. It shows the DOM tree with the XPath expression //input[@id='Passwd'][@name='Passwd'] selected. The corresponding HTML code is displayed:

```

<label class="hidden-label" for="Email">Email</label>
<input id="Email" type="email" spellcheck="false" value="" placeholder="Email" name="Email"/>
<label class="hidden-label" for="Passwd">Password</label>

<input id="signin" class="rc-button rc-button-submit" type="submit" value="Sign in" name="signIn"/>
<label class="remember">
<input type="hidden" value="1" name="rmShown"/>

```

## Using contains method

Syntax :- //tagname[contains(@attribute,'value1')]

Examples:-

//input[contains(@id,'')]

//input[contains(@name,'')]



//a[contains(@href,'')]  
//img[contains(@src,'')]  
//div[contains(@id,'')]

## Using starts-with method

**Syntax:- //tagname[starts-with(@attribute-name,'')]**

Examples:-

//a[starts-with(@href, '')]  
//img[starts-with(@src, '')]  
//div[starts-with(@id, '')]  
//input[starts-with(@id, '')]  
//button[starts-with(@id, '')]

## Using text method

**Syntax:- //tagname[text()='text we are searching for']**

Examples:-

//div[text()='']  
//label[text()='']  
//a[text()='']  
//p[text()='']

Yahoo - login

https://login.yahoo.com/?src=ym&intl=in&lang=er-IN&done=https%3a//mail.yahoo.com

Most Visited godaddy

Sirf apni dukaan pe  
milta hai solid bharosa.

100% ORIGINAL PRODUCTS #ApniDukaan

amazon.in

YAHOO!

Sign in to your account

Email address

Password

Stay signed in

Sign in

Terms | Privacy

Console HTML CSS Script DOM Net Cookies FirePath

Top Window Highlight XPath: .//label[text()='Stay signed in']

```

margin-top: 1px; >
  <div class="mbr-text-align mbr-login-text-normal">
    <input id="persistent" class="checkbox" type="checkbox" checked="" tabindex="3" value="y" name=".pe
      <label for="persistent">Stay signed in</label>
    </div>
  </div>
  <div id="submit.s" class="mbr-login-submit.">
```

1 matching node

### Absolute/complete XPath method

Absolute XPath starts with the root node or a forward slash (/). The advantage of using absolute is, it identifies the element very fast. Disadvantage here is, if anything goes wrong or some other tag added or deleted in between, then this path will no longer works. So they are called Fragile xpahs.



A screenshot of a login interface. It features a light gray header bar with a dark gray circular icon on the right. Below the header is a white rectangular form. The form contains two input fields: one labeled "Email" and another labeled "Password", both with placeholder text. Below these fields is a large blue button labeled "Sign in". To the left of the "Sign in" button is a checkbox labeled "Stay signed in" with a checked mark. To the right is a link labeled "Need help?".

Create an account

HTML CSS Script DOM Net Cookies FirePath ▾

Path: html/body/div[1]/div[2]/div[2]/form/input[15]

This screenshot shows the FirePath extension in a browser's developer tools. The "FirePath" tab is selected. A red box highlights the path "html/body/div[1]/div[2]/div[2]/form/input[15]" in the "Path" field. Below the path, the corresponding HTML code is displayed, showing an input field with type="text", value="Email", placeholder="Email", and name="Email".

## Add interactions

Way to deal with **CheckBox & Radio Button** is exactly the same. The main difference between radio button and checkbox is checkbox you can select multiple but for radio button, only one selection is possible.



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Radio button and Checkbox most of the time will have tag name “input” and one of the attribute as “name”. Before performing click action on them, sometimes we need to verify couple of other things such as .

- Verify whether radio button or checkbox is enabled.
- Verify whether radio button or checkbox is Displayed on UI or not.
- Verify whether checkbox and radio button is default selected/checked or not.

***We can verify above things with the help of predefined methods such as***

- 1> Verify whether radio button or checkbox is enabled :- **isDisplayed();**
- 2> Verify whether radio button or checkbox is Displayed on UI or not :- **isEnabled();**
- 3> Verify whether checkbox and radio button is default selected or not :- **isSelected();**

Note :- These methods returns Boolean (true or false)

In case of CheckBox it is always recommended to check if that is already in selected or deselected. Because, if it is already selected and when you click on the same element it will get deselected.

In case of Radio button it is not required as even though it is by default selected, clicking again on same will not deselect it.

**isSelected()** method can be used to identify whether the checkbox or radio button is selected or not

Example:-

```
System.out.println(radios.get(0).isSelected()); //is Selected or not
```

Example:- Radio button

```
import java.util.List;  
import org.openqa.selenium.By;
```



```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;

public class Radios {
    public static void main(String[] args) {
        WebDriver driver=new ChromeDriver();
        driver.get("https://www.facebook.com/");
        List<WebElement> radios = driver.findElements(By.name("sex")); // all radio
        System.out.println("Total radio buttons -> "+ radios.size()); // total no of radio
        System.out.println(radios.get(0).isDisplayed()); //male radio button is displayed or not
        System.out.println(radios.get(0).isEnabled()); // male radio button is Enabled or not
        System.out.println(radios.get(0).isSelected()); // male radio button is Selected or not
        radios.get(1).click(); // male radio button will be selected
    }
}
```

```
public class CheckBox {
    public static void main(String[] args) {
        WebDriver driver = new FirefoxDriver();
        driver.get("https://www.facebook.com/");
        // "keep me logged in " check box is displayed or not
        System.out.println(driver.findElement(By.xpath("//*[@id='persist_box']")).isDisplayed());
        // "keep me logged in " check box is enabled or not
        System.out.println(driver.findElement(By.xpath("//*[@id='persist_box']")).isEnabled());
        // "keep me logged in " check box is selected or not
        System.out.println(driver.findElement(By.xpath("//*[@id='persist_box']")).isSelected());
        // click on "keep me logged in " check box
        driver.findElement(By.xpath("//*[@id='persist_box']")).click();
    }
}
```

## DropDown list

Dropdown list is also called as list box.

Dropdown list of countries will look like below.



**Combo box** is a combination of a drop-down list or list box and a single-line editable textbox, allowing user to either type a value directly or select a value from the list. It looks like below.



## Rules

1. Every drop down will have tagName as "Select"
2. Every element in dropdown will have tag "option"

## How to access the elements inside dropdown

We will be using "Select" class to deal with drop down list

To use Select class we need to import "**org.openqa.selenium.support.ui.Select**"

## Example

Let's use yahoo website for this exercise

Go to yahoo.com --> Mail --> sign up for new account --> "Month" dropdown mentioned in front of Birthday

## Steps

### 1. Get the "xpath" of the "dropdown"

```
WebElement month_dropdown=driver.findElement(By.xpath("//*[@id='month']"));
```

### 2. Send it to the "constructor" of select class

```
Select month=new Select(month_dropdown);
```

### 3. Use all the functions using "object" of Select class

## Few commands:



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month.getFirstSelectedOption().getText() ----> gives text of default selected option from drop list  
month.selectByVisibleText("April"); -----> select any element using text from dropdown  
month.selectByIndex(3); -----> select any element using index. Index starts from "0".  
month.selectByValue("4"); -----> Value is attribute of option tag. Its text  
month.getOptions().size() -----> total number of elements in the dropdown

**Example:-**

**// Go to yahoo.com --> Mail --> sign up for new account --> "Month" dropdown mentioned in front of Birthday**

```
WebElement month_dropdown=driver.findElement(By.xpath("//*[@id='month']"));  
Select month=new Select(month_dropdown);  
// Select value using Index  
month.selectByIndex(3);  
//Select value using value attribute.  
month.selectByValue("4");  
//Select value from Visible text  
month.selectByVisibleText("April");  
// Get Selected option from Dropdown. WebElement  
first_value=month.getFirstSelectedOption(); String value=first_value.getText();  
// Get All option from dropdown  
List<WebElement> dropdown=month.getOptions();  
for(int i=0;i<dropdown.size();i++)  
{  
String drop_down_values=dropdown.get(i).getText();  
System.out.println("dropdown values are "+ drop_down_values);  
}
```



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## Selecting multiple elements from drop list.

**month.isMultiple( )** -----> tells whether the dropdown supports multiple selecting options at the same time or not

(Note :- our yahoo example does not support multiselect, please use any other dropdown list)

There is no additional logic behind selecting multiple options of Select element.

All you need to do is to fire select commands on multiple elements one by one that's it.

```
month.selectByIndex(Index)
month.selectByIndex(Index)
// or can be used as
month.selectByVisibleText(text)
month.selectByVisibleText(text)
// or can be used as
month.selectByValue(value)
month.selectByValue(value)
```

## Handling dropdown list without using “Select” class

We can work with dropdown list without using Select class as well. Here is how we do it.

```
WebElement month_dropdown=driver.findElement(By.xpath("//*[@id='month']"));
month_dropdown.sendKeys("April"); // April will be selected from dropdown list
```

## Mouse simulation using Actions class

While automating the application we encounter the scenario where we need to hover on some menu and it display further more options, which is common case with e-commerce website.

Example: - if you go to flipkart and mouse hover on a category called “Electronics”, it will display lot many options.

To do all the mouse simulation we use “Actions” class.

With some of the browser it happens that once mouse hover action is performed, the menu list disappear within the fractions of seconds before Selenium identify the next submenu item and perform click action on it. In that case it is better to use ‘perform()’ action on the main menu to hold the menu list till the time Selenium identify the sub menu item and click on it.

```
public class Flipkart {  
  
    public static void main(String[] args) {  
  
        WebDriver driver = new FirefoxDriver();  
        driver.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);  
        driver.get("http://www.flipkart.com/");  
  
        //find the webelement where we need to do mouse hover  
        WebElement MainMenu=driver.findElement(By.xpath("//li[@data-key='electronics']"));  
  
        //***** Mouse simulation using actions class *****  
        //create object of Actions class  
        Actions act = new Actions(driver);  
        act.moveToElement(MainMenu).build().perform();  
  
        // Right click (context click ) on the page  
        act.contextClick(MainMenu).build().perform();  
    }  
}
```



Like hover we can do lot many things with actions class such as Right click, Double click, Click and Hold, Keyboard activities and so on.

Few of the Method names and their usage

Method Names	Usage
moveToElement(WebElement)	Mouse Hover
contextClick()	Right click on page
contextClick(WebElement)	Right click on specific Element
sendKeys(Keys.TAB)	For Keyboard events
clickAndHold(WebElement)	click on Element and Hold until next operation
release()	release the current control

Few more examples to list would be

```
// Right click (context click ) on the “Electronics” category  
act.contextClick(MainMenu).build().perform();
```

```
//sending keyboard “Enter” key  
act.sendKeys(MainMenu, Keys.ENTER).build().perform();
```

### Drag and Drop (using source and destination )

```
public class DragDrop {  
    public static void main(String[] args) {  
        WebDriver driver = new FirefoxDriver();  
        driver.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);  
        driver.get("http://jqueryui.com/demos/droppable/");  
        // find the element which needs to be dragged  
        WebElement src = driver.findElement(By.xpath("//*[@id='draggable']"));  
  
        //find the element which needs to be dropped  
        WebElement dest = driver.findElement(By.xpath("//*[@id='droppable']"));  
        //using Actions clas  
        Actions act = new Actions(driver);  
        act.dragAndDrop(src, dest).build().perform();  
    }  
}
```

## Drag and Drop: - clickAndHold (using coordinates)

```
public class ClickAndHold {  
    public static void main(String[] args) {  
        System.setProperty("webdriver.chrome.driver",  
"E:\\Tools\\Selenium\\chromedriver.exe");  
        WebDriver driver = new ChromeDriver();  
        driver.get("http://jqueryui.com/demos/draggable/");  
        WebElement obj = driver.findElement(By.xpath("//div[@id='draggable']"));  
        Actions act = new Actions(driver);  
        //act.dragAndDropBy(obj, 50, 50).build().perform();  
        act.clickAndHold(obj).dragAndDropBy(obj, 200, 200).build().perform();  
    }  
}
```



## The JUnit framework

JUnit is a test framework which uses annotations to identify methods that specify a test.  
JUnit is an open source project

### Junit Environment Setup:

Prerequisite: Java should be installed

#### **Step 1:**

Download the latest version of JUnit jar file from <http://www.junit.org>. for your respective os and store in some folder.

#### **Step 2:**

Create Test Project (java project)

And add those junit jars into **build path** libraries. And then write your test classes.

### Writing Junit Test Class

A JUnit *test* is a method contained in a class which is only used for testing. This is called a *Test class*. To define that a certain method is a test method, annotate it with the `@Test` annotation.

This method executes the code under test. You use an *assert* method, provided by JUnit or another assert framework, to check an expected result versus the actual result. These method calls are typically called *asserts* or *assert statements*.

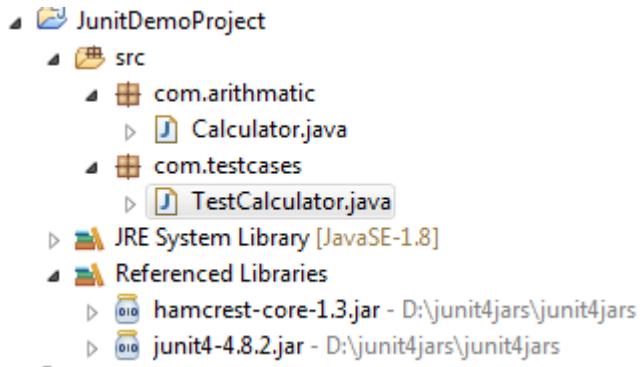
You should provide meaningful messages in assert statements. That makes it easier for the user to identify and fix the problem. This is especially true if someone looks at the problem, who did not write the code under test or the test code.



## Example JUnit test

See the project structure of sample Ex:

We have to simply create a java project and add junit jars .



Then we can write the classes as bellow

```
package com.arithmatic;

public class Calculator {

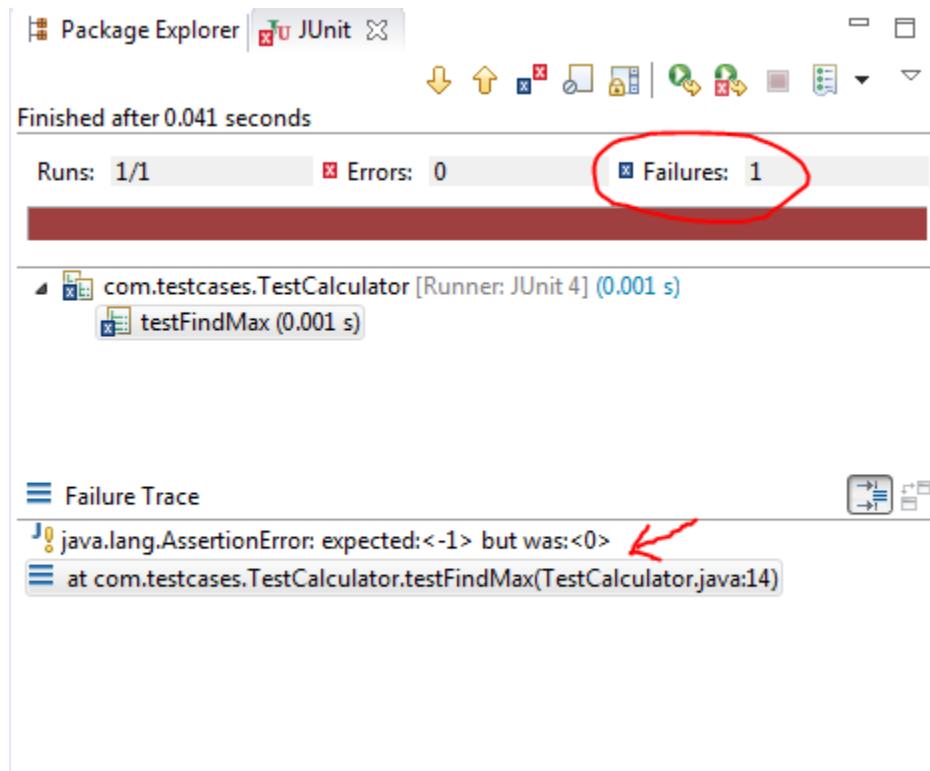
    public static int findMax(int arr[]){
        int max=0;
        for(int i=1;i<arr.length;i++){
            if(max<arr[i])
                max=arr[i];
        }
        return max;
    }
}
```

```
package com.testcases;
import static org.junit.Assert.*;
import org.junit.Test;
import com.arithmatic.Calculator;
public class TestCalculator {

    @Test
    public void testFindMax(){
        assertEquals(4,Calculator.findMax(new int[]{1,3,4,2}));
        assertEquals(-1,Calculator.findMax(new int[]{-12,-1,-3,-4,-2}));
    }
}
```

```
}
```

Then run the test case as  
**right click on TestCalculator class -> Run As -> Junit Test.**



As you can see, when we pass the negative values, it throws `AssertionError` because second time `findMax()` method returns 0 instead of -1. It means our program logic is incorrect.

### *Correct program logic*

*As you can see, program logic to find the maximum number for the given array is not correct because it doesn't return -1 in case of negative values. The correct program logic is given below:*

```
package com.arithmatic;

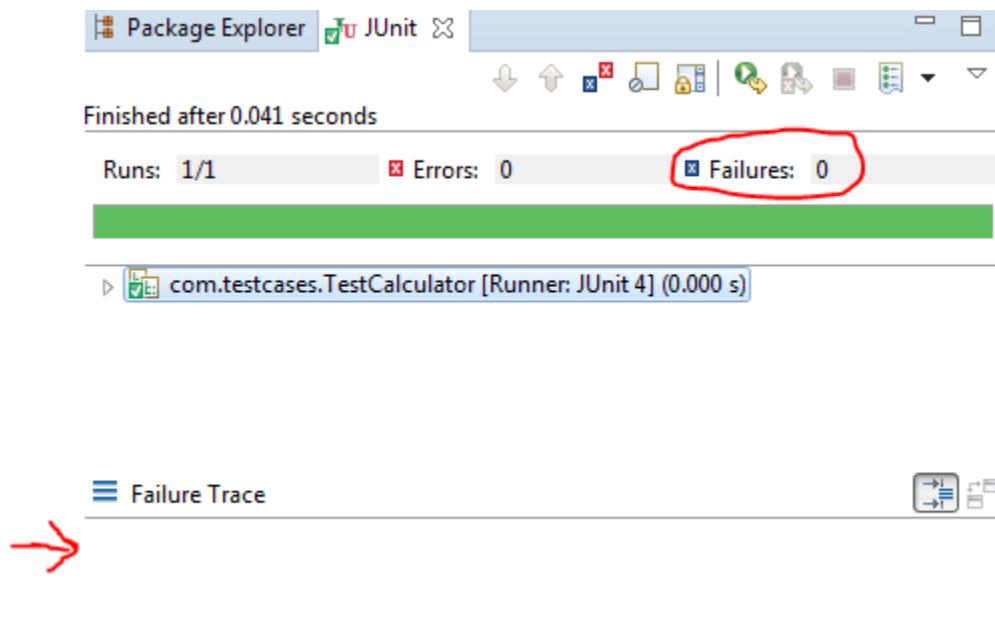
public class Calculator {
    public static int findMax(int arr[]){
        int max=arr[0];//arr[0] instead of 0;
        for(int i=1;i<arr.length;i++){
            if(max<arr[i])
                max=arr[i];
        }
    }
}
```



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```
    return max;  
}  
}
```

If you run the junit program again, you will see the following output.



## Defining test methods

JUnit uses annotations to mark methods as test methods and to configure them. The following table gives an overview of the most important annotations in JUnit for the 4.x and 5.x versions. All these annotations can be used on methods.(next page)



*Table of Annotations*

JUnit 4	Description
import org.junit.*	Import statement for using the following annotations.
@Test	Identifies a method as a test method.
@Before	Executed before each test. It is used to prepare the test environment (e.g., read input data, initialize the class).
@After	Executed after each test. It is used to cleanup the test environment (e.g., delete temporary data, restore defaults). It can also save memory by cleaning up expensive memory structures.
@BeforeClass	Executed once, before the start of all tests. It is used to perform time intensive activities, for example, to connect to a database. Methods marked with this annotation need to be defined as static to work with JUnit.
@AfterClass	Executed once, after all tests have been finished. It is used to perform clean-up activities, for example, to disconnect from a database. Methods annotated with this annotation need to be defined as static to work with JUnit.
@Ignore or @Ignore ("Why disabled")	Marks that the test should be disabled. This is useful when the underlying code has been changed and the test case has not yet been adapted. Or if the execution time of this test is too long to be included. It is best practice to provide the optional description, why the test is disabled.
@Test (expected = Exception.class)	Fails if the method does not throw the named exception.
@Test (timeout=100)	Fails if the method takes longer than 100 milliseconds.



## Assert statements

JUnit provides static methods to test for certain conditions via the `Assert` class. These *assert statements* typically start with `assert`. They allow you to specify the error message, the expected and the actual result. An *assertion method* compares the actual value returned by a test to the expected value. It throws an `AssertionException` if the comparison fails.

The following table gives an overview of these methods. Parameters in [] brackets are optional and of type String.

*Table of Methods to assert test results*

Statement	Description
<code>fail([message])</code>	Let the method fail. Might be used to check that a certain part of the code is not reached or to have a failing test before the test code is implemented. The message parameter is optional.
<code>assertTrue([message,] boolean condition)</code>	Checks that the boolean condition is true.
<code>assertFalse([message,] boolean condition)</code>	Checks that the boolean condition is false.
<code>assertEquals([message,] expected, actual)</code>	Tests that two values are the same. Note: for arrays the reference is checked not the content of the arrays.
<code>assertEquals([message,] expected, actual, tolerance)</code>	Test that float or double values match. The tolerance is the number of decimals which must be the same.
<code>assertNull([message,] object)</code>	Checks that the object is null.
<code>assertNotNull([message,] object)</code>	Checks that the object is not null.
<code>assertSame([message,] expected, actual)</code>	Checks that both variables refer to the same object.
<code>assertNotSame([message,] expected, actual)</code>	Checks that both variables refer to different objects.



IACSD

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1. In use-case diagram, what is system illustrated by?

- a) Oval
- b) Box**
- c) Circle
- d) Triangle

2. UML supports \_\_\_\_\_ phases of software development

- a) Earlier
- b) Final
- c) Middle
- d) All**

3. Requirement analysis \_\_\_\_\_

- a) Delivers a system in a series of versions
- b) Organizes abstraction
- c) Builds a bridge between user and developer**
- d) Uses experimental software to better understand user requirements

4. What is type of software maintenance?

- a) Adaptive
- b) Corrective
- c) Perfective
- d) Obsolescence**

5. Which of the following activities of SDLC involves choosing a system structure capable of satisfying requirement specification?
- a) Requirement analysis      b) **Design**      c) Coding      d) Testing
6. Pick up the odd one out of the following
- a) Data flow diagram      b) **Object identification**  
 c) Structural decomposition      d) E-R diagrams
7. ----- Lifecycle model describe how software system should be developed and describe how software are actually developed.
- a) **Prescriptive & Descriptive**      b) Prescriptive & Definitive  
 c) Descriptive & Prescriptive      d) Descriptive & Intuitive
8. The requirement phase consist of
- A) Problem analysis      B) Requirement specification  
 C) Requirement validation D) Problem validation  
 a) A, B, C      b) **A, B, C, D**      c) A, B, D      d) A, C, D
9. \_\_\_\_\_ is a method for estimating the software
- a) COCOMO      b) Function Point Analysis      c) Use Case Estimation      d) **All of the above**
10. The elements of the software architecture of a computing system include
- 1) Software components  
 2) Class diagrams  
 3) Connectors expressing relationships between software components  
 4) entity relationship diagrams  
 a) 1 & 2  
 & 4      b) **1 & 3**      c) 1, 3 & 4      d) 1, 2, 3
11. Ability of a software to perform intended function with minimum consumption of computing resources
- a) **Efficiency**      b) Robustness      c) Reliability      d) Correctness
12. Ability to deal with exceptional conditions e.g. invalid input, improper handling, power failure, disk crash etc.
- a) Efficiency      b) **Robustness**      c) Reliability      d) Correctness
13. The type of testing carried out along with coding is called
- a) System testing      b) **Unit testing**      c) Pretesting      d) Stress testing
14. Maintainability is the ease with which a software can
- a) Be corrected if an error is encountered  
 b) Adapted if its environment changes  
 c) Enhanced if the customer desires a change in requirements      d) **All of above**
15. The type of software maintenance which is done to remove bugs or defects in the software is called

a) **Corrective Maintenance**

c) **Regressive Maintenance**

16. RAD stands for

a) **Rapid Application Development**

c) Random Application Driver

b) Adaptive Maintenance

d) Perfective Maintenance

b) Random Access Disc

d) Rapid Alignment Disc

17. Which of the following is not true about Component Assembly Model

a) It is similar to the Spiral Model

b) The technical framework for this model is provided by object technologies

c) Candidate classes are extracted from class library or developed

d) **Its productivity is low**

18. Which of the following is not true about the context diagram?

a) It does not show details of the functioning b) It shows major inputs & outputs of the system

c) It shows the external entities of the system

**c) It shows the data stores of the system**

19. Data Items in a data dictionary are description of

a) Input data

b) Data flows

c) Data stores

**d) All of the above**

20. The ways of describing specifications at different levels of detail include

a) Requirements definition

b) Requirements specification

**c) Both a and b options**

d) None of these options

21. Stable requirements are

**a) Requirements related to the core activities of software customer**

**b) Requirements which are dependent on the environment where the delivered system is to be used**

**c) Both a and b options**

**d) None of these options**

22. Functional Independence is not achieved by

**a) Coupling**      b) Modularity      c) Information Hiding      d) Any of the above

23. If two modules are coupled without exchange of data or control information then they exhibit

**a) Normal Coupling**      b) Stamp Coupling      c) Control Coupling      d) Common Coupling

24. Which of the following is a graphical tool for software design?

a) Data Flow Diagram b) Structure Chart c) Decision Tree **d) All of the above**

25. Changes made to the software to correct defects uncovered after delivery is called

a) Perfective maintenance

b) Regressive maintenance

c) Adaptive maintenance

**d) Corrective**

**maintenance**

26. Arrange the following in the correct sequence of software estimation a. Schedule Estimation b.

Effort

Estimation c. Cost Estimation d. Size estimation

- a) B, C, A, D      b) C, A, B, D      c) **D, B, A, C**      d) A, C, D, B

27. Final Function point count calculated for project will result in the smallest LOC if implemented in

- a) Assembly      b) C      c) C++      d) **Visual Basic**

28. Project schedule can be illustrated using

- a) DFD and ERD      b) Bar chart      c) Activity chart      d) **Both b and c options**

29. Most of the project plans should include

- a) Risk analysis      b) Project organization      c) Project schedule      d) **All of the above**

30. \_\_\_\_\_ shows the dependencies between the different activities making up a project.

- a) **PERT chart**      b) Bar chart      c) Staffing Plan      d) Pi chart

31. Chief Programmer Teams are suitable for projects

- a) With research orientation      b) **With high modularity**      c) With high creativity      d) None of these

32. Judging the seriousness of a risk by evaluating its probability along with its consequences is called

- a) Risk analysis      b) Risk Projection      c) Risk Estimation      d) **All of the above**

33. The RMMM plan is generally included in the

- a) Feasibility Study      b) **Project Plan**      c) SRS Document      d) Project Legacy

34. Invalid data Rect() puts WM\_PAINT message in message queue.

- a) True      b) False      c) Not Always

35. Update Window() paints the client area.

- a) True      b) False      c) Not Always

36. HINSTANCE type variable stores id of running application

- a) True      b) False      c) Not Always

37. The WM\_INITDIALOG message is sent to the dialog box procedure immediately before a dialog box is is played.

- a) True      b) False      c) Not Always

38. Send Message is not directly send to the window procedure.

- a) True      b) False      c) Not Always

39. Icon is a Text resource.

- a) True      b) **False**      c) Not Always

40. Sub classing means changing the behaviour of controls.

- a) True                    b) False                    c) Not Always

41. CALLBACK functions are called by the operating systems.

- a) True                    b) False                    c) Not Always

42. WINAPI is not related to calling conventions.

- a) True                    b) **False**                    c) Not Always

43. Which of the following operations is provided by a common dialog box?

- a) Choosing an ic                    b) Choosing a network drive.  
c) Choosing a database.                    d) Choosing a font.

44. What is the primary difference between Send Message and Post Message?

- a) Send Message is used for local queues, while Post Message issued for remote queues.  
b) Send Message can only be used within a worker thread, while Post Message can be used at any time.  
C) Send Message can only send messages to the application thread, while Post Message can send messages to any thread.  
**d) Send Message is called from within a Windows procedure, while Post Message is called from within message queues**

45. Menu is -----

- a) GDI Object                    b) **Resource**                    c) Picture

46. Following is not type of Device Context

- a) Screen Device Context                    b) Window Device Context  
c) Client area Device Context                    d) **View Device Context**

47. Modal Dialog Box is created on \_\_\_\_\_ & Mode less Dialog Box is created on \_\_\_\_\_.

- a) Heap , stack                    b) **Stack , heap**

48. Which of the following are resources.

- a) Menu                    b) Bitmap                    c) Status Bar Icon

49. \_\_\_\_\_ function creates model dialog box.

- a) Create Dialog()                    b) **Dialog Box()**                    c) Dlg Box()                    d) Unknown

50. \_\_\_\_\_ is return type of window procedure.

- a) Handle to the window                    b) **LRESULT**                    c) BOOL

51. To subclass window's background brush \_\_\_\_\_ API call is used.

- a) Set Class Long()Set Class()                    b) Set Long Class()                    c) Settling()

52. The three classes of interface errors are:

- a) Interface misuse      b) Interface misunderstanding      c) Timing errors

53. \_\_\_\_\_ is first message passed to window procedure.

- a) WM\_PAINT      b) WM\_CREATE      c) WM\_SHOW      d)  
WM\_COMMAND

54. \_\_\_\_\_ function creates modeless dialog box.

- a) Create Dialog() Dialog()      b) Create Dialog Box()      c) Dialog Box()

55. Write Windows messages in higher order

- a) WM\_TIMER      b) Posted Message      c) WM\_LBUTTONDOWN      d) Sent Message e)  
WM\_PAINT

- a) 1 , 2 , 3 , 4 , 5      b) 5 , 4 , 3 , 2 , 1      c) 2 , 3 , 4 , 5 , 1      d) 3 , 4 , 5 , 1 , 2

56. Write steps to create standard windows application

1. Initialise and Register Window class

2. Create window

3. Display Window

4. Message loop

5. WndProc

- a) 1 , 2 , 3 , 4 , 5      b) 2 , 3 , 4 , 5 , 1      c) 3 , 4 , 5 , 1 , 2      d) 4 , 5 , 1 , 2 , 3

57. A windows program should have a message loop comprising of Get Message(), Dispatch Message() and Translate Message() to process messages from the message queue.

- a) True      b) False      c) Not always

58. Get DC() is used to retrieve the device context handle for the windows client area when processing a WM\_PAINT message.

- a) True      b) False      c) Not always

59. If a printable key is pressed then WM\_CHAR message will be generated and the ASCII code of the key will be stored in Parma.

- a) True      b) False      c) Not always

60. Whenever WM\_LBUTTONDOWN, WM\_MOUSEMOVE, WM\_RBUTTONDOWN messages are generated that time LOWORD (Param) and HIWORD (Param) consists of x and y coordinates of the mouse pointer.

- a) True      b) False      c) Not always

61. Predefined controls send WM\_COMMAND message whereas common controls send WM\_NOTIFY message.

- a) True      b) False      c) Not always

62. A Device Context is a GDI structure, which deals with text and graphics.

- a) True      b) False      c) Not always

63. A Metafile is a collection of GUI functions that are encoded in a binary format.

- a) True      b) False      c) Not always

64. A Clipboard is used to transfer information between applications or within application. a)  
True    b) False

65. Win Main is an entry point for windows application.

- a) True      b) False      c) Not Always

66. Menu is GDI Object.

- a) True      b) False      c) Not Always

67. WINAPI is a API function which explicitly calls Operating System to run Window Procedure.

- a) True      b) False      c) Not Always

68. When function key(s) pressed on the keyboard that time WM\_KEYDOWN message is generated.

- a) True      b) False      c) Not Always

69. LRESULT is a return type of Dialog Procedure.

- a) True      b) False      c) Not Always

70. Set Pixel is used to draw a particular pixel with a particular colour.

- a) True      b) False      c) Not Always

71. GetROP2 () is used to get the current drawing mode.

- a) True      b) False      c) Not Always

72. Palette is an attribute of a device context.

- a) True      b) False      c) Not Always

73. Windows TIMER is not an input device.

- a) True      b) False      c) Not Always

74. In MDI application the default window procedure for main Window is Def. WindowProc ().

- a) True      b) False      c) Not Always

75. The WM\_INITDIALOG message is sent to the dialog box procedure immediately before a dialog box is displayed.

- a) True      b) False      c) Not Always

76. In MDI application child windows are created by mainframe windows.

- a) True      b) False      c) Not Always

77. Cursor is a GDI Object.

- a) True      b) False      c) Not Always

78. Sub Classing means changing the behaviour of the controls.

- a) True                  b) False                  c) Not Always

79. Colour Dialog box is a common dialog box.

- a) True                  b) False                  c) Not Always

80. If you want your window procedure to receive double click mouse message that time, you must include the identifier \_\_\_\_\_ in a window class structure before calling

- a) RegisterClassEX ()                  b) CS\_DBLCLKS                  c) CS\_DBLCLICKS                  d) CS\_DBLS e)  
CS\_DOUBLECLICKS

81. \_\_\_\_\_ is used to play the metafile.

- a) Play Meta Play File Play Meta file                  b) Open Meta file

82. To use the windows common controls always include \_\_\_\_\_ .h header file.

- a) COMMONCTL                  b) COMCTL                  c) COMMDLG                  d) COMMCTL

83. You can obtain the state of Shift keys by using \_\_\_\_\_ function.

- a) Get Key State( )                  b) Key get Value( )                  c) Get State( )                  d) Get Status( )

84. Entry point function of a DLL is \_\_\_\_\_.

- a) Main( )                  b) DLL Main( )                  c) Start DLL( )                  d) Run DLL ( )

85. \_\_\_\_\_ is a function for creating a Thread.

- a) New Thread( )                  b) Thread ( )                  c) Create Thread Instance ( )                  d) Create Thread ( )

86. Pick up one of the testing methods given below that is part of white-box testing:

- a) Equivalence partitioning                  b) Boundary value analysis                  c) Basis path testing

87. For drawing an Icon on client area of window \_\_\_\_\_ function is used.

- a) Paint Icon( )                  b) Paste Icon ( )                  c) Draw Icon( )                  d) Load Icon ( )

88. You can create a logical font by calling which of the following functions.

- a) Create Font( )                  b) CreateFontdirect( )                  c) CreateFontIndirect( )                  d) New Font ( )

89. Dynamic Linked Library is loaded in the memory at \_\_\_\_\_

- a) Static time                  b) Run time                  c) Load Time                  d) Compile Time.

90. Menu is \_\_\_\_\_

- a) GDI Object                  b) Resource                  c) Picture                  d) Item

91. Which API call is used to check what type of data available in clipboard.

- a) Is Clipboard Format Available ( )                  b) Is Clipboard Contain Data ( )  
c) Is Type of Data ( )                  d) Set Clipboard Data ( )

92. Following option is not a mapping mode.

- a) MM\_ISOTROPIC      b) MM\_TEXT      c) MM\_BITMAP      d) MM\_HIMETRIC

93. Following is not a type of device context

- a) Screen Device Context      b) Window Device Context  
c) Client Area Device Context      d) View Device Context

94. Following is not a raster operation.

- a) R2\_COPYPEN      b) R2\_XORCOPYPEN  
c) R2\_NOT      d) R2\_YES

95. Every instance of a running program is \_\_\_\_\_ of virtual address space.

- a) 4 GB      b) 2 GB      c) 6 GB      d) 64 MB

96. Default size of heap is \_\_\_\_\_

- a) 2 MB      b) 1 MB      c) 32 MB      d) None of the above

97. Following is not a bitmap related API call.

- a) Paste Bit ( )      b) Bit Blt ( )      c) Stretch Blt ( )      d) Pat Blt ( )

98. Windows Message contains following information.

- a) Visible property of a window      b) Caption of window  
c) Handle of window      d) Root class of a window

99. \_\_\_\_\_ is a lowest priority message in Windows Programming. (Win 32 Programming)

- a) WM\_PAINT      b) WM\_COMMAND      c) WM\_CHAR      d) WM\_TIMER

100. SetROP2() function is used to change the Raster Operation the Device Context. a)

- True      b) False      c) Not Always

101. Create Enh Meta File returns handle of the metafile a) True      b)

- False      c) Not Always

102. Clipboard can store 'n' no of formats at a time.

- a) True      b) False      c) Not Always

103. If 4 windows are running in a single application then there are 4 Message Queues.

- a) True      b) False      c) Not Always

104. With Create Window \_\_\_\_\_ and \_\_\_\_\_ functions are used to display the window.

- a) Display Window( ), Update Window( )      b) Show Window( ), Dialog Box( )  
c) Show Window( ), Update Window( )      d) Show Window ( ), Repaint Window ( )

105. The Windows system32 directory contains files which provides function to user application to perform certain task in the windows environment.

- a) GDI32.DLL      b) KERNEL32.DLL      c) USER32.DLL      d) WIN32.DLL

106. The layer between the application and different types of hardware

- a) Application Layer      b) GDI layer      c) Data Layer Shell Layer

107. The Message received if the right mouse button is pressed in the non-client is

- a) WM\_RBUTTONDOWN      b) WM\_NCRBUTTONDOWN  
c) WM\_NCIRBUTTONDOWN      d) WS\_RBUTTONDOWN

108. In order to receive DoubleClick message a window must be created with which window style?

- a) 1DB\_DBCLK    b) CS\_DBCLICK    c) CS\_DBLCLKS    d) CS\_DBLCLK

109. Which message helps in detecting mouse movement and finding mouse cursor position

- a) WM\_MOUSEMOVE      b) WM\_MOUSEPOS  
c) WM\_ONMOUSEMOVE      d) None of these

110. When child Control in a dialog box is activated window sends which message?

- a) WM\_COMMAND      b) Send Dlg Item      c) WM\_NOTIFY      d) WM\_ACTIVATE

111. Which function will test whether the message is the dialog box or the window?

- a) Dlg Message()      b) Send Dlg Message()  
c) Translate Message()      d) Is Dialog Message()

112. Which function creates a modal dialog box?

- a) Create Dialog()      b) Dialog Box()    c) Do Modal()      d) Create Dialog Box()

113. Which function creates a modeless dialog box?

- a) Create Dialog()      b) Do Modal()      c) Dialog Box()      d) Create Dialog Box()

114. Modal Dialog Box is destroyed by calling which function?

- a) End Dialog()    b) Destroy Dialog()      c) End Dialog Box()      d) End Modal()

115. Which function sends a message to controls in a dialog box?

- a) Send Dlg Item Message()      b) Send Dialog Message()  
c) Send Dialog Item Message()      d) none of these

116. The register() function takes a pointer to the Windlass structure as a parameter a)

- True    b) False

117. WM\_CHAR is a combination of WM\_KEYUP and WM\_KEYDOWN. a) True    b)

- False

118. Only Modeless Dialog box can be moved on the screen. a) True    b) False

119. The ID value for the child window is passed by Param Parameter with the message. a) True b) False
120. In which message it is better to initialize all the controls with in the dialog box.  
a) WM\_CREATE      b) WM\_INITDIALOG      c) WM\_INIT      d) WM\_COMMAND
121. The Copy Meta File function copies the content of a window-format Meta File to a) Specified File      b) Create Meta File  
c) Copy Meta File      d) Copy Data Get Meta File
122. Translate Message Detects a Keyboard action that translates to an ANSI Character  
a) True      b) False
123. Screen Coordinates are pixels measured from the upper left corner of the window's client area  
a) True      b) False
124. Select Object function obtains an object from Device Context a) True      b) False
125. Create pen Return handle to Old Pen a) True      b) False
126. Which function use to copy file from one Device context to another
127. Device Context Bit Create Compatible Dc Copy Copy Bit
128. Handle to BITMAP is  
a) HBITMAP      b) HACCEL      c) HDC      d) HBMP
129. To Create Thread Function used is  
a) Begin Thread      b) Create Thread      c) do Thread      d) Create
130. WM\_CREATE Message is generated after Window is Displayed a)  
True      b) False
131. The Thread Control Panel is capable of performing the following action  
a) Setting Thread Priority      b) Suspending a Thread  
c) Resuming Thread      d) Terminating a Thread
132. Which values are used to Set thread priority  
a) 15      b) -2      c) 4      d) -1
133. To display a modeless dialog which property u have to add in its resource files?  
a) WM\_SHOW      b) WS\_SHOW      c) WS\_VISIBLE      d) WS\_DISPLAY

134. A Mouse Click on Menu Bar generates:

- a) WM\_COMMAND
- b) WM\_NOTIFY
- c) WM\_CHAR
- d) WM\_MENUCLICK

135. Change in the size of the status bar generates:

- a) WM\_RESIZE
- b) WM\_SIZE
- c) WM\_CHANGE
- d) WM\_COMMAND

136. Get Text Matrix() determines the physical diminution of the font currently selected in the DC.

- a) True
- b) False

137. Begin Paint() Prepares the windows client area for painting. a) True b) False

138. Rectangle function takes :

- a) 2 Parameters
- b) 5 Parameters
- c) 4 Parameters
- d) None Of the Above

139. The Windlass Structure must be registered with the window before it can be used to create a

1.window.

- a) True
- b) False

140. To halt the execution of a thread:

- a) Kill Thread()
- b) Suspend Thread()
- c) Terminate Thread()
- d) None of These

141. The following are the steps of SDLC

- a) Analysis
- b) Design
- c) Testing
- d) All of the above**

141. The SDLC Model most suitable for large projects with clear knowledge & priority of requirements is

- a) Spiral Model
- b) Incremental Model**
- c) Waterfall Model
- d) Prototyping Model

142. Which of the following is not true about the Waterfall Model?

- a) It is suited for small projects
- b) It does not consider risk handling
- c) It gives efficient staff utilization**
- d) It needs clarity of requirements at start.

143. Prototyping in software process may involve \_\_\_\_\_.

- a) Throw - away prototyping
- b) Evolutionary
- c) Both a and b options**
- d) None of these

144. Which of the following model may require largest deployment of manpower a)

- Incremental Model
- b) Waterfall Model
- c) Component Assembly Model
- d) RAD Model**

145. The majority of the lifetime of a program is spent in the \_\_\_\_\_ phase **a) Maintenance**

- b) Analysis
- c) Design
- d) Testing

146. In Boehm's spiral model, each loop in the spiral represents \_\_\_\_\_ of the software process **a) Phase**  
**b) Design**    **c) Documentation**    **d) None of the above**

147. Which of the following is seen in the DFD but not in the Context Diagram  
**a) Data Sources**    **b) Data Flows**    **c) Data Stores**    **d) Users**

148. Data flow cannot take place between  
**a) A store & a process**    **b) External entity & process**  
**c) Store & an external entity**    **d) Process& process**

149. "Balancing of DFD" is means  
**a) Conservation of inputs & outputs at various levels**  
**b) Sub dividing a process into smaller sub processes**  
**c) Labelling of all data items**  
**d) Allowing data flows to take place only to or from processes**

150. A data flow diagram is not a  
**a) Logical model of a system**    **b) Good guide to a system**  
**c) Representation of the physical system**    **d) All of these options**

151. DFDs, decision tables, decision trees are tools of  
**a) Requirements analysis**    **b) Requirements modelling**  
**c) Software Design**    **d) All of the above**

152. Which model used to show data processing at different levels of abstraction from fairly abstract to fairly detailed ?

**a) Semantic Data Models**    **b) Object Model**    **c) Data Flow Models**    **d) Service Usage Models**

153. \_\_\_\_\_ Models describe the logical structure of the data which is imported to and exported by the system.

**a) Object**    **b) Semantic data**    **c) Data flow**    **d) None of the above**

154. Which of the following is true about E-R Diagrams?

**a) They consist of object-relationship pairs**    **b) It indicates cardinality of relationships**  
**c) It indicates modality of relationships**    **d) All of the above**

155. Which of the following is not a characteristic of a good SRS document?

**a) Unambiguous**    **b) Verifiable**    **c) Redundant**    **d) Consistent**

156. Find the odd one out

**a) Axiomatic Specification**    **b) Algebraic Specification**  
**c) Z Specification**    **d) Data Flow Diagram**

157. Which is the most undesirable form of cohesion from the following options

**a) Sequential**    **b) Coincidental**    **c) Temporal**    **d) Communicational**



166. Cyclamate complexity is calculated from

- a) Data Flow Graph
- b) Structure Chart
- c) **Control Flow Graph**
- d) All of the above

167. Which of the following is true about McCabe's Cyclamate Complexity of a Program

- a) It is an indicator of the structural complexity of a program
- b) It gives the maximum no of independent paths in a program
- c) It is calculated from the no. of edges & nodes in the Control Flow diagram
- d) **All of the above**

168. Effective Software Project Management focusses on

- a) People
- b) Problem
- c) Process
- d) **All of above**

169. Which of the following is generally not a part of the SPMP document? a)

- Configuration Management Plan
- b) Quality Assurance Plan
- b) Risk Management Plan
- d) **Requirements Elicitation Plan**

170. Conversion of Adjusted Function Point Count to LOC count is dependent on

- a) Team Size
- b) Project Duration
- c) **Programming Language**
- d) Cost Drivers

171. The critical path of PERT/CPM chart cannot be

- a) The path with the longest duration
- b) More than one unique path
- c) **Path on which any delays are allowed**
- d) Path with same earliest and latest starts for all activities

172. Which of the following are Software Risk Components

- a) Performance
- b) Cost
- c) Schedule
- d) **All of the above**

173. The total float for an activity is a)

- The total duration of the activity
- b) The difference between the earliest finish time and earliest start time
- c) **The difference between the latest finish time and the earliest finish time**
- d) The difference between the latest finish time and the earliest start time

174. According to the staffing pattern of a software project follows the Rayleigh-Norden curve and peaks during the \_\_\_\_\_

- a) Detailed design
- b) **Coding & Unit testing**
- c) Integration Testing
- d) System Testing

175. Arrange the following activities in Risk Assessment in the correct sequence a. Prioritization b. Identification c. Analysis

- a) b, a, c
- b) **b, c, a**
- c) a, b, c
- d) c, a, b

176. Risk of unrealistic estimates & schedules can be overcome by

- a) Using objective methods of estimation rather than judgmental methods
- b) Developing a culture of software reuse
- c) Performing multisource estimations
- d) **All of the above**

177 Under SCM the various SCIs are strictly maintained

- a) By their respective authors
- b) By the appropriate team
- c) **In a central project database**
- d) All of the above

178 Cleanroom Software Development process is based on

- a) Formal Specification
- b) Static Verification
- c) Statistical Testing
- d) All of the above**

179. Which one of the following is method is not used in describing complex system process

- a) Decision table
- b) Structure English
- c) Finite automata
- d) Binary tree**

180. c from the relationship

- a) Productivity=KLOC/person-month**
- b) Productivity=KLOC/defects
- c) Productivity=KLOC/LOC
- d) Productivity=KLOC\*person-month

181. The goal of coding is

- a) To reduce the cost of testing
- b) To reduce the cost of maintenance
- c) Both a & b**
- d) None

182. Bottom of Form

Top of Form

Broad design of modules & their relationships is called

- a) External design
- b) Detailed design
- c) Architectural design**
- d) Process design

183. The choice of the Software Development Life Cycle Model to be followed for a project depends on

- A) Initial Clarity of Requirements
- B) Size of the Project
- C) Time Frame of the Project
- D) Clarity on Technical Issues
- c) A, B, C & D**
- d) A & D only

184. The SDLC Model most suitable for small projects with clear requirements is

- a) Spiral Model
- b) Incremental Model
- c) Waterfall Model**
- d) Prototyping Model

185. The Linear Sequential or Classic Life Cycle is also called

- a) Waterfall Model**
- b) Incremental Model
- c) Spiral model
- d) Prototyping Model

186. The waterfall model of the software process considers each process activity as a \_\_\_\_\_ phase

- a) Separate
- b) Discrete
- c) Both a and b options**
- d) None of the above

187. Which of the following is not a feature of RAD

- a) Well understood, constrained & modularizable requirements

- b) Component based construction & use of 4 GL
- c) Use of multiple teams each developing separate function
- d) **Project has high technical risks**

188. In the Spiral model the radius of the spiral at any point represents

- a) The level of risk
- b) The progress made in the current phase
- c) **The cost incurred in the project till then**
- d) None of these

189. \_\_\_\_\_ uses powerful development software and small, highly trained teams of programmers.

- a) Prototyping
- b) RAD**
- c) Coding
- d) Modeling

190. Planning the modular program structure & control relationships between modules is called

- a) Architectural Design
- b) High Level Design
- c) System Design
- d) All of the above**

191. Designers should aim to produce strongly \_\_\_\_\_ and weakly \_\_\_\_\_ designs

- a) coupled, functional
- b) Maintainable, cohesive
- c) Cohesive, coupled**
- d) Coupled, cohesive

192. Use of global data areas or global variables may lead to

- a) Stamp Coupling
- b) Common Coupling**
- c) Content Coupling
- d) Control Coupling

193. Function oriented design process consists of

- a) Data Flow Design
- b) Structural decomposition
- c) Detailed Design
- d) All of the above**

194. Transform Analysis performed on a DFD identifies the

- a) Afferent Branch
- b) Efferent Branch
- c) Central Transform
- d) All of the above**

195. The two questions "Are we building the right product?" & "Are we building the product right?" correspond to

- a) Verification only
- b) Validation only
- c) Validation & Verification respectively**
- d) Verification & Validation respectively

196. Which of the following is not a White box testing method

- a) Statement coverage
- b) Error guessing**
- c) Path coverage
- d) Condition Coverage

197. A Test case includes

- a) Input
- b) Expected output
- c) Information of function under test
- d) All of these options**

198. A stub is a dummy version of the \_\_\_\_\_ module of the module under testing

- a) Superordinate
- b) Subordinate**
- c) Coordinate
- d) All of the above

199. A driver is a dummy version of the \_\_\_\_\_ module of the module under testing **a) Superordinate**  
b) Subordinate c) Coordinate d) All of the above
200. \_\_\_\_\_ exercises the system beyond its maximum design load  
a) Thread testing **b) Stress Testing** c) Back to back testing d) All of the above
201. Presenting the same tests to different versions of the system and compare outputs is called  
a) Thread testing b) Stress Testing **c) Back to back testing** d) All of the above
202. Which of the following is not a part of Project Plan?  
a) Risk Management Plan b) Personnel Plan  
c) Project Mentoring Plan **d) Software Architecture Planning**
203. Which of the following is true for two projects of same category with the same estimated LOC size and using COCOMO for estimation  
A) The initial effort estimate for both projects will be same as both have same LOC  
B) The Effort Adjustment Factor will always be the same for both projects  
C) The final effort estimate will always be the same for both projects  
**a) Only A is true.** b) Only A & B are true c) Only C is true d) Neither A, B or C are true.
204. In COCOMO terminology a project with software being strongly coupled to complex hardware & stringent regulations on operating procedures is categorised as  
a) Organic b) Semidetached **c) Embedded** d) Application
205. The minimum time required to finish the project can be estimated by considering the \_\_\_\_\_ path in the activity graph  
a) Shortest **b) Longest** c) Average d) SPT
206. PERT/CPM cannot be used for  
a) Scheduling of projects b) Monitoring & Control of projects  
c) Optimizing Resource Utilization **d) Quality control of products**
207. Democratic team structure is suitable for projects  
a) With strict deadlines b) With clearly known requirements  
**c) With research orientation** d) None of these
208. \_\_\_\_\_ ensures that a set procedure is followed to make any changes to the software  
a) Configuration Identification **b) Configuration Control** c) Base lining d) All of the above
209. Configuration Management is  
a) Framework activity b) Umbrella activity  
**c) One time activity** d) None of the above
210. CASE stands for

- a) Computing Advanced System Engineering  
c) Calculating Arithmetic System Engineering

- b) Computer Aided Software Engineering**  
d) None of the above

211. Requirement phase is usually done by

- a) **System Analyst**      b) System Administrator      c) System Engineer      d) All

212. Which one of the following is not considered as parameter of function point a)

- Number of input    b) Number of interface  
c) Number of file      **d) Number of output data**

213. Cohesion is the concept which tries to capture this

- a) **Intra-Module**      b) Extra-Module      c) Inner-Module      d) Outer-Module

214. Functional approach is also known as

- a) Glass box testing      **b) Black box testing**  
c) Input box testing      d) Output box testing

215. Object oriented technology's use of \_\_\_\_\_ facilitates reuse of the code and architecture while its \_\_\_\_\_ feature provides systems with stability, as a small change in requirements doesn't require massive changes in the system.

- a) **Inheritance, Encapsulation**      b) Inheritance, Polymorphism  
c) Encapsulation, Polymorphism      d) Polymorphism, Abstraction

216. Which of the following steps do you think developers should take to create efficient compact applications?

- a. Clearly define initial requirements of the system  
b. concentrate earl development efforts on modeling implementation mechanisms  
c. Analyze and manage risk throughout the development process  
d. Leave all software testing until after system has been implemented  
**a) a, c**      b) a, b      c) a., b, d      d) a, b, c

217. Which of the following elements combine to form OOAD method

- a. Notation      b. Diagram      c. Process      d. View  
**a) a, c**      b) a, b      c) a, b, d      d) a, b, c

218. Which of the following are aims of UML? a.

- To model system using OO concepts  
b. To provide a process for software development  
c. To support small-scale and large-scale analysis and design  
d. To provide an insight into implementation mechanism  
**a) a, c**      b) a, b      c) a, b, d      **d) a, c, d**

219. Towards end of the design phase, \_\_\_\_\_ should be allocated to source code components.

- a) Use cases      b) Relationships      c) Models      **d) Classes**

220. What do you think is the first step you should take in designing any project?

- a) Design a prototype
- b) Create the test cases
- c) **Define problem domain and produce problem statement**
- d) Draw up a plan for entire project

221. Which of the following best describes what the problem domain is? a)

Kinds of resources available to development team

- b) **Surroundings in which system operate**
- c) Set of all functionality required of a system
- d) List of technical details needed to implement project

222. If you are finding hard to identify the name of class and to write definition for it. What thing you should do?

- a) Ignore class completely
- b) **Do more analysis to get a better understanding of what is involved in the class**
- c) Write a definition for the class even if it is not very good
- d) Make it a friend class of some other main class

223. Which of the following statements are true of use cases and use case models? a.

Functionality of a use-case has to be complete from start to finish

- b. Use case provide developers with classes and operations
- c. Use cases outline functionality of the system
- d. Use case models can be used to test the system

- a) a, b, c
- b) a, b, c, d
- c) a, c, d
- d) a, c

224. Class diagram represents

- a) **Conceptual design**
- b) Organization of objects
- c) Set of actions
- d) State machine

225. Collaboration diagram represents

- a) **Organization of objects**
- b) Messages on time scale
- c) Conceptual design
- d) Set of actions

226. State chart diagram

- a) Organization of objects
- b) Conceptual design
- c) Set of actions
- d) State machine**

227. In OOD primary abstraction mechanism is \_\_\_\_\_

- a) Function
- b) Class**
- c) Object
- d) Hierarchy

228. Incremental model \_\_\_\_\_

- a) **Delivers a system in a series of versions**
- b) Works with encapsulation and inheritance to simplify flow of control
- c) Builds a bridge between user and developer
- d) Uses experimental software to better understand user requirements

229. Prototyping model \_\_\_\_\_

- a) Delivers a system in a series of versions
- b) Builds a bridge between user and developer
- c) **Uses experimental software to better understand user requirements**
- d) Works with encapsulation and inheritance to simplify flow of control

230. software re-engineering actually means reverse engineers re-engineering is a type of software maintenance elements of software architecture of a computing systems include

- A. software components
- B. class diagrams
- C. connectors expressing relationships between software components
- D. E-R diagram

- a) A, B                   **b) A, C**                   c) A, C, D                   d) A, B, C, D

231. Project milestones are mainly divided in these two parts

- a) DFD and SRS
- b) Interface design and implementation
- c) Feasibility study and detailed design
- d) Requirements and design**

232. Which is not part of testing?

- a) White box testing                   b) Black box testing                   **c) Inner testing**                   d) Gorilla testing

233. Which is not part of phases of software development a)

High level design   b) low level design

- c) Mid-level design**                   d) Replication, delivery, installation

234. Which software development model incorporates risk management?

- a) Water fall model                   **b) Spiral model**                   c) Incremental model                   d) Object model

235. Largest time is spent on which of the software development phase?

- a) Testing                   **b) Enhancement**                   c) Bug fixing                   d) Analysis and design

236. Simple SDLC contain

- a) **Requirements, analysis, design, implementation, testing**
- b) Analysis, design, implementation, testing, deployment
- c) Analysis, design, implementation, testing, maintenance
- d) Requirements, analysis, design, implementation, deployment

237. DFD is not a

- |                                      |                           |
|--------------------------------------|---------------------------|
| a) <b>Logical model of system</b>    | b) Good guide to a system |
| c) Representation of physical stream | d) All of the above       |

238. Productivity metrics

- a) **Focuses on the output of the development process.**

b) Focuses on the characteristics of the software.

c) Provide indirect measure.

d) All.

239. Which is not a type of maintenance?

a) Adaptive

b) Corrective

c) Perfective

**d) Obsolescence**

240. Adaptive Maintenance is

a) To improve the system in some way by changing its basic functionality

**b) The maintenance due to changes in the environment**

c) The correction of undiscovered system errors

d) None of the above

241. Which of the following activities involves choosing a system structure capable of satisfying the requirement Specification?

a) Requirements Analysis

**b) Design**

c) Coding

d) Testing

242. Reliability in a software system can be achieved using the following strategies, EXCEPT a)

Fault avoidance

b) Fault tolerance

**b) Fault detection**

d) Fault rectification

243. The Software Development Life Cycle covers activities from

a) Feasibility Study to Installation

**b) Requirements Phase to Testing**

c) Requirements Phase to Maintenance

d) Project Initiation to Software Retirement

244. Identify the true statements about using a process for software development. a)

Processes usually divide software development into phases

b) Processes provide guidelines for what to do at each phase of development c)

Processes are used o

1) a and c

2) a and b

**3) a, b and d**

4) a, c and d

245. Process visibility is enhanced by

a) Defining clear cut phases

b) Producing documents related to each phase

c) Conducting reviews & checks

**d) All of the above**

246. Which of the following activities is not considered as "Umbrella Activity" a)

S/W Quality assurance

**b) Software Design**

c) S/W configuration management

d) S/W Project Monitoring & Control

247. What is the primary purpose of the first stage of software analysis and design? a)

Determining system deployment

b) Writing code

**c) Capturing requirements**

d) Building GUIs

248. SDLC starts with \_\_\_\_\_ stage

**a) User Requirement and Analysis**

b) Deployment

c) Testing

d) Design

249. The analysis phase takes an \_\_\_\_\_ approach to the system, ignoring its inner workings whereas the design phase takes an \_\_\_\_\_ approach, making decisions on how the model will be implemented in code
- a) White box & Black box      **b) Black box & White box**  
 c) Top-Down & Bottom-Up      d) Bottom-Up & Top-Down
250. The goal of \_\_\_\_\_ is to obtain a clear understanding of the system and its shortcomings and to determine opportunities for improvement
- a) Feasibility study      **b) Systems analysis**  
 b) c) Systems definition      d) Systems study
251. The last step in System Development Life Cycle is \_\_\_\_\_
- a) Analysis      b) Implementation      **c) Testing**      d) Maintenance
252. The \_\_\_\_\_ phase of the systems life cycle contains periodic evaluations and updates of the system
- preliminary  
 a) Investigation      b) Systems analysis  
 c) Systems implementation      **d) Systems maintenance**
253. During the \_\_\_\_\_ phase, the application is verified against the requirements
- a) Analysis      b) Design      **c) Testing**      d) Implementation
254. The type of software maintenance which is done to add new features to the product is called
- a) Corrective Maintenance      b) Adaptive Maintenance  
 c) Regressive Maintenance      **d) Perfective Maintenance**
255. Because of the cascade from one phase to another, the model of software development process is known as
- a) Evolutionary model      b) Formal model  
 c) **Waterfall model**      d) None of the above
256. Prototype may be used for
- a) Risk Reduction      b) Requirements Elicitation  
 c) User Interface Design      **d) All of the above**
257. RAD Model is high speed implementation of
- a) Waterfall Model**      b) Spiral Model  
 c) Prototyping model      d) Component Assembly model
258. \_\_\_\_\_ means to build a model that can be modified before the actual system is installed
- a) Maintenance      **b) Prototyping**      c) Implementation      d) None of the above

259. A requirement may be a description of  
a) Functionality to be provided                    b) Constraint on the software  
c) External interface                                d) All of the above

260. DFD gives idea about flow of \_\_\_\_\_ & flowchart gives idea of the flow of \_\_\_\_\_ a)  
Processes, decisions                                b) Control, data                                c) Logic, control                                d) Data, control

261. Data Models do not consider  
a) Attributes of the data object                    b) Relationships between data objects  
c) Operations that act on the data                d) Any of the above

262. Notations used to specify the external characteristics, architectural structure, and processing details of a software system include I. Data Flow Diagrams II. HIPO diagrams III.  
Structure Charts  
a) I and II Only                                      b) III Only    c) I, II and III                                      d) None of the above

263. Formal specification language consists of  
a) Syntax    b) Semantics                                        c) Set of relations                                    d) All of the above

264. The software architecture is best represented by  
a) Context Diagram                                    b) Flow Chart                                        c) Structure Chart                                    d) Data Flow Diagram

265. Using \_\_\_\_\_ a programmer can detail the logic of the program  
a) Pseudo code                                        b) Software    c) Context diagram                                    d) Data flow diagram

266. Which of the following is not true about a flow chart? a)  
It shows the flow of control of a program  
b) It is a tool for detailed design  
c) Data interchange is not represented  
d) It clearly separates various modules of the software

267. \_\_\_\_\_ involves modeling a system as a set of interacting functional units. a)  
Object oriented decomposition                        b) Procedural decomposition  
c) Functional decomposition                            d) None of the above

268. Typographical errors and/or incorrect use of the programming language is referred to as  
a) Logic errors                                        b) Syntax errors                                        c) Run time errors                                    d) A bug

269. Testing of software falls after \_\_\_\_\_ stage.  
a) Designing    b) Implementation                                    c) Deployment                                        d) Coding

270. Changes made to the software to accommodate changes to its environment is called a)  
Perfective maintenance                                b) Regressive maintenance  
c) Adaptive maintenance                                d) Corrective maintenance

271. Major changes made to software after long periods is also called software reengineering or

- a) Perfective maintenance
- b) Regressive maintenance**
- c) Adaptive maintenance
- d) Corrective maintenance

272. Function Point Count is dependent on

- a) Platform & Technology
- b) Team Size
- c) H/W & Software Resources
- d) Features & Functionalities**

273. In COCOMO terminology a project with mixed level of staff experience & part familiarity with the system being developed is categorized as

- a) Organic
- b) Semidetached**
- c) Embedded
- d) Application

274. The value of COCOMO cost driver attribute for higher than average Programmer Ability will be

- a) Greater than 1
- b) Equal to 1
- c) Less than 1**
- d) None of

these 275. \_\_\_ And \_\_\_ are graphical notations which are used to illustrate the project schedule.

- a) Bar chart and DFD
- b) ERD and Bar chart
- c) Class diagram and activity networks
- d) Bar char and activity networks**

276. Risk Assessment Table is based on categorization by

- a) Risk Components
- b) Risk Impact
- c) Both a and b options**
- d) None of the above

278. Risks arising out of frequent change requests are best mitigated by a)

- User characterization
- b) Strong SCM**
- c) Multisource estimations
- d) Prescheduling key personnel

279. Automated SCM tools help solve problem of

- a) Inconsistencies of SCIs
- b) Concurrent access to SCI
- c) Instability of development environment
- d) All of these options**

280. As per SEI CMM organizations which do not have any KPAs present & stable are considered at

- a) Level 1**
- b) Level 2
- c) Level 3
- d) Level 4

281. In which of the following phases of use-case driven process do you think use cases have a role?

a. requirement capture

b. analysis

c. design

d. implementation

e. test

- a) a, b, c
- b) a, b, c, d
- c) b, d
- d) a, b, c, e**

282. Sequence diagram represents

- a) Organization of objects
- b) Messages on time scale**



- a) Set objective or goal
- b) Develop strategies and policies
- c) Decision making
- d) Find out requirement

294. Which of the following is not part of spiral model?

- a) Planning
- b) Customer communication
- c) Project documentation
- d) Engineering

295. Pick up one of the testing methods given below that is part of white-box testing a)

- Euivalence partitioning
- b) Boundary value analysis
- c) Basis and testing
- d) Debugging

296. Following are the different steps that is to be followed in design methodology arrange them in an order.

- a) First level factoring
- b) factoring of input
- c) Restate the problem
- d) Identifying the input and output
- a, b, c, d
- b) c, d, a, b
- c) a, d, c, b
- d) a, c, b ,d

297. COCOMO is an effort estimation model in terms of \_\_\_\_\_

- a) Cost
- b) Person- Months
- c) Both
- d) None of the above

298. Pick the odd one out

- a) Component assembly model
- b) Spiral Model
- c) Incremental Model
- d) Iterative Model

299. During Requirements Phase recording interface requirements of a software system does not include which of the following interfaces

- a) User Interfaces
- b) Software Interfaces
- c) Hardware Interfaces
- d) Module Interfaces

300. External Entities in a Context Diagram may be

- A) People
- B) Other Software Systems
- C) Hardware
- D) Databases
- a) Only A & D
- b) Only B & C
- c) Only A, B & D
- d) A,B, C & D

301. Example of a Semantic Data model is

- a) Data flow diagram
- b) Context Diagram
- c) Entity Relationship Diagram
- d) All of the above

302. A system developed to give end users a concrete impression of the system capabilities is called

- a) Semantics
- b) Model
- c) Prototype
- d) Abstraction

303. Planning the solution to a programming problem using a structured technique is called program

- a) Coding
- b) Compiling
- c) Modeling
- d) Design

304. Conception & planning out of externally observable characteristics of a software is called a) External Design

- b) User Interface Design

- c) Both a and b options      d) None of the above

305. A way of indicating the desired effect without establishing the actual mechanism  
 a) Procedural Abstraction      b) Data Abstraction  
**c) Control Abstraction**      d) None of the above

306. The number & complexity of interconnections between two modules is an indicator of  
 a) Modularity      b) Cohesion      **c) Coupling**      d) Abstraction

307. The method of deriving the structure chart from the DFD is called  
 a) Factoring      b) Factor Analysis      **c) Transform Analysis**      d) All of the above

308. Which of the following is true about structure chart notations?  
 a) There should be only one module at the top  
 b) There should be at the most one control arrow between two modules  
 c) The sequence or order of tasks is not represented  
**d) All of the above**

309. A programmer must follow the rules for coding a particular programming language. These rules are called:

- a) Pseudo code      b) Iteration      **c) Syntax**      d) Documentation

310. \_\_\_\_\_ is the process of locating and eliminating program errors.  
 a) Editing      b) Correcting      **c) Debugging**      d) Testing

311. Changes made to the software to extend it beyond its original functionality is called

- a) Perfective maintenance**      b) Regressive maintenance  
 c) Adaptive maintenance      d) Corrective maintenance

312. COCOMO is categorized as a \_\_\_\_\_ estimation technique  
 a) Heuristic      b) Empirical      c) Analytical      d) None of the above

313. Which of the following is true as per Putnam model a)

- Staffing Pattern peaks at Coding & Unit testing  
 b) Schedule compression increases effort in proportion to fourth power  
 c) Expanding the schedule gives extreme saving in effort  
**d) All of the above**

314. RMMM is a Risk Management methodology which focusses on  
 Risk avoidance by developing a risk mitigation plan  
 b) Continuous risk monitoring throughout the project  
 c) Actually managing the risks when they become a reality by contingency planning  
**d) All of the above**

315. A change request has to be evaluated for

- a) Its technical merit
- b) Cost & schedule impacts
- c) Side effects
- d) All of these options**

316. Software quality managers are responsible for \_\_\_\_\_.

- a) Quality assurance
- b) Quality planning
- c) Quality control
- d) All of the above**

317. Which of the following are possible actors? a.

- data inputted
  - b. GUI component
  - c. Another system
  - d. A printer
- a) A, B, C
  - b) A, B, C, D
  - c) A, B, D**
  - d) A, C

318. UML can be used as a way to represent only OO software systems

- a) True
- b) False**

319. Use cases can be included in any type of collaboration diagrams.

- a) True
- b) False**

320. Which of the following is reason of project failure?

- a) Finite resources
- b) Inaccurate estimates of cost and time**
- c) Others are competing to do the job cheaper and faster
- d) None of the above

321. \_\_\_\_\_ is method for estimating software

- a) COCOMO
- b) Function point analysis
- c) Use case estimation
- d) All of the above**

322. Pick up odd one out of the following

- a) Component assembly model**
- b) Spiral model
- c) Incremental model
- d) Iterative model

323. Parts of design principle are

- a) Correctness, robustness, efficiency, flexibility, understandable
- b) Correctness, robustness, efficiency, flexibility, reusability**
- c) Flexibility, correctness, robustness, efficiency, standard
- d) Flexibility, correctness, robustness, efficiency, security

324. Which of the following can be a reason for project failure?

- a) Finite resources
- b) Inaccurate estimates of cost & time**
- c) Others competing to do the job cheaper & faster.
- d) None of the above

325. An approved feasibility study is a deliverable out of

- a) Systems design
- b) Preliminary investigation**
- c) Systems development
- d) Systems analysis

326. Checklists, grid charts, and decision tables are all tools used in the \_\_\_\_\_ step a)

- Preliminary investigation **b) Systems analysis**
- c) Systems development d) Systems implementation

327. The present system is studied in depth during the \_\_\_\_\_ phase of the systems life cycle.

- a) Preliminary investigation **b) Systems analysis**
- b) Systems design d) Systems development

328. The SDLC Model most suitable for small projects with unclear requirements is but not many technical risks is

- a) Spiral Model b) Incremental Model c) Waterfall Model **d) Prototyping Model**

329. Arrange the following Requirements sub phases in the correct order

- |                  |                      |               |                |
|------------------|----------------------|---------------|----------------|
| A. Documentation | B. Analysis          | C. Validation | D. Elicitation |
| a) A, B, C, D    | <b>b) D, B, A, C</b> | c) D, C, A, B | d) B, A, D C   |

330. Automated CASE tools like PSL/PSA do not help in

- a) Requirements Documentation
- b) Requirements Validation**
- c) Requirements Analysis
- d) Requirements Elicitation**

331. The requirement engineering process has the following stages, except a)

- Feasibility study **b) Requirement analysis**
- c) Implementation**
- d) Requirement definition

332. Concept of Abstraction is used in

- a) Requirements phase b) Design Phase c) Testing Phase **d) All of the above**

333. The number of subordinate modules controlled by a module is called its

- a) Control range **b) Fan out** c) Fan in d) Width

334. If two modules pass a data structure across their interface they exhibit

- a) Stamp Coupling** b) Data Coupling c) Content Coupling d) Control Coupling

335. The strength of relationship between which of the following elements of a module is examined to evaluate module cohesion

- a) Function declarations, function definitions& calls b) Variable declarations
- c) Data definitions **d) All of the above**

336. The graphical tool commonly used to represent the system architecture is called

- a) Context Diagram **b) Structure Chart** c) Architectural Plan d) Event Table

337. The value of COCOMO cost driver attribute for lower than average Reliability requirement will be

- a) Greater than 1
- b) Equal to 1
- c) Less than 1**
- d) None of these

338. Example of Software Configuration Items (SCI) is

- a) SRS
- b) Code
- c) User manual
- d) All of the above**

339. Top of Form Which of the following factors of a Software Product may not contribute much to its maintainability?

- a) Understand ability
- b) Flexibility
- c) Security**
- d) Testability

340. Your Answer: The Software Life Cycle covers activities from

- a) Feasibility Study to Installation
- b) Requirements Phase to Testing
- c) Requirements Phase to Maintenance
- d) Project Initiation to Software Retirement**

341. Any activity designed to keep programs in working condition, error free, and up-to-date, is referred to as \_\_\_\_\_

- a) Maintenance**
- b) Testing
- c) Debugging
- d) Coding

342. During the \_\_\_\_\_ phase of the systems life cycle, the new hardware and software are acquired and tested

- a) Design
- b) Development
- c) Implementation**
- d) Maintenance

343. E-R diagrams are used in

- a) Database design**
- b) Data Dictionary compilation
- c) Architectural design
- d) Functional Design

344. The flow of data within a system is described by a \_\_\_\_\_

- a) Data flow diagram**
- b) Top-down analysis
- c) System flowchart
- d) Decision table

345. Formal specification techniques are based on

- a) Set theory
- b) Logic
- c) Sequence
- d) All of the above**

346. Using the name of a sequence of instructions in place of the sequence of instructions is an example of

- a) Procedural Abstraction**
- b) Data Abstraction
- c) Control Abstraction
- d) None of the above

347. Providing a logical reference to the data object without concern for the underlying representation is

- a) Procedural Abstraction
- b) Data Abstraction**
- c) Control Abstraction
- d) None of the above

348. A module whose all elements exhibit relationship which involves both data and control flow is said to be \_\_\_\_\_ cohesive

- a) Sequentially
- b) Communicational
- c) Temporally
- d) Procedurally

349. The afferent branch of the DFD ends at the

- a) Most Abstract Input
- b) Most Abstract Output
- c) Middle of the central transform
- d) All of the above

350. I. Object-oriented software development creates better programs but is less efficient to use II. Object-oriented software development is more efficient than traditional methods.

III. OOP is a process that organizes a program into objects that contain both data and the processing operations necessary to perform a task

- a) I and II are correct
- b) II and III are correct
- c) I and III are correct
- d) I, II and III are correct

351. The if-then-else construct is an example of the

- a) Sequencing
- b) Selection**
- c) Iteration
- d) All of the above

352. Proper program layout by proper usage of proper use of indentation, blank spaces, blank lines, parentheses improves

- a) Efficiency of the program
- c) Maintainability of the program**
- b) Size of the program
- d) Reliability of the program

353. Static verification & validation is applied to

- a) SRS
- b) Design
- c) Code
- d) All of the above**

354. Static testing involves

- a) Code Analysis
- b) Structural Analysis
- c) Data Flow Analysis
- d) All of the above**

356. Statistical Testing is used for

- a) For statistical software's only
- c) Reliability estimation**
- b) Only uncovering defects
- d) Efficiency estimation

357. Which of the following is NOT true about software testing

- a) It follows a bottom up approach
- b) Testing is planned after the coding phase**
- b) Complete testing is not possible
- d) Testing only establishes presence of defects

358. Which of the following is NOT true with regard to Testing & Debugging

- a) Testing includes debugging**
- c) Testing only establishes presence of defects
- b) Debugging includes retesting
- d) Debugging repairs the program defects

359. Purely black box testing would be used at which of the following levels?

- a) Unit testing
- b) Module testing**

### c) Integration Testing

#### d) Acceptance Testing

360. Black box testing is more useful in locating

- a) Functional Errors      b) Performance Errors      c) Interface Errors      d) All of these options**

### 361. Test Data includes

- a) Set of inputs b) Set of expected outputs
  - b) c) Information of function under test d) All of these options

362. Testing strategies can be \_\_\_\_\_.



363. A stub is a dummy version of the \_\_\_\_\_ module of the module under testing

- a) Superordinate                  b) Subordinate                  c) Coordinate                  d) All of the above

364. Testing done with real data is called

- a) Data testing      b) Unified testing      c) Alpha testing      d) Beta testing

365. The following are the testing strategies except

- a) Top-down testing      b) Thread testing      c) **Stress testing**      d) Verification testing

366. An example of an Empirical Software estimation technique is

- a) COCOMO      b) FPA      c) Delphi      d) Halstead's Software Science

367. The Lines of Code (LOC) size do not include

- a) Compiler Directives      b) Declarations      c) Comments      d) All of the above

368. Repeatable level as per CMM model is

- a) Level 1                  b) Level 2                  c) Level 3                  d) Level 4

369. The collection of computer programs, |

- called -----

370. A context diagram contain

  - a) Only one process
  - b) More than one process
  - c) At least one process
  - d) None

371. The spiral model is both suitable for

- a) Development type projects b) Enhancement type project c) Both d) None

372. Three major factor of software engineering are

- a) Cost, Correctness, Reliability
- b) Cost, Quality, Correctness

- b) Cost, Schedule, Reliability**
- d) Cost, Portability, Reliability

373. Data flow can take place between

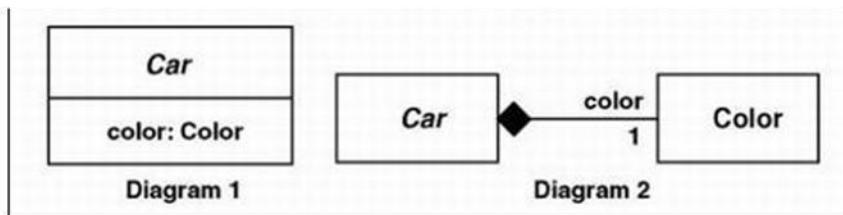
- a) Process to Process
- b) File to File
- c) Process to File
- d) External Entity to Process
- a) A, B, C
- b) B, C, D
- c) A, C, D**
- d) A ,B, D

374. Match the level testing can work on

- |                              |                       |                        |                       |
|------------------------------|-----------------------|------------------------|-----------------------|
| 1) Acceptance Testing        | 2) System Testing     | 3) Integration Testing | 4) Unit Testing       |
| a) Client Needs              | b) Requirements       | c) Design              | d) Code               |
| <b>a) 1-a, 2-b, 3-c, 4-d</b> | b) 1-d, 2-b, 3-c, 4-a | c) 1-a, 2-b, 3-d, 4-c  | d) 1-a, 2-c, 3-b, 4-d |

375. The first step in the project planning is:

- a) Size of the product
- b) Select team organizational mode
- c) Determine the Project constraints
- d) Establish objectives and scope



- a) 1: An aggregation, 2: A composition.
- c) 1: An aggregation, 2: An attribute.
- b) 1: An attribute, 2: An aggregation.
- d) 1: An attribute. 2: A composition.**

376. Phase containment of errors means.

- a) Detect errors to the closest point of errors.**
- b) Stop errors during software projects deployment.
- c) Stop errors during software projects coding
- d) None of the above.

377. The most commonly used model in today's development is **a)**

- Waterfall model**
- b) Spiral model
- c) Iterative waterfall model
- d) None of the above.

378. What is “Customer must have at least a Pentium machine to access this software” in context of Software Requirements,

- a) Assumption
- b) Objective
- c) Business Problem
- d) All of the above

379. For a Leave Application System, an "Employee" can use the system to request for leaves and a "Manager" can approve/reject the leaves. The data will be stored within a "Leave database" as part of this system. In this scenario, identify the valid actors from the following for this system.'

- i) Employee
- ii) Manager
- iii) Leave Database
- iv) Leave Application System
- a) None of the above
- b) i, ii
- c) iii, IV
- d) All of the above**

380. A timing constraint placed on the system or the use of a specific language during development, is an example of

- a) Functional requirements
- b) Non-functional requirements**
- c) Requirements definition
- d) None of the above

381. What is a Requirement definition?

- a) What software provides.
- b) Requirements in SRS**
- c) What customer wants?
- d) All of the above

382. Which of the following is a tool in design phase?

- a) Abstraction
- b) Refinement
- c) Information hiding
- d) All the above**

383. The data flow diagram

- a) Depicts relationships between data objects
- b) Depicts functions that transform the data flow
- c) Indicates how data are transformed by the system**
- d) Both b and c

384. Content testing uncovers

- a) Syntactic errors
- b) Semantic errors**
- c) Structural errors
- d) All of the above

385. Which of these are standards for assessing software processes?

- a) SEI R
- b) SPICE
- c) ISO 9001**
- d) Both b and c

386. Methods of Project Monitoring are

- a) Time sheet
- b) Earned value method
- c) Design Constraints
- d) Both a & b**

387. Risk projection attempts to rate each risk in two ways

- a) Likelihood and cost
- b) Likelihood and impact**
- c) Likelihood and consequences
- d) Likelihood and exposure

388. Effective risk management plan needs to address which of these issues?

- a) Risk avoidance
- b) Risk monitoring
- c) Contingency planning
- d) All of the above**

389. To quantify a risk we need to do the following

- a) Determine the possibility of risk happening
- b) Both a and b.**
- c) Determine consequences of the problem associated with that risk.
- d) None of the above.

390. Deliverable for a software Project is

- a) Source Code
- b) Design Documents
- c) Requirement Documents and Test Plans
- d) All of the above**

391. Scoping is done during,

- a) Proposal Stage
- b) Requirements gathering stage**
- c) Design Stage
- d) Coding Stage

392. A software engineer is measuring the quality of a software system. He is concerned with the 'reliability' and the "validity' of his measurements. Which of the following is true?

- a) Reliability refers to the extent to which the measurement represents the actual quality of the system and validity refers to the consistency of the quality measurements
- b) Reliability refers to the consistency of her quality measurements and validity refers to the extent to which the measurement represents the actual quality of the system.**
- c) Reliability refers to the accuracy of her quality measurements and validity refers to the extent to which the measurement follows a quality standard.
- d) Reliability refers to the concurrency of her quality measurements and validity refers to the extent to which the measurements are consistent with established norms.

393. Quality attributes are the overall factors that affect

- a) Run-time behaviour
- b) System design
- c) User experience
- d) All of the above**

394. Testing is a

- a) Process of executing a program with intent of finding an error**
- b) Process of removing error
- c) Process of testing software
- d) All of the above**

396. Black box testing checks the following errors

- a) Incorrect function
- b) Interface errors
- c) Both a & b
- d) None of the above**

397. A method of estimating the amount of functionality required for a project is

- a) WBS Estimation
- b) UCP Estimation
- c) FP Estimation estimation**
- d) COCOMO

398. Scheduling begins with \_\_\_\_\_

- a) Risk identification
- b) Process decomposition**
- c) FP Estimation
- d) COCOMO estimation

399. Aggregation represents

- a) Is a relationship
- b) Part of relationship
- c) Composed of relationship
- d) None of above

400. Modules X and Y operate on the same input and output data. The cohesion is said to be

- a) Sequential
- b) Communicational**
- c) Procedural
- d) Logical

401. Estimates are made in a project primarily on

- a) Size**
- b) Cost
- c) Both a and b.
- d) None of the above

402. SPMP document is made at the end of

- a) Project planning**
- b) Project monitoring
- c) Project control
- d) None of the above

403. While gathering the requirements on OO way (using RUP UML), the very first thing we should do it

- a) Start gathering functional requirements
- b) List down all the Users of the System (called as Actors)
- c) Start gathering non-functional requirements
- d) Create Test plan

404. What is the solution to "Yes-But Syndrome" in requirements gathering?

- a) Improve technical skills
- b) Seek customer feedback early**
- c) Learn a tool for requirements
- d) None of the above

405. Which of the following statements is true regarding scenarios?

- a) Scenarios are instances of a use case.
- b) Scenarios are generalizations of many use cases.
- c) A use case is an instance of a scenario.
- d) None of the above

406. Which of the following is true about a Build?

- a) A Build represents an operational version of a system or a part of the system that demonstrates a subset of the capabilities provided in the final product.
- b) A Build constitutes an integral part of the iterative development lifecycle and provides review points.
- c) Each Build is placed under configuration control in case there is a need to roll back to an earlier version when added functionality causes breakages or when there is otherwise some form of compromised Build integrity.
- d) All of the above**

407. What is the Cost of quality, Failure cost, prevention cost, and appraisal cost?

- a) 120, 35, 37, 50
- b) 37, 95, 120, 40
- c) 95, 37, 13, 45**
- d) 120, 13, 45, 40

408. Prevention cost iv) Efforts spent on reviews and testing

- a) a-iv b-iii c-ii d-I
- b) a-iv b-ii C-iii d-I
- c) a-II b-IV c-i d-III**

Top of Form

409. Software Engineering is concerned with\_\_\_\_\_.

- a) Process
- b) Methods
- c) Tools
- d) All of the above**

410. Static verification of code is not likely to reveal

- a) Logic errors
- b) Syntax errors
- c) Performance errors**
- d) Coding standard violations

411. Which factor among the following has least effect on the testability of a software?

- a) Decomposability
- b) Efficiency**
- c) Understand ability
- d) Observability

412. Identification of inputs which cause anomalous behaviour in the outputs indicating the existence of defects is

- a) Static Testing
- b) White Box Testing
- c) Black Box Testing**
- d) Interface testing

413. In unit testing which of the following is the strongest testing strategy?

- a) Statement coverage
- b) Branch Coverage
- c) Condition Coverage
- d) Path coverage**

415. Selection of test paths according to definition & usage of different variables in the program is called

- a) Path coverage testing
- b) Condition Coverage testing
- c) Data Flow Testing**
- d) Branch Coverage Testing

416. Compared to small team projects large team projects are

- a) More sensitive to programmer ability
- b) less sensitive to programmer ability**
- c) Not sensitive to programmer ability
- d) None of these

417. Which version of COCOMO develops estimates for large projects as sum of estimates of its various subsystems by considering the differences in the complexities of its various sub systems?

- a) Basic COCOMO
- b) Intermediate COCOMO
- c) Complete COCOMO**
- d) None of the above

418 Structural approach is also known as

- a) Glass box testing**
- b) Black box testing
- c) Input box testing
- d) Output box testing Top of Form

419. Ability of a software to perform stated function under stated condition for a stated period of time

- a) Efficiency
- b) Robustness
- c) Reliability**
- d) Correctness

420. Among the following types which is the most undesirable form of coupling

- a) Stamp Coupling
- b) Common Coupling
- c) Content Coupling
- d) Control Coupling**

421. Which of the following would NOT appear as a symbol on a flowchart?

- a) **Data type**
- b) Decision
- c) Input/output
- d) Processing

422. All of the following are control structures used in structured programming, EXCEPT

- a) Iteration
- b) Selection
- c) Sequence
- d) Go to**

423. In \_\_\_\_\_, the tester can analyse the code and use knowledge about the structure of a component to derive test data

- a) Black box
- b) White box**
- c) Stress testing
- d) None of the above

424. What are the components of a thin client model in Client/Server architecture? a)

Client (Presentation) – Server (Data Management, Application Processing)

b) Client (Application Processing) – Server (Data Management)

- c) Client (Data Management) –Server (Application Processing)
  - d) Client (Application Processing) – Server- Client (Data Management)

425. Iterative method contains the feature of

- a) Water fall method b) Prototype method c) Both d) None

426. Which of following order is true in software engineering life cycle

- a) **SRS, Design, Coding, Testing**
  - b) Design, Coding, Testing, SRS
  - c) SRS, Design, Testing, Coding
  - d) Coding, Testing SRS, Design

427. Which is the most commonly used debugging approach?

- a) Brute force      b) Back tracking      c) Cause elimination    d) None of the above

428. Four important characteristics of a software product are

Dependability, usability, reliability, robustness

b) Maintainability, dependability, efficiency, usability

c) Supportability, maintainability, visibility, rapidity

d) None of the above

429. Enough time will be left at the end of the project to uncover errors that were made because we rushed through the process. The moral is: Don't rush

- Through it! \_\_\_\_\_ is worth the effort. (Clue: both the blanks to be the same word)

a) Coding      b) Design      c) Testing      d) None of the above

430. Who should perform the validation test?

- a) Software developer      b) Software user  
b) c) A group of developers and users      d) None of the above

431 Find the activity, which is not part of version management

- a) Controlled change b) Storage management c) Coding standard d) None of the above

432. Testing

- a) Installs guilt      b) Is punishment      c) Is to find errors      d) None of the above

### 433. Which is more important?

- a) Product                  b) Process                  c) Quality                  d) None of the above

434. The sooner you begin , the longer it will take to get done.

- a) Coding                  b) Testing                  c) Design                  d) None of the above

435. Verification is to check

- a) Whether we are building the right product

- b) Whether we are building the product right
- c) Neither of the above
- d) None of the above

436. Pick up the correct sequence of processes
- a) Requirements, Analysis, Test case design, Design
  - b) Requirements, Analysis, Design, Test case design
  - c) Requirements, Test case design, Analysis, Design
  - d) None of the above

437. A software quality assurance activity that is performed by software engineers
- a) Coding
  - b) Formal technical reviews
  - c) Design
  - d) None of the above

438. In what manner, coding and testing are done
- a) Top-down
  - b) Bottom-up
  - c) Cross-sectional
  - d) Adhoc

439. Which of the following is generally not contained in a feasibility document
- a) Problem descriptions
  - b) Project name
  - c) Feasible alternative solutions
  - d) Data-flow diagrams

440. The initiation of a systems investigation may result from
- a) An analysis investigation
  - b) A manager's formal request
  - c) Scheduled system review
  - d) All of the above

441. Which of the following is not a factor in the failure of a systems development Project?
- a) Inadequate user involvement
  - b) Failure of systems integration
  - c) Size of the company
  - d) Continuation of a project that should have been cancelled

442. "The probability of failure free operation of a computer program in a specified Environment for a specified time" is the definition for

- a) Quality
- b) Reliability
- c) Operability
- d) None of the above

443. The four icons used in building Data Flow Diagram are
- a) Flow, Source, Store, Process
  - b) Flow, Process, Source, Store
  - c) Flow, Process, Source/Destination, Store
  - d) Source, Process, Destination, Store

444. Which of the following is (are) not a tool for Application Prototyping?
- a) Application generates
  - b) Third generation language
  - c) Screen generators
  - d) Report generators

- 445 All of the following tools are used for process description except
- a) Structured English
  - b) Decision tables
  - c) Pseudo code
  - d) Data Dictionaries

446. Which of the following activities does not belong to the Implementation phase of the SDLC?
- a) File conversion
  - b) Program testing
  - c) User training
  - d) All of the above

447. Which of the following is not true of the conversion phase of the development life Cycle?

- a) The user and systems personnel must work closely together
- b) Steps must be taken to phase out the old system
- c) Documentation should be emphasized
- d) The non-machine components of the system should be considered

448. Benchmarking is used

- a) To select computer systems
- b) To maintain files is p-to-date condition
- c) For application proto-typing
- d) For system acceptance

449. Which is the first phase of the Waterfall software process model?

- a) Design
- b) Prototype
- c) Testing
- d) Requirement

450. What is the purpose of use cases in UML?

- a) Requirements of capture
- b) Define how the software system will be used
- c) Describe what the user expects to do with the system
- d) Make clear what the stakeholders needs are

451. With their correct characteristics:

Y1: Risks are assessed and activities put in place to reduce the key risks

Y2: Specific objectives for the phase are identified

Y3: The project is reviewed and the next phase of the spiral is planned

Y4: A development model for the system is chosen which any can be of  
The generic models

- a) X1-Y3 X2-Y1 X3-Y2 X4-Y4
- b) X1-Y2 X2-Y3 X3-Y4 X4-Y1
- c) X1-Y2 X2-Y1 X3-Y4 X4-Y3
- d) X1-Y3 X2-Y2 X3-Y1 X4-Y4

452. Indicate what information is provided by Functional requirements?

X1: The constraints on the services or functions offered by the system such as Timing constraints

X2: How the system should behave in particular situation

X3: The constraints on the development process, standards

X4: How the system should react to particular inputs

- a) X2, X4
- b) X1, X2, and X4
- c) X1, X3
- d) X2, X3, and X4

453. Function point is

- a) A pointer to a function
- b) A point where the function is written in a code
- c) A method of estimating the amount of functionality required for a program
- d) A function named “point”

454. A system version

- a) Is an instance of a system deployed at the client side

- b) Is an instance of a system that differs in some way from other instances
- c) Should either include new functionalities or should be intended for a different hardware platform
- d) Is created to fix reported faults as part of development process

455 What is synchronization control in configuration management? a)

It governs which software engineer have the authority to access & modify a

- b) Particular configuration object
- c) It helps to ensure that parallel changes performed by two different people don't overwrite one another
- d) It synchronizes two different system versions to form a single versions
- e) It helps to synchronize the source code files to form deployable version

456 The currently known containment effectiveness of faults introduced during each

Constructive phase of software development for a particular software product is Ratio of  
(Actual project duration) to (estimated project duration)

(Number of pre-release Defects) to (number of pre-release Defects) to (number of pre-release  
Defects + number of post release Defects)

(Number of phase i errors) to (number of phase i errors + number of phase i defects) (Number  
of failure) to (Execution time)

457 SRS is maintained in configuration environment as

- a) Software design baseline
- b) Software development baseline
- c) Software artefact's
- d) Software product baseline

458 Following is the SCM audit tool

- a) Requirement metrics
- b) PERT charts
- c) Source Code
- d) Design Document

459 Delphi method of cost estimation uses

- a) Functional point analysis
- b) SLOC expressed in KDSI
- c) PERT model using effort calculations
- d) Decomposition method of cost estimation

460 Validate that the functions meet started requirements or not is called as

- 
- a) Unit testing
  - b) System testing
  - c) Integration Testing
  - d) Acceptance Testing

461 What do you mean by incremental testing?

- a) White box testing
- b) Black box testing
- c) Top-down testing
- d) Independent testing

462 Verification should be performed for \_\_\_\_\_

- a) Requirements
- b) Design
- c) Code construction
- d) All of the above

463 Validation is mostly used to determine the \_\_\_\_\_ of the final  
software/program.

- a) Correctness
- b) Consistency
- c) Completeness
- d) Quality

464. Quality control procedures are \_\_\_\_\_  
a) Preventive costs      b) Appraisal costs      c) Failure costs      d) None of the above
465. Who should be involved in determined risk management?  
a) Customer      b) Management      c) Development team      d) All of the above
466. Which of the following is an attribute of Quality?    a) Process    b) Product    c) Standard    d) Policy
467. The system design SDLC phase is immediately followed by \_\_\_\_\_ a)  
Program and training      b) Initiation      c) Standard      d) Policy
468. Resource planning, audit planning, estimation, scheduling are the some of the tasks carried out in \_\_\_\_\_  
a) Initiation phase      b) System design phase      c) Definition phase    d) Evaluation phase
- 469 System reviews and software testing are examples of \_\_\_\_\_  
a) Quality control      b) Quality assurance    c) Quality audits    d) None of the above
470. \_\_\_\_\_ is done without executing the code.  
a) Registration      b) Unit      c) System      d) Static
471. Which of the following is not a white box testing technique?  
a) Statement coverage      b) Equivalence Partitioning  
c) Decision/condition coverage      d) Multiple condition coverage
472. Which of the following task is not performed by v & v management?  
a) Create the software v & v plan      b) Conduct the management review of v & v  
c) Support management and technical reviews      d) Conduct in-process reviews
473. A standard must be \_\_\_\_\_  
a) Measurable, Attainable and critical      b) Smart, Measurable and Time-bound  
b) Measurable, Achievable and Clear      d) Approved, Available and Attainable
474. Which are the four primary standards of ISO 9000?  
a) ISO 9000, ISO 9001, ISO 9004, ISO 10010      b) ISO 9000, ISO 9001, ISO 9006, ISO 10011  
c) ISO 9000, ISO 9001, ISO 9004, ISO 10011      d) ISO 9000, ISO 9001, ISO 9004, ISO 10054
475. Cost of quality includes \_\_\_\_\_  
a) Preventive, Corrective & control      b) Preventive, detective & control  
c) Preventive, appraisal & failure      d) None of the above
476. AQL stands for?

- a) Allowable quality level      b) Allocated quality level  
c) Acceptable quality level      d) Allowed quality level
477. Quality assurance is a function responsible for \_\_\_\_\_.  
a) Controlling quality      b) Managing quality      c) Inspections    d) Removal of defects
478. \_\_\_\_\_ is used to perform structured analysis and to document the result.  
a) DFD      b) UML      c) COCOMO      d) None of the above
479. Reverse engineering of data focuses on \_\_\_\_\_.  
a) Database structures      b) Internal data structures    c) Both 1 & 2      d) None of the above
480. System Test will not include \_\_\_\_\_.  
a) Approach      b) Risks      c) Suspension and Resumption criteria      d) None of the above
481. As series of definable, repeatable and measurable tasks leading to useful result is called \_\_\_\_\_.  
a) Program      b) Process      c) Activity      d) Controller
482. The first step in project planning is to \_\_\_\_\_.  
a) Determine the budget      b) Determine the project constraints  
c) Establish the objectives and scope      d) Select a team organizational model
483. Which of the following is a characteristic of a good decision? a)  
Includes test cases for all components  
b) Exhibits strong coupling between its modules  
c) Implements all requirements in the analysis model  
d) Incorporates source code for descriptive purposes
484. Which of the following characteristics of a strong design?  
a) Low coupling      b) High cohesion      c) Modular      d) All of the above
485. Which of the following is a disadvantage of outsourcing? a)  
Reduces technical know-how for future innovation  
b) Increases degree of control  
c) Increases vulnerability of strategic information  
d) Increases dependency on other organizations
486. If a linear process models all steps come after finishing of a step then that model called \_\_\_\_\_.  
a) Spiral      b) Prototype      c) Water fall model      d) None of the above
487. Cyclomatic Complexity method comes under which of the following testing method? a)  
White box      b) Black box      c) Green box      d) Yellow box

488. Which of the following provides the foundation for team development?

- a) Motivation
- b) Organizational development
- c) Conflict management
- d) Individual development

489. Which of the following is a key to effective software engineering?

- a) Good skills
- b) Good design
- c) Good Management
- d) None of the above

490. Estimation for the satisfaction of the identified user needs is known as \_\_\_\_\_ a)

- Feasibility study
- b) Requirements evolution
- c) Requirements capture
- d) None of the above

491. Translating the algorithm into a programming language occurs at the \_\_\_\_\_ step of the SDLC

- a) Debugging
- b) Coding
- c) Testing and Documentation
- d) Algorithm Development

492. Who designs and implement database structures?

- a) Programmers
- b) Project managers
- c) Technical writers
- d) Database administrators

493. The \_\_\_\_\_ determines whether the project should go forward or not a)

- Feasibility assessment
- b) Opportunity identification
- c) System evaluation
- d) Program specification

494. 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

495. Evolutionary software process models \_\_\_\_\_ a)

- Are iterative in nature
- b) Can easily accommodate product requirements changes
- c) Do not generally produce throwaway systems
- d) All of the above

496. Which of the following is not a part of testing?

- a) White box testing
- b) Black box testing
- c) Inner testing
- d) Gorilla testing

497. Quality assurance \_\_\_\_\_

- a) Focuses on removal of defects before release
- b) Is a set of planned and systematic actions to provide confidence that a product or service will satisfy given requirements for quality
- c) Is to check the system for its interface errors
- d) None of the above

498. \_\_\_\_\_ is the chain of activities that determines the duration of the project

- a) Object points
- b) LOC
- c) Lines of code
- d) Critical path

499. Debugging is a consequence of \_\_\_\_\_ a)  
An unsuccessful test  
b) An error in design  
c) A successful test  
d) A metric that describes the degree to which a software product meets its requirements

500. In object-orientation, polymorphism means \_\_\_\_\_ a)  
There can be many objects in the design  
b) Methods can be changed in many ways  
c) Many ways can be instantiated of a class  
d) Objects can implement the same method in many ways

501. The spiral model of software development \_\_\_\_\_ a)  
Ends with the delivery of the software product  
b) Is more chaotic than the incremental model  
c) Includes project risks evaluation during each iteration  
d) All of the above

502. The objective of software project planning is to \_\_\_\_\_ a)  
Convince the customer that a project is feasible  
b) Enable a manager to make reasonable estimates of cost and schedule  
c) Make use of historical project data  
d) Determine the probable profit margin prior to bidding on a project

503. Which of the following is not a section in the standard for SQA plans recommended by IEEE?  
a) Documentation      b) Reviews and audits    c) Test    d) Budget

504. Which of the following tasks is not part of software configuration management?  
a) Change control      b) Reporting    c) Statistical quality control    d) Version control

505. How many steps are in the program development life cycle (PDLC)?  
a) 4                      b) 5                      c) 6                      d) 10

506. \_\_\_\_\_ is a measure of independence of a module or component?  
a) Cohesion              b) Coupling              c) Loop coupling              d) Loop cohesion

507. The purpose of requirement phase is \_\_\_\_\_  
a) To freeze requirements              b) To understand user needs  
c) To define the scope of testing              d) All of the above

508. A modular design has \_\_\_\_\_  
a) High cohesion, low coupling and high abstraction  
b) High cohesion, low coupling and low abstraction  
c) Low cohesion, low coupling and high abstraction

d) High cohesion, high coupling and high abstraction

509. The outcome of the analysis phase is

- a) **Sufficient understanding of the problem to write a design specification.**
- b) Sufficient understanding of the problem to write a formal description of it.
- c) Sufficient understanding of the problem to suggest a solution (or solutions)
- d) Sufficient understanding of the problem to write a code specification.

510. Corrective maintenance is related to a)

- Making the system more functional
- b) **Correcting the fault that could not be found during testing**
- c) Making the system work in new environment
- d) All of the above

511. Testing is done with the objective of \_\_\_\_\_.

- a) **Finding new errors in the software**
- b) Correcting errors in the software
- c) Both 1 and 2
- d) None of the above

512. If a software had 5 failures in 100 tests during 10 days of testing (Assume 10 tests Per day), what would be a good estimate of the reliability of the software over the Next week? (Assume 5 working days in a week)

- a) 0.0275
- b) 0.5987
- c) 0.0769**
- d) 0.9500

513. A requirements specification is

- a) A general list of things that the proposed software ought to do
- b) **A precise and mathematical list of things that the proposed software ought to do**
- c) A formal list of things that the proposed software must do
- d) A list of software and hardware resources needed for completing the proposed system

514. Which of the following is the input to the feasibility study?

- a) Outline description of the system
- b) Set of preliminary business requirements
- c) How the system is intended to support business process
- d) All of the above**

515. Assuming that the tests are representative of the operational situation, then calculate the Reliability of a software system that has had 10 failures in 200 test cases.

- a) 0.95**
- b) 0.9
- c) 0.1
- d) 1

516. A critical task is one with\_\_\_\_\_

- a) Minimum slack time
- b) Maximum slack time
- c) No slack time**
- d) None of the above

517. Which of the following is identified as critical for success in software development process? a) Adopting SDLC configuration management

- b) Adopt Continuous risk management

c) Both 1 and 2

d) Choice 2 only

518. How maintainability can be achieved? a)

Through Error recovery

b) When the S/W process evolves to reflect changed organizational requirements or identified process improvements

c) Both 1 and 2

d) None of the above

519. Which testing methods are used by end-users who actually test software before they use it?

a) White Box testing b) Alpha and Beta testing c) Black box testing d) Trial and Error testing

520. What do you mean by non-functional requirements? a)

User requirements

b) Requirements definition

c) A timing constraint placed on the system or the use of a specific language during Development

d) None of the above

521. The project plan should be regularly revised during the project.

a) Yes b) No

c) It cannot be changed, it is to be followed

d) It is made only once at the start of project

522. A program's control flow structure indicates \_\_\_\_\_

a) Correct program

b) The sequence in which the program's instructions are executed

c) High-level language programming

d) All of the above

523. Bar charts and activity networks are graphical notation which are used to illustrate the

a) Project Plan b) Project dependencies c) Project Schedule d) Project Risk Analysis

524. Which factor is not contributing to software crisis?

a) Larger problem sizes

b) Skill shortage

c) Low productivity improvements

d) None of the above

525. Spiral mode \_\_\_\_\_ a)

Is an example of exploratory programme

b) Is characterized by the assessment of management risk items

c) Both 1 and 2

d) None of the above

526. Cohesion is \_\_\_\_\_

a) Measure of quality

b) Concept related to testing

c) Understandability

d) **Measure of closeness of the relationships between the system's components**

527. Which term defines the process of project compliance with policies and procedures? a)

Quality control b) Quality assurances

c) Quality audits d) **Quality control**

**management**

528. Which of these terms apply to identify quality standards and how to satisfy them?

a) Quality projections b) **Quality management** c) Quality overview d) Quality planning

529. Acceptance test plan is \_\_\_\_\_

a) **Most likely to arise from the requirements specification process**

b) Most likely to arise from the System integration

c) Both 1 and 2

d) None of the above

530. Visibility of design means \_\_\_\_\_

a) Efficient design b) Less complex design

c) Good quality, consistent document d) **None of above**

531. Project quality management includes \_\_\_\_\_

a) **All activities of the performing organization that determines policies and responsibilities of a project**

b) Performance quality control

c) Error detection

d) None of the above

532. Important distinction between the spiral model and other software process model is

a) Explicit consideration of planning next phase

b) Explicit consideration of Validation

c) **Explicit consideration of Risk Assessment and Reduction**

d) Explicit consideration of Objective setting

a)

533. Capability maturity model \_\_\_\_\_ a)

Gives description for software process

b) **States what activities are necessary for success**

c) Describes how activities are to be performed

d) Compare essential difficulties of software

534. Validations is to check \_\_\_\_\_

a) Whether we are building the product right **product**

b) **Whether we are building the right**

c) The methodology of software development

d) The methodology of software testing

535. Which lifecycle model would you use for developing a commercial web site that requires About 8 months of effort from a team of 6 people?

- a) Opportunistic
- b) Waterfall**
- c) Incremental
- d) Spiral

536. Deliverables are usually milestones but milestones need not be deliverables

- a) True
- b) False
- c) May be true
- d) None of the above

537. The execution of every possible test case is called as \_\_\_\_\_

- a) Static analysis
- b) Dynamic testing
- c) Structural testing
- d) Exhaustive testing**

538. Configuration Management is not related with

- a) Controlling changes to the source code
- b) Choice of hardware configuration for an application**
- c) Controlling documentation for an application
- d) Maintaining versions of software

539. Which of the following statement is correct?

- a) The project schedule is usually represented a set of charts showing the work.
- b) The project schedule is usually represented as a set of charts showing the activities Dependencies and staff allocations
- c) The project schedule is usually represented as a set of charts showing the work breakdown and activities dependencies
- d) The project schedule is usually represented as a set of charts showing the work Breakdown, activities dependencies and staff allocations**

540. Which is true about regression testing?

- a) Regression testing is carried out if the system underline is an upgraded or corrected Version
- b) Regression testing checks that there is no side effect after changes
- c) Both 1 and 2**
- d) None of the above

541. Which of the following is true about integration testing?

- a) Integration testing aims to find out the errors related to various module interfaces
- b) Integration testing is a kind of testing, which is carried out while constructing or integrating the system
- c) Integration testing is a kind of testing, which is carried out after constructing or integrating the system**
- d) Both 1 & 2

542. Which of the following is not a queued message?

- a) WM\_TIMER
- b) WM\_QUIT
- c) WM\_COMMAND
- d) None of these**

543. Which of the following is not a resource?

- a) Bitmap
- b) Dialog box Template
- c) Html document
- d) None of these**

544. Which of the following is the resource?

- a) Bitmap
- b) Html document
- c) Dialog templates
- d) All of the above.

545. Which function is used to compare the regions?

- a) Equal to
- b) EqualRgn
- c) CompareRgn
- d) CmpRgn

546. Which of the following is a non-queue message?

- a) WM\_COMMAND
- b) WM\_QUIT
- c) WM\_TIMER
- d) All of the above

547. Which function is used to convert white to black and black to white?

- a) Convert
- b) Invert
- c) Insert
- d) None of above

548. Which API is used to copy and stretch the bitmap?

- a) Bible
- b) StretchBlt
- c) PatBlt
- d) None of above

549. Which of the following is a resource?

- a) Bitmap
- b) Dialog box template
- c) Html document
- d) All of the above

550. By default polygon is?

- a) Dot-dash
- b) Solid**
- c) Transparent
- d) None of the above

551. Begin thread present in which header file?

- a) Winuser.h
- b) Windows.h
- c) Process.h**
- d) None of the above

552. What function to stretch the bitmap is used?

- a) Stroll()
- b) BitBlt
- c) Stretchable()**
- d) Bitmap

553. Which of the following is not a virtual key?

- a) VK\_PREV
- b) VK\_NEXT
- c) VK\_UP
- d) None

554. Which of the following is the blocking function?

- a) Get message()**
- b) Post quit message()
- c) Dispatch message()
- d) Translate message()

555. To achieve a good design, different modules should have \_\_\_\_\_.

- a) Weak cohesion and low coupling
- b) Weak cohesion and high coupling
- c) Strong cohesion and low coupling**
- d) Strong cohesion and high coupling

556. Spiral model \_\_\_\_\_

- a) Is an example of exploratory programming?
- b) Is characterized by the assessment of management risk items.**
- c) Both 1 and 2

d) None of the above

557. Cohesion is \_\_\_\_\_. a)

Measure of quality

b) Concept related to testing

c) **Understandability**

d) Measure of closeness of the relationships between the system's components.

558. The data items that are exchanged between the different functions are represented as

a) Design phase

**b) DFDs**

c) ER Diagram

d) Data Structure

559. Which of the following software development life cycle shows high amount of risk analysis?

a) Water fall model

**b) Spiral model**

c) V – Shaped model

d) Incremental model

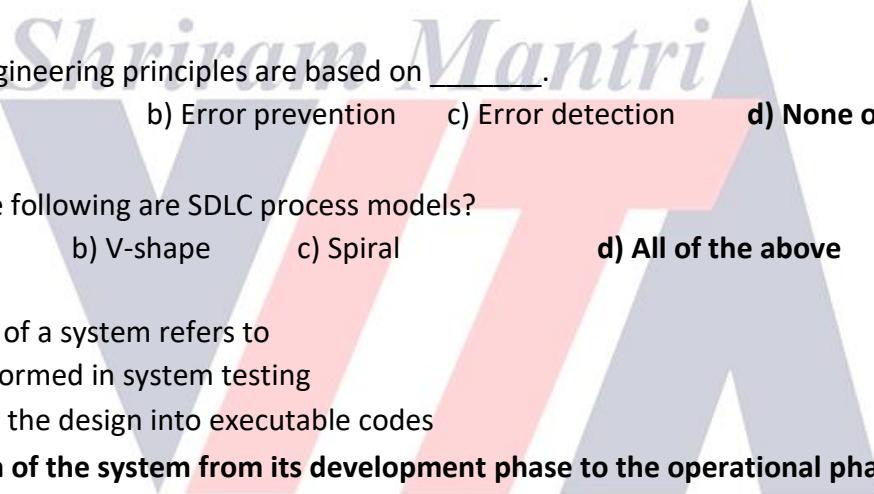
560. Design phase will usually be \_\_\_\_\_.

a) Bottom-up

**b) Top-down**

c) Random

d) Centre fringing

561. Software engineering principles are based on \_\_\_\_\_.  


a) Error correction

b) Error prevention

c) Error detection

**d) None of the above**

562. Which of the following are SDLC process models?

a) Waterfall

b) V-shape

c) Spiral

**d) All of the above**

563. Deployment of a system refers to

a) Activities performed in system testing

b) Implementing the design into executable codes

c) **The transition of the system from its development phase to the operational phase.**

None of the above

d)

564. Please match the Spiral model sectors: (X-Y)

X1: Objective setting

X2: Risk assessment and reduction

X3: Development and validation

X4: Planning with their correct characteristics:

Y1: Risks are assessed and activities put in place to reduce the key risks

Y2: Specific objectives for the phase are identified

Y3: The project is reviewed and the next phase of the spiral is planned

Y4: A development model for the system is chosen which can be any of the generic models a)

X1-Y3, X2-Y1, X3-Y2 X4-Y4

**b) X1-Y2, X2-Y3, X3-Y4 X4-Y1**

b) c) X1-Y2, X2-Y1, X3-Y4 X4-Y3

d) X1-Y3, X2-Y2, X3-Y1 X4-Y4

565. The requirement should specify \_\_\_\_\_

a) Why

**b) What**

c) How

d) All of the above

566. V Shape Model \_\_\_\_\_

- a) Builds the throwaway version intend to test concept & requirements
- b) Adds risk analysis, and 4gl RAD prototyping to the waterfall model
- c) Is a variant of the Waterfall that emphasizes the verification and validation?
- d) None of the above

567. Just as the entry point to a C program is the function main(), the entry point to a Windows program is \_\_\_\_\_.(Win Main() )

568. The three main Windows libraries are \_\_\_\_\_, \_\_\_\_\_ & \_\_\_\_\_. (Kernel32, User32, GDI32)

569. The size of Unicode character is \_\_\_ bits. (32)

570. Create Window () function sends the \_\_\_\_\_ message. (WM\_CREATE)

571. Update Window () function sends the \_\_\_\_\_ message. (WM\_PAINT)

572. Post Quit Message () function posts the \_\_\_\_\_ message. (WM\_QUIT)

573. Get Message () function retrieves a message from the \_\_\_\_\_. (Message queue)

574. Translate Message () function is used for \_\_\_\_\_ translation. (Keyboard)

575. Window procedure function is a \_\_\_\_\_ function. (CALLBACK)

576. TA program can call its own window procedure by using the \_\_\_\_\_ function. (Send Message)

578. Dispatch Message () function passes the MSG structure back to \_\_\_\_\_. (Windows)

579. The very first message that a window procedure receives is \_\_\_\_\_. (WM\_CREATE)

580. Register Class () associates a window procedure to the \_\_\_\_\_. (window class)

581. Everything that happens to a window is relayed to the \_\_\_\_\_ in the form of message. (Window Procedure)

582. \_\_\_\_\_ API is used for sub classing. (Set Window Long() )

583. \_\_\_\_\_ API is used for character translation of keystrokes. (Translate Message() )

584. Message \_\_\_\_\_ occurs when the user clicks an item on the menu bar or presses a menu key.(WM\_INITMENU)

585. \_\_\_\_\_ API is used to kill a modal dialog box. (End Dialog() )
586. \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ are windows resources defined in a .Res file. (Any three of these –ICON / CURSOR / STRINGTABLE / DIALOG / MENU / BITMAP)
587. \_\_\_\_\_ API is used to set the text of an edit control. (Set Window Text() )
588. \_\_\_\_\_ And \_\_\_\_\_ are GDI objects.  
(Any two from Brush / Pen / Region / Font / Palette / Bitmap)
589. When there is no message in the queue, Peek Message () function returns \_\_\_\_\_.  
a) True      b) False
590. System keystrokes are generated for keys typed in combination with the \_\_\_\_ key. (Alt)
591. System keystroke messages are \_\_\_\_\_ and \_\_\_\_\_. (WM\_SYSKEYDOWN,  
WM\_SYSKEYUP)
592. The virtual key code is stored in the \_\_\_\_\_ parameter of the WM\_KEYDOWN message.  
(wParam)
593. The repeat count field is stored in the \_\_\_\_\_ parameter of the keystroke messages.  
(lParam)
594. \_\_\_\_\_ Function is used for checking the type of information available in clipboard. (Is  
Clipboard Format Available ())
595. \_\_\_\_\_ Function is used to open the clipboard. (Open Clipboard())
596. \_\_\_\_\_ Function is used to clear the clipboard. (Empty Clipboard ())
597. \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ are windows resources defined in a .Res file. (Any  
three of these –ICON / CURSOR / STRINGTABLE / DIALOG / MENU / BITMAP)
598. \_\_\_\_\_ Function is used to clear the clipboard. (Empty Clipboard())
599. Get Message () returns\_\_\_\_\_, when it retrieve WM\_QUIT message form the messagequeue.  
(0)  
(window class)
600. Window messages are defined in both windows.h and \_\_\_\_\_ header files. (winuser.h)
601. The repeat count field is stored in the \_\_\_\_\_ parameter of the keystroke messages.

(IParam)

602. Software acts with a dual role as –

- a) Application software and embedded software
- b) Embedded software and Product-line software
- c) **Software product and Environment or application tool for software product development**
- d) Application software and Data storage

603. Software Engineering encompasses -

- |                                       |                                  |
|---------------------------------------|----------------------------------|
| a) <b>Process, Methods, and Tools</b> | b) Process, Product, and Methods |
| c) Methods, Tools, and People         | d) People, Process, and Product  |

604. Which one of the following is correct list of prescriptive process model?

- |  |  |
|--|--|
| a) Waterfall, Incremental, Spiral,               | b) Waterfall, V-shaped, Prototyping        |
| c) Prototyping, Spiral, Adaptive S/w development | <b>d) Waterfall, Incremental, V-shaped</b> |

605. Customer needs important functionality to be implemented at earliest?

- |              |                |                       |        |
|--------------|----------------|-----------------------|--------|
| a) Waterfall | b) Prototyping | <b>c) Incremental</b> | d) RAD |
|--------------|----------------|-----------------------|--------|

606. Risk analysis and 4gl RAD prototyping is added to the waterfall model to form a ----- model

- |                  |                |             |        |
|------------------|----------------|-------------|--------|
| <b>a) Spiral</b> | b) Prototyping | c) V-shaped | d) RAD |
|------------------|----------------|-------------|--------|

607. ----- model is a variant of the Waterfall model, which also emphasizes the verification and validation

- |              |                |                       |                    |
|--------------|----------------|-----------------------|--------------------|
| a) Waterfall | b) Prototyping | <b>c) Incremental</b> | d) <b>V-shaped</b> |
|--------------|----------------|-----------------------|--------------------|

608. Requirement should specify

- a) Hardware required to complete the project
- b) Resource requirement
- c) **A precise and mathematical list of things that describes what proposed software should provide**
- d) Description of how to develop the system

609. Stakeholders are asked to rank / prioritise requirements & discuss conflicts in priority in ----- stage of requirement engineering.

- |                        |                |                  |                       |
|------------------------|----------------|------------------|-----------------------|
| a) Conflict resolution | b) Elaboration | c) Specification | <b>d) Negotiation</b> |
|------------------------|----------------|------------------|-----------------------|

610. Use-cases are defined from ----- point of view

- |                      |                 |                           |                      |
|----------------------|-----------------|---------------------------|----------------------|
| <b>a) An actor's</b> | b) A function's | c) An actor and functions | d) None of the above |
|----------------------|-----------------|---------------------------|----------------------|

611. Product requirements, Organizational requirements, & External requirements are example of

- |                            |                                       |
|----------------------------|---------------------------------------|
| a) Domain requirements     | <b>b) Non-functional requirements</b> |
| c) Functional requirements | d) None of the above                  |

612. Which of the following models collectively form the design model?

- a) **Data design, Architectural design, Interface Design, Component Design**
- b) Data design, Architectural design, System design, Program design
- c) Architectural design, Interface Design, Functional design, Class design
- d) None of the above

613. Which of the following is FALSE statement?

- a) Abstractions allows designers to focus on solving a problem without being concerned about irrelevant lower level details
- b) Modularity is ability to understand the software by examining its components independently
- c) **Control hierarchy represents the procedural aspects of the software**
- d) None of the above

614. Coupling is --

- a) Qualitative indication of the degree to which a module focuses on just one thing
- b) **Qualitative indication of the degree to which a module is connected to other modules & to outside world**
- c) Both 1 & 2
- d) None of the above

615. Validation process checks –

- a) **Whether we are building the right product**
- b) Whether we are building the product right
- c) Whether we are testing the product
- d) Whether we are testing the product

616. Smoke testing is an ----- testing approach, which is used when software is being developed a) Unit testing b) Regression testing c) **Integration testing** d)Acceptance testing

617. ----- is conducted at developer's site by end-users

- a) Beta testing
- b) **Alpha testing**
- c) White box testing
- d)None of the above

618. Unit testing is

- a) A Black box testing
- b) **A White box testing**
- c) An User Acceptance Testing
- d) Not a testing

619. ---- provides the maximum number of test cases that will be required to guarantee that every statement in program has been executed at least once.

- a) Independent Program paths
- b) **Cyclomatic complexity**
- c) Graph Matrices
- d) None of the above

618. Reliability is indicated by following attributes -

- a) **Maturity, fault tolerance, recoverability**
- b) Understandability, learnability, accuracy
- b) Suitability, accuracy, compliance
- d) All of the above

619. Warranty work is an example of -----

- a) Prevention cost
- b) **External failure cost**
- c) Internal failure cost

622. There are --- levels of CMMI



623. The objective of project planning is to provide a)

## **Hardware & software requirement**

- b) Framework that helps to make reasonable estimates of resources, cost and schedule**
  - c) Only the list of risks identified
  - d) None of the above

624. Pick up the correct statement from following

- a) Project estimates should not be updated during project development
  - b) Project estimates should be updated only at the end of the project
  - c) **Project estimates should be updated as the project progresses**
  - d) None of the above

625. The purpose of project management is –

- a) Prediction and prevention**
  - b) Prediction and reaction**
  - c) Recognition and reaction**
  - d) None of the above**

626. Software project management is ----- within SDLC

- a) A phase                    b) An umbrella activity                    c) A milestone                    d) None of the above

627. Which one of the following is FALSE STATEMENT?

- a) Gantt charts are often used for displaying the project schedule
  - b) Gantt chart shows both planned and actual schedule information
  - c) **CPM is used for finding total project cost**
  - d) Critical path is the longest path through the network diagram

628. In Software project management, 4 Ps have to be managed in following order -

- a) Project, People, Product, Process**      **b) Process, Problems, People, Product**  
**c) People, Product, Process, Project**      **d) Product, People, Process, Problem**

629. Scheduling begins with -----Risk identification

- ### a) Process decomposition      b) FP Estimation      c) COCOMO estimation

630. One of the limitations of FP analysis is

- a) Evaluation effort is small
- c) Does not provide phase-wise break up

- b) Facilitates verification
- d) None of the above

631. Which one of the following is true?

- a) Deliverables are usually milestones but milestones need not be deliverables

b)

All milestones are deliverables

c) Deliverables & Milestones are always deliverables

d) None of the above

632. Risk assessment is done in

a) Analysis Phase

b) Design Phase

c) Coding Phase

d) All phases of the project

633. Risk score (or Risk Exposure) is a product of

- a) Probability of occurrence and Impact on project should the risk occur

b) No. of resources on project and daily per person rate

c) Probability of occurrence and total No of resources

d) None of the above

631. Risk assessment Process involves

a) Risk identification, Treating problems, Issue resolution

b) Identify problems, Resolve problems, Report problem

- c) Risk Identification, Assessment & Measurement, Planning, Tracking, Control

d) None of the above

632. In Risk management, the purpose of Risk Assessment is

- a) To convert risk data into decision making information

b) To shift the impact of the threat to a third-party

c) To reduce probability and impact

d) To define roles and responsibilities

633. Software requirements should not be

a) Functional

b) Ambiguous

c) consistent

634. The decision logic is expressed by

a) Data flow diagram

b) Flow chart

c) Structure chart

635. Validation is to check

a) Whether we are building the product right

b) Whether we are building the right product

c) The methodology of software development

636. Corrective maintenance is to

a) Improve the system in some way without changing its functionality

b) Correct the undiscovered errors

c) Make changes in the environment

637. Analysis phase is

- a) Not to actually solve the problem
- b) Not to determine exactly what must be done to solve the problem
- c) To move quickly to program design

638. Object models

- a) Should include details of the individual objects in the system
- b) Are part of design?
- c) Are natural ways of reflecting the real world entities that are manipulated by the system?

639. The three classes of interface errors are:

- a) Interface misuse, interface misunderstanding, timing errors
- b) Interface misunderstanding, interface coupling, data transfer errors
- c) Interface coupling, timing errors, interface parameter errors

640. Find the activity which is not part of version management

- a) Controlled change
- b) Storage management
- c) Coding standard

641. Which is the non-technical factor of maintenance cost?

- a) Program age
- b) Programming style
- c) Program validation

642. Software quality assurance is a)

- A multi-tiered testing strategy
- b) A measurement and reporting mechanism
- c) An activity that is applied throughout the software process.

643. Most common but least effective way of debugging is

- a) Brute force
- b) Backtracking
- c) Cause elimination

644. Equivalence partitioning is a)

- A white-box testing method
- b) A black-box testing method
- c) Neither white-box nor black-box testing method

645. Doing what is said one would do, is the definition for

- a) Reliability
- b) Quality
- c) Software plan

646. The typical elements of the requirements engineering process are

- i) Problem analysis
  - ii) Software design
  - iii) Analysis of staffing needs
  - iv) External behaviour specification
- a) i and iv
  - b) ii and iii
  - c) i, iii and iv
  - d) i, ii and iii

647 In object models, information hiding conceals

- a) Operations      b) Attributes      c) Methods      d) State and behaviour

**Fill in the blanks :**

648. \_\_\_\_\_ is an iterative process through which the requirements are translated into 649. A "blueprint" for constructing the software.

Answers the followings in brief:

650. Explain the concept of black box.  
651. What are the qualities of software?  
652. Give the various steps in prototyping.  
653. What are the various fact-finding Techniques?  
654. What are the types of decision tables?  
655. What are the structures of Structured English?  
656. Give a brief note on acceptance testing.  
657. Define coupling and cohesion.  
658. What is maintenance? Explain about various types of maintenance.  
659. Differentiate between Decision Tree and Decision Table.  
660. Give the coding guidelines.  
661. Give the debugging approaches.  
662. Why Software doesn't wear out.  
663. Explain about Dos and Don'ts of good coding style.  
664. Give the contents of SRS document.  
665. Explain briefly about SEI CMM.  
666. What is feasibility study? Explain about various aspects of feasibility.  
667. Define normalization and explain about first three normal forms. 668. What is changeover?  
What are the types of changeover?  
669. Differentiate between Black Box and White Box testing  
670. Explain about Interview as a Fact Finding technique  
671. What are the various factors that influence software cost-estimation?  
672. Write a short note on structured charts.  
673. Explain about the various concepts of a system.  
674. Give Salient features of CASE tools.  
675. Explain about various stages of software Development according to classical life cycle.

Answers the followings in detail:

675. Compare and contrast the two life cycle models viz. Waterfall and Spiral models.  
(Mention at least three distinct aspects).  
677. State the importance of requirements management in a software development  
678. Discuss and compare the coupling and cohesion in software design  
679. Discuss the trade-off between error checking execution time / memory space overhead.  
680. How can the overhead be reduced or eliminated?  
681. Give some reasons for using global variables than parameters. What are the potential  
Problems created by the use of global variables?  
682. Explain why it is very difficult to produce a complete and consistent set of requirements.

683. Discuss the differences between object-oriented and function-oriented design strategies 684. Explain why maximising cohesion and minimising coupling leads to more maintainable Systems 685. Show using a small example, why it is practically impossible to exhaustively test a Code.
686. List at least five distinct tests to exercise the various features of the PowerPoint Software used for slide preparation and projection.
687. Develop a high level data flow diagram for an airline reservation system
- 688 Develop test plan for the library management system (List at least five test cases). 689. Rewrite the following requirements so that they may be objectively validated. You may 690. Make any reasonable assumptions about the requirements.
- a) The software system should provide acceptable performance under maximum load Conditions
- b) Structured programming should be used for program development
- c) The software must be developed in such a way that it can be used by inexperienced Users.
691. Model the data processing which might take place in an electronic mail system that can Send and receive messages from remote computers.
692. Discuss the advantages of incremental model as compared to water fall model.
693. Can a program be correct and still not be reliable? Explain
694. Discuss how you would approach the top-down design of a software system.
695. Discuss at least three reasons that would highlight the importance of software Maintenance.
696. Compare and contrast the white-box and black-box testing methods. 697. Discuss the importance of documentation in software development. 698. Discuss the pros and cons of the COCOMO model for cost estimation 699. Make a structure chart for the following:
700. Given an array of integers, arrange them in ascending order using quick sort method.
701. Develop a software review checklist for use by the designer and the implementer.  
What issues are important to each of these roles?
702. Develop an architecture and also flow diagrams (up to 2 levels) for the following:  
“Consider the automation of the transaction at the registration counter of a post-office. A Scanner is provided to capture the "from" and "to" addresses from the envelop. The clerk uses your software to issue receipts to the customers. This is expected to reduce the Waiting time at the counter.”  
Suppose that a 50-KDSI (Thousands of delivered source instructions) application Program can be purchased for Rs. 2,000,000/- Assuming that your in-house programmers Cost Rs.30, 000/- per programmer month (including overheads), would it be more cost Effective to buy the product or to build it?
- A Manager decides to use the reports of code inspections as an input to the staff Appraisal process. These reports show who made and who discovered program errors. Is This ethical managerial behaviour? Would it be ethical if the staff were informed in advance? That this would happen? What difference might it make to the inspection process?

Apply a "stepwise refinement process" to develop three different levels of procedural Abstraction for developing a cheque writer that, given a numeric rupees amount, will print the amount in words that is normally required on a cheque.

703. Derive a set of test cases for a code which sorts arrays of integers. Draw a flow graph for an algorithm of your choice and derive its cyclomatic complexities

A university intends to procure an integrated student management system holding all Details of registered students including personal information, courses taken, and Examination marks achieved. The alternative approaches to be adopted are either Buy a database management system and develop an in-house system based on this database.

- a) Buy a system from another university and modify it to local requirements
- b) Join a consortium of other universities, establish a common set of requirements and
- c) Contract a software home to develop a single system for all of the universities in the Consortium. Identify two possible risks in each of these strategies.

- 704 Consider the error messages produced by MS-DOS or UNIX or WINDOWS operating System. Suggest how they might be improved.

705. Develop at least two levels of procedural abstraction for implementing the savings bank Transactions in a banking system.

706. Draw a flow graph for the following and find its cyclomatic complexity: Given 1000 numbers, arrange them in ascending order using any one of the sorting methods.

707. Oxford College of Commerce is an undergraduate college. The college receives sufficiently large number of application for admission to FY, SY and TY B. Com. Classes.

708. The college has decided to computerize its admission procedure. The standard admission Procedure requires adhering to the norms set by concerned government agencies, the University and the college administration. The procedure also involves disbursing admission Forms at a cost, collecting duly completed forms, preparing merit lists and admitting the Students as per norms, notifying student, collecting fees, preparing and submitting reports to concerned authorities. By carefully studying the case you are required to solve the following:

- a) Draw a context level and first level DFD
- b) Identify the various reports required

709. Discuss the advantages and disadvantages of using the "antibugging" technique to provide built-in debugging assistance to uncover errors.

710. Contract a software home to develop a single system for all of the universities in the Consortium. Identify two possible risks in each of these strategies.

711. Design test cases for the following problem: Given a quadratic equation, solve it to find the roots.

712. Draw the context level diagram for a payroll system

713. Prepare Context diagram for the saving bank deposit and withdrawal system in a nationalized bank. Also draw the first level DFD for the same.

714. Rational College of Commerce is an undergraduate College. The college receives sufficiently large number of applications for admission to FY, SY and TY. B com classes.

The college has decided to computerize its admission program. The standard admission Procedure requires adhering to the norms set by concerned government agencies, the University and the college administration. The procedure also involves disbursing admission Forms at a cost, collecting duly completed forms, preparing merit list and admitting students

As per norms, notifying students, collecting fees, preparing and submitting reports to the concerned authorities You are required to identify:

(i) Entities:

- a) Processes                    b) Data flows                    c) Data Stores

715. Which SDLC Model is best suited when only part/some of the requirements are known at the beginning

- a) Waterfall Model            b) Incremental Model            c) Prototype Model    d) Spiral Model

716. In case of Bank, what will be the relationship between "Opening of Account" use case and "Deposit" Use case?

- a) Uses                        b) Extends                        c) Includes                    d) None of the above

717 \_\_\_\_\_ is an entity that is external to the system & directly interacts with the system and deriving some benefits from the interaction.

- a) Actor                        b) Use case                        c) Class                        d) Relationship

718. Review activity of any software is under which kind of Testing?

- a) Black Box Testing            b) Static Testing    c) Dynamic Testing    d) White Box Testing

719. Equivalence Partitioning is a test case generation technique, for \_\_\_\_\_ kind of Testing Technique.

- a) Static Testing                b) White Box Testing            c) Black Box Testing            d) Red Box Testing

720. In the Project Management Triangle. Which parameter is most important?

- a) Time                        b) Scope                        c) Cost                        d) All of the above are equally important

721. Quality assurance help for

- a) Process improvement            b) Testing  
c) Removal of defects before release            d) All of the above

722. Refers to the support phase of software development.

- a) Adaption                        b) Enhancement                    c) Maintenance                    d) Actions

723. Which one of the following is the process of factoring the design module? a)

- Software re-engineering            b) Configuration management  
c) Software maintenance            d) software Refactoring

724. Which of the following process is not part of Project Risk Management? a)

Risk Identification b) Effort estimation

c) Risk Analysis d) Risk Response Development

725. Enhances performance 8. Functionality of the software after delivery.

a) Re-design b) Re-engineering c) Maintenance d) Post checking

726. Which of the following is not a stage of requirement engineering process? a)

Feasibility study b) Requirement analysis

c) Requirement definition d) Implementation

727. Which of the following meetings is not part of Scrum? a)

Product review meeting b) Sprint review meeting

c) Sprint planning meeting d) Sprint retrospective meeting

728. In Scrum, the prioritized work to be done is referred to as

a) Sprint planning b) Product backlog c) Sprint retrospective d) Standup meetings

729. Software risk impact assessment should focus on consequences affecting \_\_\_\_\_ a)

Planning resources oost & schedule b) Marketability oost & personnel

c) Business, technology & process d) Performance support, oost & schedule

730. The process starting with the terminal modules is called\_\_\_\_\_ a)

Top-down integration b) Bottom-up integration

c) Module integration d) None of the above

731. To check whether we are developing the right product according to the customer requirements or not. This is known as static process.

a) Validation b) Quality Assurance c) Verification d) Quality Control

732. A reliable system will be one:

a) That is unlikely to be completed on sdtedule b) That is unlikely to cause a failure

c) That is likely to be fault-free c) That is likely to be liked by the users

733. To test a function, the programmer has to write a passes it test data.

a) Stub b) Proxy c) Driver d) None of the above

734. When a new testing tool is purchased.it should be used first by: a)

A small team to establish the best way to use the tool

b) Everyone who may eventually have some use for the tool

c) The independent testing team

d) The vendor contractor to write the initial scripts

735. Pick up IEEE the best definition of software engineering?

- a) Set of computer programs. Procedures and possibly associated document conoemed with the operation of data processing.
- b) Software engineering is Design Coding Development
- c) Software engineering implement a single independent function
- d) Software engineering is the establishment and use of sound engineering practice in order to produce economical and reliable software that will perform n efficiently on real machine

736. Agile methods are known as

- a) Predictive                  b) Adaptive                  c) Process Oriented                  d) Short term process methods.

737. The identification of stakeholders and user classes in requirements engineering is carried out in

- a) Elicitation                  b) Analysis                  c) Verification                  d) Specification

738. Which among the following gives a chronological record of relevant details about the execution of tests?

- a) Test incident report                  b) Test log                  c) Test summary report                  d) None of the above

739. What is not included in a System Requirement Specification Document?

- a) Scope                  b) Specific Requirements                  c) Design Solutions                  d) References

740. Project risk factor is considered in

- a) Spiral Model                  b) Waterfall Model  
c) Prototyping Model                  d) Iterative enhancement Model

741. Formal Reviews of an individual product used to evaluate correctness based on its input criteria are

- a) Inspections                  b) Checkpoint review                  c) Testing                  d) Walkthrough

742. Which of the below listed processes is not part of Project Planning

- a) Identify Constraints                  b) Identify Algorithms                  c) Identify Risks                  d) Identify Milestones

743. Which Agile principle can help in chaordic situation?

- a) Incremental Delivery                  b) Continuous Integration  
c) PMO Policy                  d) Latest Technology

744. Which of the Unified Process model for software development? a)

- Inception phase                  b) Elaboration phase  
c) Consumption phase                  d) Validation phase

745. Which of the following is not one of Hookers core principles of software engineering practice?

- a) All design should be as simple as possible, but no simpler  
b) A software system exists only to provide value to its users.

- c) Pareto principle (20% of any product requires 80% of the effort)  
 d) Remember that you produce others will consume

746. Which of the following is valid reason(s) for collecting customer feedback concerning delivered software?  
 a) Allows developers to make changes to the delivered increment

- b) Delivery schedule can be revised to reflect changes  
 c) Developers can identify changes to incorporate into next increment  
 d) All of the above

747. Which of the following is not generally considered a player in the software process?

- a) Customers                  b) End-users                  c) Sales people                  d) Project managers

748. Does an organization develop one lifecycle model?

- a) For all the projects                  b) For each project                  c) For each domain

750. Find the odd one out of the following:

- a) Step wise refinement                  b) Structural design                  c) Information hiding

751. Corrective maintenance is to

- a) Improve the system in some way without changing its functionality  
 b) Correct the undiscovered errors  
 c) Make changes in the environment

752. Analyse phase is

- a) Not to actually solve the problem  
 b) Not to determine exactly what must be done to solve the problem  
 c) To move quickly to program design

## Basic

Q.1 From the following which quality deals with maintaining the quality of the software product?

- a. Quality assurance    b. **Quality control**    c. Quality efficiency    d. None of the above

Q.2 Function-oriented design is comprised of many smaller sub-systems known as, Functions.

- a. Yes                  b. No

Q.3 State if the following are true or false.

For scheduling a project, it is necessary to:

- 1) Break down the project tasks into smaller, manageable form.
- 2) Find out various tasks and correlate them.
- 3) Estimate time frame required for each task.
- 4) Divide time into work-units.

- a. True                  b. False

Q. 4 Software project manager is engaged with software management activities. He is responsible for \_\_\_\_\_ .

- a. Project planning.                  b. Monitoring the progress

c. Communication among stakeholders  
None of the above

**d. All mentioned above**

e.

Q.5 Software is not considered to be collection of executable programming code, associated libraries and documentations.

a. True                   **b. False**

Q.6 Which quality deals with the maintaining the quality of the software product?

a. Quality assurance      **b. Quality control**      c. Quality Efficiency   d. None of the above

Q.7 Choose the correct option according to given below statement.

Statement 1: Umbrella activities are independent of any one framework activity and occur throughout the process.

Statement 2: software quality assurance, software configuration management are umbrella activity.

Statement 3: software quality assurance, software configuration management are not umbrella activity.

a. Only statement 1 is correct.      **b. Statement 1 and statement 2 are correct .**  
c. Only statement 3 is correct.      d. Statement 1 and statement 3 are correct.

Q.8 The interviews, which are held between two persons across the table is \_\_\_\_\_.

a. Written      b. Non-structured      c. Group      **d. One-to-one**

Q.9 Which of these primary objectives have to be achieved for the requirement model?

- a. To describe what the customer requires
- b. To establish a basis for the creation of a software design
- c. To define a set of requirements that can be validated once the software
- d. All mentioned above**

Q.10 When elements of module are grouped because the output of one element serves as input to another element and so on, it is called \_\_\_\_\_.

a. Functional Cohesion      b. Communicational cohesion  
**c. Sequential cohesion**      d. Procedural cohesion

Q.11 The spell check feature in word processor is a module of software.

**a. True**      b. False

Q.12 CASE tools cannot be grouped together if they have similar functionality, process activities and capability      of getting integrated with other tools.

a. True      **b. False**

Q.13 Which tool consist of programming environments like IDE, in-built modules library and simulation tools?

a. Web development tools      **b. Prototyping tools**  
c. Programming tools      d. Design tools

Q.14 Which depicts flow of control in program modules?

- a. Flowchart
- b. DFD
- c. Both A & B
- d. None of the above

Q.15 Abbreviate the term HIPO.

- |                                      |                                    |
|--------------------------------------|------------------------------------|
| a. Hierarchical Input Process Output | b. High-level Input Process Output |
| c. Huge Input Process Output         | d. None of the above               |

Q.16 The total number of distinct operator and operand occurrences measures are used in \_\_\_\_\_. .

- a. Lawrence theory
- b. Halstead's theory**
- c. Kyburg, H. E.
- d. Jech, T.

Q.17 Hazard analysis focuses on the identification and assessment of potential hazards that can cause the \_\_\_\_\_. .

- a. External problems**
- b. Internal problems
- c. Both A & B
- d. None of the above

Q.18 Which model gives the overall reliability of the system that is projected and certified?

- a. Sampling model
- b. Component model
- c. Certification model**
- d. Both A & B

Q.19 Which class gives a content or function change that corrects an error or enhances local content or functionality in change management?

- a. Class 1**
- b. Class 2
- c. Class 3
- d. Class 4

Q.20 Which aspect is important when the software is moved from one platform to another?

- a. Maintenance
- b. Operational
- c. Transitional**
- d. All of the above

Q.21 A software project manager is a person who undertakes the responsibility of carrying out the software project.

- a. True**
- b. False

Q.22 From the following methods which size of the software product can be calculated?

- a. Counting the lines of delivered code
- b. Counting delivered function points
- c. Both A and B**
- d. None of the above

Q.23 Which chart is a tool that depicts project as network diagram that is capable of graphically representing main events of project in both parallel and consecutive way?

- a. PERT chart
- b. Gantt chart
- c. Both A & B
- d. None of the above

## Agile Software Development

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

- |                                 |                         |
|---------------------------------|-------------------------|
| a) Individuals and interactions | b) Working software     |
| c) Customer collaboration       | d) Responding to change |
| <b>e) All of the mentioned</b>  |                         |

2. Agile Software Development is based on

- a) Incremental Development      b) Iterative Development      c) Linear Development      d) Waterfall Model

e) Both a and b

3. Which one of the following is not an agile method?  
a) XP      b) **4GT**      c) AUP

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**

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**

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**

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

11. Agile is  
a) Sequential      b) Iterative      c) Incremental      d) **Both b & c**

12. What is/are advantage/s of Agile testing?  
a) Saves time  
b) requires less planning and creates less documentation  
c) Regular feedback from end users  
d) Solves issue in advance by daily meeting  
e) **All the above**

13. Who will test the system in agile development?  
a) software tester      b) Developer      c) Business Analyst      d) **All the above**

14. When acceptance testing is performed in Agile development?  
a) On request of customer  
b) After system is ready  
c) **At the end of each iteration**  
d) Daily

15 .In agile development, lengthy documentation is created. a)

True              b) False

16. Which skill are required by Agile tester?

- a) Domain knowledge
- b) Keen to learn and adopt new technology
- c) Effective communicator who maintains good relationship with development team d) All the above

17. Who is responsible for sprint meeting?

- a) Product owner              b) Scrum team              c) Scrum master              d) All the above

18. Who prioritizes product backlog?

- a) Product owner              b) Scrum team              c) Scrum master              d) All the above

19. Arrange following scrum practices according to the order in which they are carried out.

1. Sprint planning
2. Daily scrum meet
3. Sprint retrospective meet
4. Sprint review meet
5. Sprint

- a) 1,5,2,3,4              b) 1,5,2,4,3              c) 1,2,5,4,3              d) 1,3,2,4,5

## UML – 1

1. Which of the following UML diagrams has a static view?

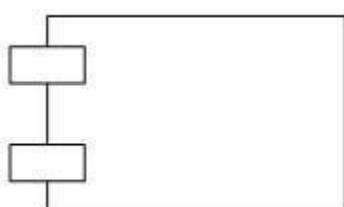
- a) Collaboration
- b) Use case
- c) State chart
- d) Activity

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



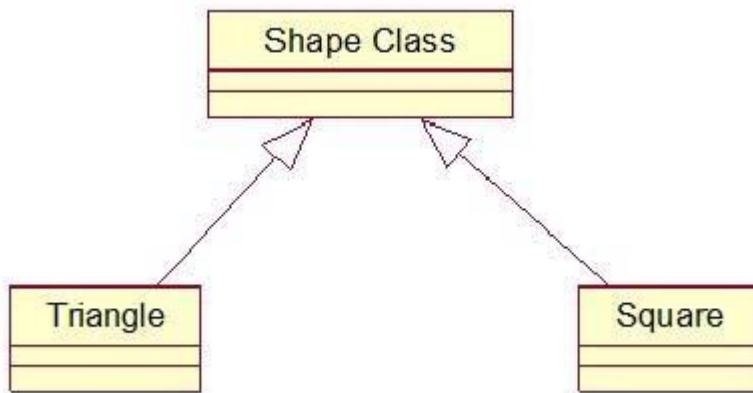
- a) Aggregation
- b) Dependency
- c) Generalization
- d) Association

3. Which core element of UML is being shown in the figure?



- a) Node
- b) Interface
- c) Class
- d) Component

4. What type of relationship is represented by Shape class and Square?



- a) Realization
- b) Generalization**
- c) Aggregation
- d) Dependency

5. Which diagram in UML shows a complete or partial view of the structure of a modelled system at a specific time?

- a) Sequence Diagram
- b) Collaboration Diagram
- c) Class Diagram
- d) Object Diagram**

6. Interaction Diagram is a combined term for

- a) Sequence Diagram + Collaboration Diagram**
- c) Deployment Diagram + Collaboration Diagram
- b) Activity Diagram + State Chart Diagram
- d) None of the mentioned

7. Structure diagrams emphasize the things that must be present in the system being modelled.

- a) True**
- b) False

8. Which of the following diagram is time oriented?

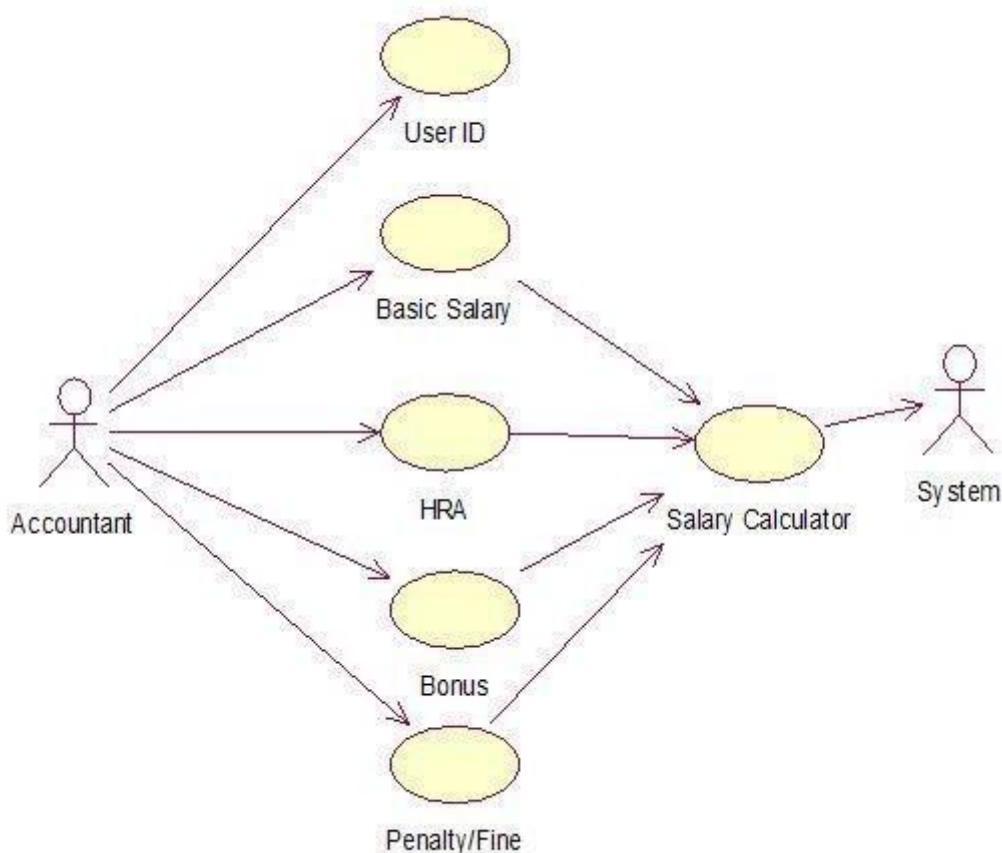
- a) Collaboration
- b) Sequence**
- c) Activity

## UML – 2

1. How many diagrams are here in Unified Modelling Language?

- a) Six
- b) seven
- c) eight
- d) nine

2. Which UML diagram is shown below?

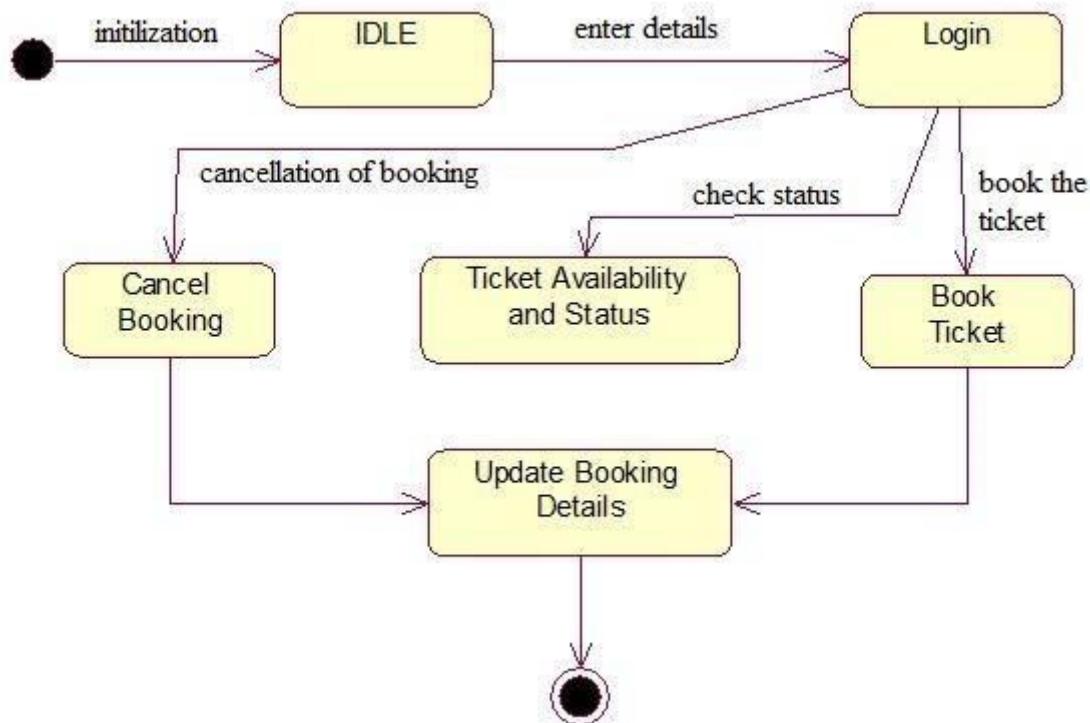


- a) Use Case  
d) Object Diagram

b) Collaboration Diagram

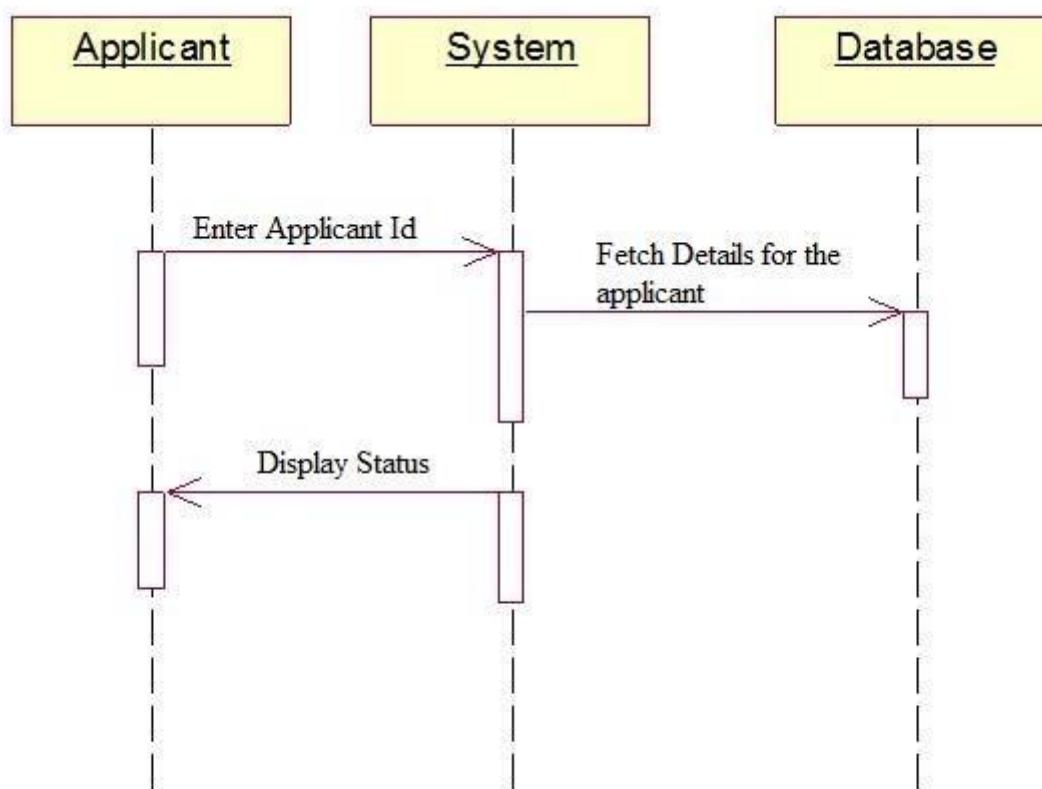
c) Class Diagram

3. Which UML diagram is shown below?



- a) Use Case  
b) State Chart  
c) Activity  
d) Object Diagram

4. Which UML diagram is shown below?



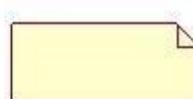
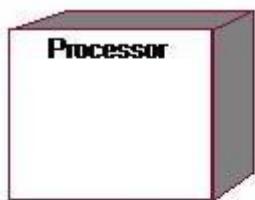
a) Use Case  
Diagram

b) Collaboration Diagram

c) Sequence Diagram

d) Object

5. Which UML diagram's symbols are shown below?



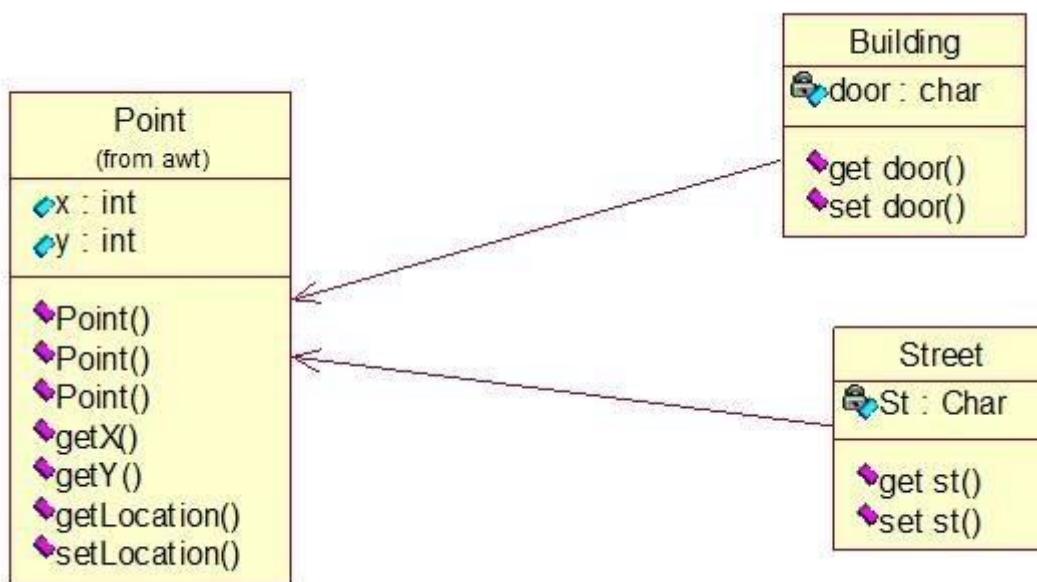
a) Deployment diagram  
Diagram

b) Collaboration Diagram

c) Component Diagram

d) Object

6. Which UML diagram is shown below?

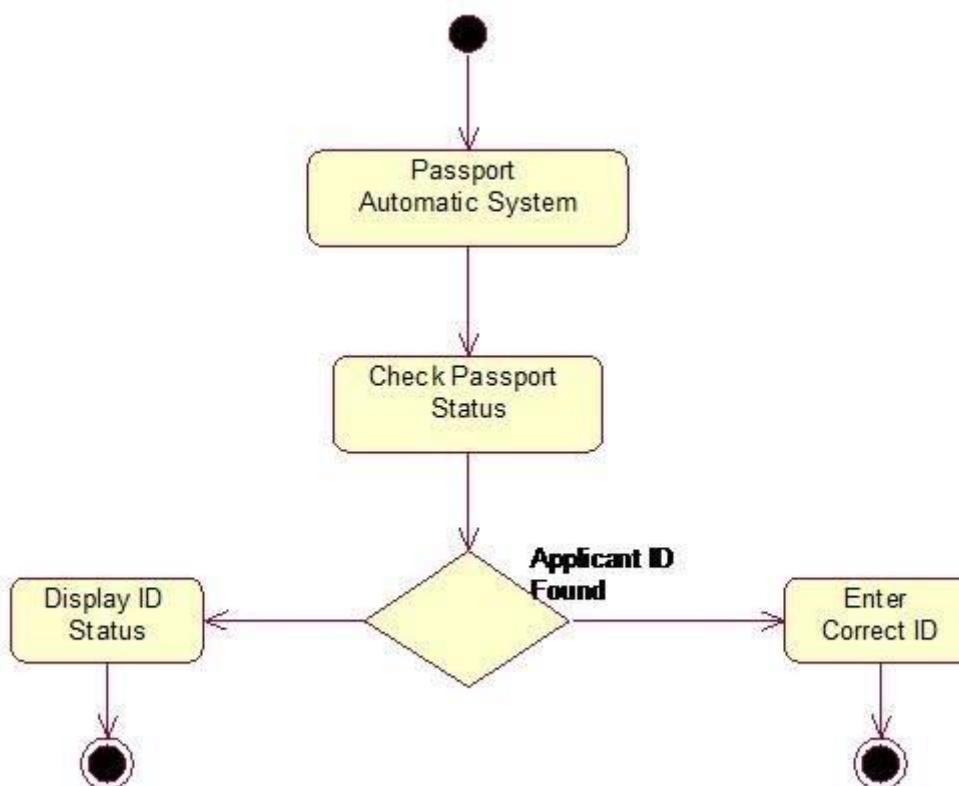
a) Deployment diagram  
Diagram

b) Collaboration Diagram

c) Object Diagram

d) Class

7. Which UML diagram is shown below?



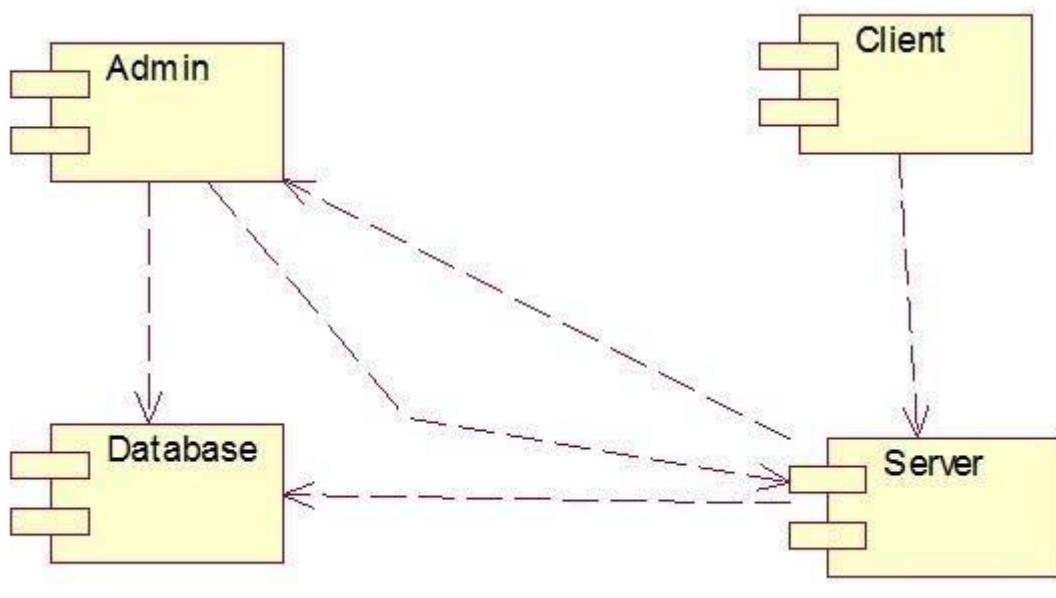
a) Activity

b) State chart

c) Sequence

d) Collaboration

8. Which UML diagram is shown below?



a) Component

b) Deployment

c) Use Case

d) DFD

## Shriram Mantri Software Testing Techniques – 1

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
5. White Box techniques are also classified as  
 a) Design based testing    b) **Structural testing**    c) Error guessing technique
6. Exhaustive testing is  
 a) always possible    b) practically possible    c) **impractical but possible**    d) impractical and impossible
7. Which of the following is/are White box technique?  
 a) Statement Testing    b) Decision Testing    c) Condition Coverage    d) **All of these**
8. What are the various Testing Levels?

- a) Unit Testing      b) System Testing      c) Integration Testing      d) All of the mentioned

9. Boundary value analysis belong to?

- a) White Box Testing      **b) Black Box Testing**

10. Alpha testing is done at

- a) Developer's end      b) User's end

## Software Testing Techniques – 2

1. The testing in which code is checked

- a) Black box testing      **b) White box testing**      c) Red box testing      d) Green box testing

2. Testing done without planning and Documentation is called

- a) Unit testing      b) Regression testing      **c) Adhoc testing**      d) None of the mentioned

3. Acceptance testing is also known as

- a) Grey box testing      b) White box testing      c) Alpha Testing      **d) Beta testing**

4. Which of the following is non-functional testing?

- a) Black box testing      **b) Performance testing**      c) Unit testing      d) None of the mentioned

5. Beta testing is done at

- a) User's end**      b) Developer's end

6. SPICE stands for

- a) Software Process Improvement and Compatibility Determination  
 b) Software Process Improvement and Control Determination  
**c) Software Process Improvement and Capability Determination**  
 d) None of the mentioned

7. Unit testing is done by

- a) Users      **b) Developers**      c) Customers

8. Behavioural testing is

- a) White box testing      **b) Black box testing**      c) Grey box testing

9. Which of the following is black box testing

- a) Basic path testing      **b) Boundary value analysis**  
 c) Code path analysis      d) None of the mentioned

10. Which of the following is not used in measuring the size of the software

- a) KLOC      b) Function Points      **c) Size of module**

## Life Cycle Models

1. 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

2. RAD stands for  
a) Relative Application Development  
**b) Rapid Application Development**  
c) Rapid Application Document

3. 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**

4. Which is not one of the types of prototype of Prototyping Model?  
a) Horizontal Prototype      b) Vertical Prototype      **c) Diagonal Prototype**      d) Domain Prototype

5. Which one of the following is not a phase of Prototyping Model?  
a) Quick Design      **b) Coding**      c) Prototype Refinement      d) Engineer Product

6. Which of the following statements regarding Build & Fix Model is wrong?  
a) No room for structured design  
c) Maintenance is practically not possible  
**b) Code soon becomes unfix-able & unchangeable**  
**d) It scales up well to large projects**

7. RAD Model has  
a) 2 phases      b) 3 phase      **c) 5 phases**      d) 6 phases

8. What is the major drawback of using RAD Model?  
a) Highly specialized & skilled developers/designers are required.  
b) Increases re-usability of components.  
c) Encourages customer/client feedback.  
**d) Both a & c.**

9. SDLC stands for  
**a) Software Development Life Cycle**  
c) Software Design Life Cycle      b) System Development Life cycle  
d) System Design Life Cycle

10. 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 b & c.

# Function Oriented Software Design

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
  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 a and b**



a) very low      b) low      c) moderate      d) high      e) very high

6. Which of the following is/are main parameters that you should use when computing the costs of a software development project?

- a) Travel and training costs
- b) Hardware and software costs
- c) **All of the mentioned**
- b) effort costs (the costs of paying software engineers and managers)

7. Quality planning is the process of developing a quality plan for

- a) team      b) **project**      c) customers      d) project manager

8. Which of the following is incorrect activity for the configuration management of a software system?

- a) **Internship management**      b) Change management      c) Version management      d) System management

9. Identify the sub-process of process improvement

- a) Process introduction      b) **Process analysis**      c) De-processification      d) Process distribution

10. An independent relationship must exist between the attribute that can be measured and the external quality attribute.

- a) True      b) **False**

## Project Planning

1. Which of the following is an important factor that can affect the accuracy and efficacy of estimates?

- a) **Project size**      b) Planning process      c) Project complexity      d) Degree of structural uncertainty

2. What describes the data and control to be processed?

- a) Planning process      b) **Software scope**
- c) External hardware      d) Project complexity

3. A number of independent investigators have developed a team-oriented approach to requirements gathering that can be applied to establish the scope of a project called

- a) JAD      b) CLASS      c) **FAST**      d) None of the mentioned

4. CLSS stands for

- a) **Conveyor line sorting system**      b) Conveyor line sorting software
- c) Conveyor line sorting speed      d) Conveyor line sorting specification

5. The project planner examines the statement of scope and extracts all important software functions which is known as

- a) Association      b) **Decomposition**      c) Planning process      d) All of the mentioned

6. The environment that supports the software project is called

- a) CLSS      b) **SEE**      c) FAST      d) CBSE

7. Which of the following is not an option to achieve reliable cost and effort estimate?

- a) Base estimates on similar projects that have already been completed
  - b) Use one or more empirical models for software cost and effort estimation
  - c) Use relatively simple decomposition techniques to generate project cost and effort estimates.
  - d) **The ability to translate the size estimate into human effort, calendar time, and dollars.**
8. What can be used to complement decomposition techniques and offer a potentially valuable estimation approach in their own right?
- a) Automated estimation tools
  - b) Empirical estimation models
  - c) Decomposition techniques
  - d) **Both Automated estimation tools and Empirical estimation models**

9. Which of the following is not achieved by an automated estimation tools?

- |                                  |                                      |
|----------------------------------|--------------------------------------|
| a) Predicting staffing levels    | b) Predicting software cost          |
| c) Predicting software schedules | <b>d) Predicting client's demand</b> |

10. Software project estimation can never be an exact science, but a combination of good historical data and systematic techniques can improve estimation accuracy. a) True  
b) False

## Shriram Mantri Software Process and Product – 1

1. Which one of the following is not a software process quality?
- a) Productivity
  - b) Portability**
  - c) Timeliness
  - d) Visibility
2. \_\_\_\_\_ & \_\_\_\_\_ are two kinds of software products.
- a) CAD, CAM
  - b) Firmware, Embedded
  - c) Generic, Customised**
3. Software costs more to maintain than it does to develop.
- a) True
  - b) False
4. Which one of the following is not an application of embedded software product?
- a) key pad control of a security system
  - b) **pattern recognition game playing**
  - c) digital function of dashboard display in a car
5. Purpose of process is to deliver software
- a) in time
  - b) with acceptable quality
  - c) that is cost efficient
  - d) both a & b**
6. The work associated with software engineering can be categorized into three generic phases, regardless of application area, project size, or complexity namely the\_\_\_\_\_ phase which focuses on what, the\_\_\_\_\_ phase which focuses on how and the\_\_\_\_\_ phase which focuses on change. i. support ii. development iii. definition
- a) 1, 2, 3
  - b) 2, 1, 3
  - c) 3, 2, 1**
  - d) 3, 1, 2
7. Which of the following activities of a Generic Process framework provides a feedback report?
- a) Communication
  - b) Planning
  - c) Modelling & Construction
  - d) Deployment**
8. Process adopted for one project is same as the process adopted from another project.
- a) True
  - b) False**

9. Which one of the following is not an Umbrella Activity that complements the five process framework activities and help team manage and control progress, quality, change, and risk?
- a) Re-usability management
  - b) Risk management
  - c) Measurement
  - d) User Reviews**
  - e) Software quality assurance
10. Four types of change are encountered during the support phase. Which one of the following is not one that falls into such category?
- a) Translation**
  - b) Correction
  - c) Adaptation
  - d) Prevention

## Software Process and Product – 2

1. If a software production gets behind schedule, one can add more programmers and catch up.
  - a) True
  - b) False**
2. Choose an internal software quality from given below:
  - a) scalability
  - b) usability
  - c) reusability**
  - d) reliability
3. RUP stands for \_\_\_\_\_ created by a division of \_\_\_\_\_.
  - a) Rational Unified Program, IBM
  - b) Rational Unified Process, Infosys
  - c) Rational Unified Process, Microsoft
  - d) Rational Unified Process, IBM**
4. The RUP is normally described from three perspectives-dynamic, static & practice. What does static perspective do? **a) It shows the process activities that are enacted.**
  - b)** It suggests good practices to be used during the process.
  - c)** It shows the phases of the model over time.
5. The only deliverable work product for a successful project is the working program. a) True
  - b) False**
6. Which phase of the RUP is used to establish a business case for the system?
  - a) Transition
  - b) Elaboration
  - c) Construction
  - d) Inception**
7. Which one of the following is not a fundamental activity for software processes in software engineering?
  - a) Software Verification**
  - b) Software Validation
  - c) Software design and implementation
  - d) Software evolution
  - e) Software specification
8. A general statement of objectives is the major cause of failed software efforts.
  - a) True**
  - b) False
9. The longer a fault exists in software
  - a) the more tedious its removal becomes
  - b) the more costly it is to detect and correct
  - c) the less likely it is to be properly corrected
  - d) All of the mentioned**

# Requirement Engineering

1. What are the types of requirements?  
a) Availability      b) Reliability      c) Usability      d) Flexibility      e) All of the mentioned

2. Select the developer specific requirement?  
a) Portability      b) Maintainability      c) Availability      d) Both a and b

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  
**c) Facilitated Application Specification Technique**      b) Fast Application Specification Technique  
d) None of the mentioned

5. QFD stands for  
a) quality function design  
**c) quality function deployment**      b) quality function development  
d) none of the mentioned

6. A Use-case actor is always a person having a role that different people may play.  
a) True      **b) False**

7. The user system requirements are the parts of which document?  
a) SDD      **b) SRS**      c) DDD

8. A stakeholder is anyone who will purchase the completed software system under development.  
a) True      **b) False**

9. Conflicting requirements are common in Requirement Engineering, with each client proposing his or her version is the right one.  
a) True      b) False

10. 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**

# Software Metrics

1. Which of the following is the task of project indicators:

- a) help in assessment of status of ongoing project. b) Track potential risk c) **both a and b** d) none of the mentioned
2. Which of the following does not affect the software quality and organizational performance?  
 a) Market b) Product c) Technology d) People
3. The intent of project metrics is:  
 a) Minimization of development schedule b) For strategic purposes  
 c) Assessing project quality on ongoing basis d) **Both a and c**
4. Which of the following is not a direct measure of SE process?  
 a) Efficiency b) Cost c) Effort Applied d) All of the mentioned
5. Which of the following is an indirect measure of product?  
 a) Quality b) Complexity c) Reliability d) **All of the Mentioned**
6. In size oriented metrics, metrics are developed based on the \_\_\_\_\_.  
 a) Number of Functions b) Number of user inputs c) **Number of lines of code** d) Amount of memory usage
7. Which of the following is not an information domain required for determining function point in FPA?  
 a) Number of user Input b) Number of user Inquiries c) Number of external Interfaces d) **Number of errors**
8. Usability can be measured in terms of:  
 a) Intellectual skill to learn the system  
 b) Time required to become moderately efficient in system usage  
 c) Net increase in productivity  
 d) **All of the mentioned**
9. A graphical technique for finding if changes and variation in metrics data are meaningful is known as  
 a) DRE (Defect Removal Efficiency) b) Function points analysis  
 c) **Control Chart** d) All of the mentioned
10. Defects removal efficiency (DRE) depends on:  
 a) E – errors found before software delivery b) D – defects found after delivery to user  
 c) **Both E and D** d) Varies with project

## Software Maintenance – 1

1. Software Maintenance includes  
 a) Error corrections b) Enhancements of capabilities  
 c) Deletion of obsolete capabilities d) **All of the mentioned**
2. Maintenance is classified into how many categories?  
 a) Two b) Three c) **Four** d) Five

3. The modification of the software to match changes in the ever changing environment, falls under which category of software maintenance?

- a) Corrective      **b) Adaptive**      c) Perfective      d) Preventive

4. How many phases are there in Taute Maintenance Model?

- a) Six      b) Seven      **c) Eight**      d)  
Nine

5. What type of software testing is generally used in Software Maintenance?

- a) Regression Testing**      b) System Testing      c) Integration Testing      d) Unit Testing

6. Regression testing is a very expensive activity.

- a) True**      b) False

7. Selective retest techniques may be more economical than the “retest-all” technique. How many selective retest techniques are there?

- a) Two      **b) Three**      c) Four      d)  
Five

8. Which selective retest technique selects every test case that causes a modified program to produce a different output than its original version?

- a) Coverage      b) Minimization      **c) Safe**

9. \_\_\_\_\_ measures the ability of a regression test selection technique to handle realistic applications.

- a) Efficiency      b) Precision      **c) Generality**      d) Inclusiveness

10. Which regression test selection technique exposes faults caused by modifications?

- a) Efficiency      b) Precision      c) Generality      **d) Inclusiveness**

## Software Maintenance – 2

1. The process of generating analysis and design documents is known as

- a) Software engineering      b) Software re-engineering      **c) Reverse engineering**      d)  
Reengineering

2. What is a software patch?

- a) Required or Critical Fix      **b) Emergency Fix**  
c) Daily or routine Fix      d) None of the mentioned

3. Which one of the following is not a maintenance model?

- a) Waterfall model**      b) Reuse-oriented model  
c) Iterative enhancement model      d) Quick fix model

4. What does ACT stands for in Boehm model for software maintenance?

- a) Actual change track      b) Annual change track  
**c) Annual change traffic**      d) Actual change traffic

5. Choose the suitable options with respect to regression testing.

- a) It helps in development of software      b) It helps in maintenance of software  
**c) both a and b**      d) none of the mentioned
6. What are legacy systems?  
 a) new systems      **b) old systems**      c) under-developed systems      d) none of the mentioned
7. Which of the following manuals is not a user documentation?  
 a) Beginner's Guide      b) Installation guide      c) Reference Guide      **d) SRS**
8. Which of the following manuals is a user documentation?  
 a) SRS -Software Requirement Specification      b) SDD -Software Design Document      **c) System Overview**
9. The process of transforming a model into source code is known as  
**a) Forward engineering**      b) Reverse engineering      c) Re-engineering      d) Reconstructing
10. How many stages are there in Iterative-enhancement model used during software maintenance?  
 a) Two      **b) Three**      c) Four      d) Five
- ## Software Configuration Management – 1
1. Which of the following categories is part of the output of software process?  
 a) computer programs      b) documents that describe the computer programs  
 c) data **d) All of the mentioned**
2. Which is a software configuration management concept that helps us to control change without seriously impeding justifiable change?  
**a) Baselines**      b) Source code      c) Data model      d) None of the mentioned
3. 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**
4. What combines procedures and tools to manage different versions of configuration objects that are created during the software process?  
 a) Change control      **b) Version control**      c) SCIs      d) None of the mentioned
5. What complements the formal technical review by assessing a configuration object for characteristics that are generally not considered during review?  
**a) Software configuration audit**      b) Software configuration management  
 c) Baseline      d) None of the mentioned
6. Which of the following is the process of assembling program components, data, and libraries, and then compiling and linking these to create an executable system?  
**a) System building**      b) Release management  
 c) Change management      d) Version management
7. Which of the following option is not tracked by configuration management tools?

- a) Tracking of change proposals  
 c) Tracking the releases of system versions to customers  
 b) Storing versions of system components  
**d) None of the mentioned**

8. Which of the following is not a Software Configuration Management Activity?

- a) Configuration item identification      **b) Risk management**  
 c) Release management      d) Branch management

9. The definition and use of configuration management standards is essential for quality certification in

- a) ISO 9000      b) CMM      c) CMMI      **d) All of the mentioned**

10. What involves preparing software for external release and keeping track of the system versions that have been released for customer use?

- a) System building      **b) Release management**      c) Change management      d) Version management

## Software Configuration Management – 2

1. Which of the following process ensures that versions of systems and components are recorded and maintained?

- a) Code line      **b) Configuration control**      c) Version      d) Workspace

2. Which of the following process is concerned with analysing the costs and benefits of proposed changes?

- a) Change management**      b) Version management  
 c) System building      d) Release management

3. Which of the following is not a Version management feature?

- a) Version and release identification      **b) Build script generation**  
 c) Project support      d) Change history recording

4. Which method recommends that very frequent system builds should be carried out with automated testing to discover software problems?

- a) Agile method**      b) Parallel compilation method  
 c) Large systems method      d) All of the mentioned

5. Which of the following is not a build system feature?

- a) Minimal recompilation      b) Documentation generation  
**c) Storage management**      d) Reporting

6. Which of the following is a collection of component versions that make up a system?

- a) Version      b) Code line      **c) Baseline**      d) None of the above

7. Which of the following is a configuration item?

- a) Design specification      b) Source code      c) Test specification      d) Log information    **e) All of the mentioned**

8. Which of the following is a part of system release?

- a) electronic and paper documentation describing the system  
 b) packaging and associated publicity that have been designed for that release

- c) an installation program that is used to help install the system on target hardware d) **all of the mentioned**
9. A sequence of baselines representing different versions of a system is known as  
 a) System building      b) **Mainline**      c) Software Configuration Item(SCI)      d) None of the above
10. Which of the following term is best defined by the statement “The creation of a new code line from a version in an existing code line”?  
 a) **Branching**      b) Merging      c) Code line      d) Mainline

## Risk Management

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?  
 a) People risks      b) Technology risks      c) Estimation risks      d) **Organizational risks**
7. Which of the following risks are derived from the software or hardware technologies that are used to develop the system?  
 a) Managerial risks      b) **Technology risks**      c) Estimation risks      d) Organizational risks
8. Which of the following term is best defined by the statement: “Derive traceability information to maximize information hiding in the design.”?  
 a) Underestimated development time      b) Organizational restructuring      c) **Requirements changes**      d) None of the above
9. Which of the following strategies means that the impact of the risk will be reduced?  
 a) Avoidance strategies      b) **Minimization strategies**  
 c) Contingency plans      d) All of the above

# User Interface Design

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?
- Provide for flexible interaction
  - Allow user interaction to be interrupt-able and undo-able
  - Show technical internals from the casual user**
  - Design for direct interaction with objects that appear on the screen
3. Which of the following is not a user interface design process?
- User, task, and environment analysis and modelling
  - Interface design
  - Knowledgeable, frequent users**
  - Interface validation
4. When users are involved in complex tasks, the demand on \_\_\_\_\_ can be significant.
- short-term memory**
  - shortcuts
  - objects that appear on the screen
  - all of the mentioned
5. Which of the following option is not considered by the Interface design?
- the design of interfaces between software components
  - the design of interfaces between the software and human producers and consumers of information
  - the design of the interface between two computers**
  - all of the mentioned
6. A software might allow a user to interact via
- keyboard commands
  - mouse movement
  - voice recognition commands
  - all of the mentioned**
7. A software engineer designs the user interface by applying an iterative process that draws on predefined design principles.
- True**
  - False
8. What incorporates data, architectural, interface, and procedural representations of the software?
- Design model**
  - user's model
  - mental image
  - system image
9. What establishes the profile of end-users of the system?
- Design model
  - user's model**
  - mental image
  - system image
10. What combines the outward manifestation of the computer-based system, coupled with all supporting information that describe system syntax and semantics?
- Mental image
  - interface design
  - system image**
  - interface validation.

## DevOps

- Q.1) Which one of the following methodologies does least impact the establishment of DevOps methodology?
- Lean Manufacturing.
  - Agile Software Delivery.

c) Waterfall Software Delivery.                    d) Continuous Software Delivery.

Q.2) In typical IT organizations why is there a typical conflict between development and operations teams?

- a) Because they come from different backgrounds.
- b) Because development team knows more about software products and services.
- c) Because operations team knows more about test and production environments.
- d) Because they have conflicting business goals and priorities.**

Q.3) Which one of the following techniques makes DevOps a successful methodology to develop and deliver software?

- a) DevOps enables you to organize your teams around your organizational mission.
- b) DevOps enables you to create your software with built-in quality and monitoring.
- c) DevOps enables you to quickly identify, fix and learn from errors.
- d) All above choices.**

Q.4) Which one of the following statements about DevOps is incorrect?

- a) DevOps is only suitable for start-up companies.**
- b) DevOps is suitable for brownfield software products and services.
- c) DevOps is suitable for greenfield software products and services.
- d) Some of the most exemplary DevOps initiatives started in companies with giant and mature IT organizations.

Q.5) How does a DevOps organization act in principle when it comes to financing its work?

- a) It finances special projects to serve its clients.
- b) It finances products and services to serve its clients.**
- c) It finances teams in matrix organizations and these teams are responsible for handling their own budgets.
- d) It finances development and operations teams separately, so they take care of their own business.

Q.6) In a DevOps organization which one of the following elements does not directly contribute to your value stream?

- |  |   |
|--|---|
| a) DevOps team                         | b) Stakeholders of downstream work centers. |
| <b>c) Errors, incidents and fixes.</b> | c) Clients.                                 |

Q.7) Why is it a good idea to limit batch size of your continuous DevOps deliveries?

- a) You will be quicker to identify root causes of issues and resolve them.
- b) By continuously delivering in production, your team will have the constant pride of contributing to your organizational mission.
- c) Potentially required rollbacks from your production systems will be less cumbersome.
- d) All above choices.**

Q.8) What is trunk in trunk based DevOps delivery?

- a) Developers collaborate on code in a single branch called “trunk”.**
- b) Trunk is a special private branch in a developer workstation.
- c) Trunk is the process of merging code in DevOps deliveries.

d) Trunk is a special source code version controlling system which stores mission critical special projects of your DevOps organization.

Q.9) Which one of the following is not one of the DevOps principles for good test automation?

- a) Test Automation should give quick and early feedback about your quality of work.
- b) **Never mix test driven development (TDD) together with your test automation approach.**
- c) Tests should generate consistent, deterministic and repeatable results provided same conditions for different test runs.
- d) With your test automation, avoid slow and periodic feedback. What you need is fast feedback whenever you or your developer attempts to check-in code to your trunk.

Q.10) Which one of following release patterns does not enable you to do low risk DevOps code deployments in your production systems?

- a) Canary Deployment Pattern (The Dark Launch).
- b) Blue-Green Deployment Pattern.
- c) Cluster Immune System Release Pattern.
- d) **Big bang code deployments of fully tested and validated releases.**

Q.11) What is one of best techniques to convert normal changes into standard changes?

- a) **Use your track record of successful automated deployments with standard changes.**
- b) Negotiate with release managers.
- c) Publicly complain about bureaucracy and make everyone be aware of it.
- d) Make sure normal changes are very carefully deployed to your production systems.

Q.12) What is a widely used reusable asset to reinforce information security of deliverables from your DevOps team?

- a) Data storage systems.
- b) Handling the logging of sensitive client information.
- c) Data transfer between clients and software.
- d) **All above choices.**

Q.13) What is not one of major benefits of designing a safe system of work culture?

- a) Complexity of your systems will be managed, so problems in designs and operations will be quickly detected.
- b) **DevOps team does no longer need to be careful and mindful to ensure quality.**
- c) Problems are quickly resolved while they are small. Resolving problems will result in spontaneous construction of new organizational knowledge and experience.
- d) Leaders in your DevOps organization develop other leaders who create and continuously improve safe systems of work.

Q.14) What is telemetry?

- a) Telemetry is a widely known SaaS tool to plan and execute DevOps projects.
- b) Telemetry is a communication tool used by DevOps teams at geographically distributed locations.
- c) **Telemetry is the process of recording the behaviour of your systems.**

d) Telemetry is a tool to design, code and execute automated unit tests.

Q.15) In terms of fixing errors in your production systems what is the major benefit of using feature toggles embedded in configurations of your software applications?

- a) This is easiest way to fix a problem. It doesn't require an urgent code deployment.
- b) You don't have to very urgently correct erroneous pieces in your deployment.
- c) Your DevOps team can take time to properly identify root cause of an issue and improve their techniques to ensure such a problem will not likely happen again in the future. **d) All above choices.**



## Software Engineering Questions & Answers – Software Engineering Ethics – 1

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

[View Answer](#)

Answer: c

Explanation: Engineers should normally respect the confidentiality of their employers or clients irrespective of whether or not a formal confidentiality agreement has been signed.

They should be aware of local laws governing the use of intellectual property such as patents, copyright, etc.

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

[View Answer](#)

Answer: d

Explanation: None.

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

[View Answer](#)

Answer: b

Explanation: None.

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

[View Answer](#)

Answer: a

Explanation: None.

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

[View Answer](#)

Answer: b

Explanation: Software engineers shall act in a manner that is in the best interests of their client and employer consistent with the public interest and shall ensure that their products and related modifications meet the highest professional standards possible. Thus options a & c are ruled out.

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.”

[View Answer](#)

Answer: c

Explanation:None.

---

7. Efficiency in a software product does not include \_\_\_\_\_

- a) responsiveness
- b) licensing
- c) memory utilization
- d) processing time

[View Answer](#)

Answer: b

Explanation: Licensing of a software product comes under corporate part of the software company.

---

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

[View Answer](#)

Answer: a

Explanation: Option b & c are a part of Software Engineering as a subject,hence option a covers them both.

---

9. 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

[View Answer](#)

Answer: c

Explanation: Software companies are responsible for making policies and providing working atmosphere for the software development, so in turn these companies become a part of software development process.Bugs from developers side is no new thing. Thus option c answers the question.

---

10. 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

[View Answer](#)

Answer: b

Explanation: The infrastructure is only one of the several factors that determine the quality of the product.

## Software Engineering Questions and Answers – Software Engineering Ethics – 2

1. Which of these are not among the eight principles followed by Software Engineering Code of Ethics and Professional Practice ?

- a) PUBLIC
- b) PROFESSION
- c) PRODUCT
- d) ENVIRONMENT

[View Answer](#)

Answer: d

Explanation: Rest all are clauses for software ethics, environment does not focus on specific clause nor its of importance related to question.

2. 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

[View Answer](#)

Answer: c

Explanation: Software is not just set of program but it is also associated documentation and configuration of data to make program run.

3. Which of these does not account for software failure ?

- a) Increasing Demand
- b) Low expectation
- c) Increasing Supply
- d) Less reliable and expensive

[View Answer](#)

Answer: c

Explanation: Increasing supply will lead to more production and not failure.

4. What are attributes of good software ?

- a) Software maintainability
- b) Software functionality
- c) Software development
- d) Software maintainability & functionality

[View Answer](#)

Answer: d

Explanation: Good software should deliver the required functionality, maintainability. Software development is not an attribute but a fundamental.

5. 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

[View Answer](#)

Answer: a

Explanation: Software dependence is an attribute and not an engineering activity for process.

6. 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

[View Answer](#)

Answer: c

Explanation: Software engineering is a vast sub domain which comes under computer science which is main domain.

7. Which of these is true ?

- a) Generic products and customized products are types of software products
- b) Generic products are produced by organization and sold to open market
- c) Customized products are commissioned by particular customer
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: All of them are true.

8. Which of these does not affect different types of software as a whole?

- a) Heterogeneity
- b) Flexibility
- c) Business and social change
- d) Security

[View Answer](#)

Answer: b

Explanation: Option b & c are a part of Software Engineering as a subject,hence option a covers them both.

9. The fundamental notions of software engineering does not account for ?

- a) Software processes
- b) Software Security
- c) Software reuse
- d) Software Validation

[View Answer](#)

Answer: d

Explanation: Software validation is an activity for software process and not the fundamental for engineering.

10. Which of these is not true ?

- a) Web has led to availability of software services and possibility of developing highly distributed service based systems
- b) Web based systems have led to degradation of programming languages
- c) Web brings concept of software as service
- d) Web based system should be developed and delivered incrementally

[View Answer](#)

Answer: b

Explanation: Web based systems has led to important advances in programming languages.

## Software Engineering Questions and Answers – Software Life Cycle Models

1. 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

[View Answer](#)

Answer: a

Explanation: Build & Fix Model is suitable for small projects & programming exercises of 100 or 200 lines.

2. RAD stands for

- a) Relative Application Development
- b) Rapid Application Development
- c) Rapid Application Document
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

3. 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

[View Answer](#)

Answer: d

Explanation: Real projects rarely follow the sequential flow that the Waterfall Model proposes.

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

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

[View Answer](#)

Answer: c

Explanation: There is no such thing as Diagonal Prototype whereas other options have their respective definitions.

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

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

[View Answer](#)

Answer: b

Explanation: A prototyping model generates only a working model of a system.

6. 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

[View Answer](#)

Answer: d

Explanation: Build & Fix Model is suitable for 100-200 LOC

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7. RAD Model has

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

[View Answer](#)

Answer: c

Explanation: RAD Model consists of five phases namely:Business modeling,Data modeling,Process modeling,Application generation and Testing & Turnover.

---

8. 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

[View Answer](#)

Answer: d

Explanation: The client may create an unrealistic product vision leading a team to over or under-develop functionality.Also, the specialized & skilled developers are not easily available.

---

9. SDLC stands for

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

[View Answer](#)

Answer: a

Explanation: None.

---

10. 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

[View Answer](#)

Answer: c

Explanation: None.

## Software Engineering Questions and Answers – Evolutionary Software Process Models

1. Which one of the following is not an Evolutionary Process Model?

- a) WINWIN Spiral Model
- b) Incremental Model
- c) Concurrent Development Model
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: None.

2. The Incremental Model is a result of combination of elements of which two models?

- a) Build & FIX Model & Waterfall Model
- b) Linear Model & RAD Model
- c) Linear Model & Prototyping Model
- d) Waterfall Model & RAD Model

[View Answer](#)

Answer: c

Explanation: Each linear sequence produces a deliverable “increment” of the software and particularly when we have to quickly deliver a limited functionality system.

3. 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

[View Answer](#)

Answer: d

Explanation: Incremental Model is generally easier to test and debug than other methods of software development because relatively smaller changes are made during each iteration and is popular particularly when we have to quickly deliver a limited functionality system. However, option “a” can be seen in other models as well like RAD model,hence option “d” answers the question.

4. The spiral model was originally proposed by

- a) IBM
- b) Barry Boehm
- c) Pressman
- d) Royce

[View Answer](#)

Answer: b

Explanation: None.

5. The spiral model has two dimensions namely \_\_\_\_\_ and \_\_\_\_\_

- a) diagonal, angular
- b) radial, perpendicular
- c) radial, angular
- d) diagonal, perpendicular

[View Answer](#)

Answer: c

Explanation: The radial dimension of the model represents the cumulative costs and the angular dimension represents the progress made in completing each cycle. Each loop of the spiral from X-axis clockwise through 360° represents one phase.

6. How is WINWIN Spiral Model different from Spiral Model?

- a) It defines tasks required to define resources, timelines, and other project related information
- b) It defines a set of negotiation activities at the beginning of each pass around the spiral
- c) It defines tasks required to assess both technical and management risks
- d) It defines tasks required to construct, test, install, and provide user support

[View Answer](#)

Answer: b

Explanation: Except option ‘b’ all other tasks/activities are present in Spiral Model as well.

---

7. Identify the disadvantage of Spiral Model.

- a) Doesn’t work well for smaller projects
- b) High amount of risk analysis
- c) Strong approval and documentation control
- d) Additional Functionality can be added at a later date

[View Answer](#)

Answer: a

Explanation: All other options are the advantages of Spiral Model.

---

8. Spiral Model has user involvement in all its phases.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: None.

---

9. How is Incremental Model different from Spiral Model?

- a) Progress can be measured for Incremental Model
- b) Changing requirements can be accommodated in Incremental Model
- c) Users can see the system early in Incremental Model
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

---

10. If you were to create client/server applications, which model would you go for?

- a) WINWIN Spiral Model
- b) Spiral Model
- c) Concurrent Model
- d) Incremental Model

[View Answer](#)

Answer: c

Explanation: When applied to client/server applications, the concurrent process model defines activities in two dimensions: a system dimension and a component dimension. Thus Concurrency is achieved by system and component activities occurring simultaneously and can be modeled using the state-oriented approach.

## Software Engineering Questions and Answers – Selection of a Life Cycle Model

1. Selection of a model is based on
  - a) Requirements
  - b) Development team & Users
  - c) Project type and associated risk
  - d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Each model has to have some requirements, a team of developers, users and the risk involved in developing a project.

2. Which two models doesn't allow defining requirements early in the cycle?

- a) Waterfall & RAD
- b) Prototyping & Spiral
- c) Prototyping & RAD
- d) Waterfall & Spiral

[View Answer](#)

Answer: b

Explanation: Prototyping Model starts with a requirements analysis phase including techniques like FAST, QFD, Brainstorming. In case of Spiral model the first phase involves activities related to customer communication like determining objectives.

3. Which of the following life cycle model can be chosen if the development team has less experience on similar projects?

- a) Spiral
- b) Waterfall
- c) RAD
- d) Iterative Enhancement Model

[View Answer](#)

Answer: a

Explanation: Relying on risk assessment/analysis provides more flexibility than required for many applications which overcomes the criteria of less experienced developers.

4. If you were a lead developer of a software company and you are asked to submit a project/product within a stipulated time-frame with no cost barriers, which model would you select?

- a) Waterfall
- b) Spiral
- c) RAD
- d) Incremental

[View Answer](#)

Answer: c

Explanation: RAD model is inapplicable to develop cheaper products/software/projects as the cost of modeling, hiring highly skilled developers/designers and automated code generation is very high. But here the cost is not an issue, so one can select this model as it reduces development time.

5. Which two of the following models will not be able to give the desired outcome if user's participation is not involved?

- a) Waterfall & Spiral
- b) RAD & Spiral
- c) RAD & Waterfall
- d) RAD & Prototyping

[View Answer](#)

Answer: d

Explanation: Active Participation of user is involved in all the four phases of RAD model and in case of the Prototyping model we need user's presence/involvement every time a new prototype is build or designed.

---

6. A company is developing an advance version of their current software available in the market, what model approach would they prefer ?

- a) RAD
- b) Iterative Enhancement
- c) Both RAD & Iterative Enhancement
- d) Spiral

[View Answer](#)

Answer: c

Explanation: None.

---

7. One can choose Waterfall Model if the project development schedule is tight.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Real projects rarely follow the sequential flow and iterations in this model are handled indirectly. This changes can cause confusion as the project proceeds thereby delaying the delivery date.

---

8. Choose the correct option from given below:

- a) Prototyping Model facilitates reusability of components
- b) RAD Model Model facilitates reusability of components
- c) Both RAD & Prototyping Model facilitates reusability of components
- d) None

[View Answer](#)

Answer: c

Explanation: None.

---

9. Spiral Model has high reliability requirements.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: None.

---

10. RAD Model has high reliability requirements.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: None.

## Software Engineering Questions and Answers – Fourth Generation Techniques

1. Identify a fourth generation language(4GL) from the given below.

- a) FORTRAN
- b) COBOL
- c) Unix shell
- d) C++

[View Answer](#)

Answer: c

Explanation: Rest all are third generation languages(3GL).

2. Arrange the following activities for making a software product using 4GT.

- i. Design strategy
- ii. Transformation into product
- iii. Implementation
- iv. Requirement gathering

- a) 1, 4, 3, 2
- b) 4, 3, 1, 2
- c) 4, 1, 3, 2
- d) 1, 3, 4, 2

[View Answer](#)

Answer: c

Explanation: The sequence of activities mentioned in option c represents the Fourth Generation Techniques(4GT)Model.

3. 4GL is an example of \_\_\_\_\_ processing.

- a) White Box
- b) Black Box
- c) Functional
- d) Both Black Box & Functional

[View Answer](#)

Answer: d

Explanation: Functional processing/testing is also referred to as black box testing in which contents of the black box are not known. Almost anything might be referred to as a black box:an algorithm or the human mind.Functionality of the black box is understood in terms of its inputs and outputs.

4. The 4GT Model is a package of \_\_\_\_\_

- a) CASE Tools
- b) Software tools
- c) Software Programs
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: 4GT encompasses a broad array of software tools enabling the software engineer to specify the characteristics at a high level leading to an automatically generated source code based on these specifications.

5. Which of the following is not a type of a 4GL? One originating \_\_\_\_\_

- a) on Lisp machine
- b) on report generators
- c) from database query languages
- d) from GUI creators

[View Answer](#)

Answer: a

Explanation: Fifth-generation programming language are built on LISP.

---

6. In 4GT, we can specify the user requirements in graphic notation or small abbreviated language form.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: None.

---

7. Productivity of software engineers is reduced in using a 4GT.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: 4GLs are more programmer-friendly and enhance programming efficiency with usage of English-like words and phrases, thereby increasing the productivity of professionals able to engage in software development.

---

8. Which of the following 4GLs invented at IBM and subsequently adopted by ANSI and ISO as the standard language for managing structured data?

- a) SQL
- b) PROLOG
- c) C
- d) JAVA

[View Answer](#)

Answer: a

Explanation: C & JAVA are third generation languages(3GLs) whereas PROLOG is a 5GL.

---

9. What is a major advantage of using a 4GT Model for producing small scale products, applications or programs ?

- a) Improved productivity of software engineers
- b) Reduction in software development time
- c) 4GT helped by CASE tools and code generators offers a credible solution to many software problems
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: Since automated coding is done using CASE tools & code generators proponents claim a dramatic reduction in software development time.

---

10. Which of the following model has a major disadvantage in terms of the coding phase of a software life cycle model ?

- a) Spiral Model
- b) Waterfall Model
- c) Rad Model
- d) 4GT Model

[View Answer](#)

Answer: d

Explanation: Since coding phase is eliminated in 4GT Model,more expertise is required for analysis,design and testing activities.

## Software Engineering Questions and Answers – Software Process and Product – 1

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1. Which one of the following is not a software process quality?

- a) Productivity
- b) Portability
- c) Timeliness
- d) Visibility

[View Answer](#)

Answer: b

Explanation: Portability is a software product quality which means software can run on different hardware platforms or software environments.

---

2. \_\_\_\_\_ & \_\_\_\_\_ are two kinds of software products.

- a) CAD, CAM
- b) Firmware, Embedded
- c) Generic, Customised
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: rest all are sub categories/applications of option c.

---

3. Software costs more to maintain than it does to develop.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: For systems with a long life, maintenance costs may be several times development costs.

---

4. Which one of the following is not an application of embedded software product?

- a) keypad control of a security system
- b) pattern recognition game playing
- c) digital function of dashboard display in a car
- d) none of the mentioned

[View Answer](#)

Answer: b

Explanation: Pattern recognition uses Artificial Intelligence (AI) software.

---

5. Purpose of process is to deliver software

- a) in time
- b) with acceptable quality
- c) that is cost efficient
- d) both in time & with acceptable quality

[View Answer](#)

Answer: d

Explanation: Cost of a software is a management issue & is not related to process activities.

---

6. The work associated with software engineering can be categorized into three generic phases, regardless of application area, project size, or complexity namely the \_\_\_\_\_ phase which focuses on *what*, the \_\_\_\_\_ phase which focuses on *how* and the \_\_\_\_\_ phase which focuses on *change*.

- i. support
- ii. development

iii. definition

- a) 1, 2, 3
- b) 2, 1, 3
- c) 3, 2, 1
- d) 3, 1, 2

[View Answer](#)

Answer: c

Explanation: None.

---

7. Which of the following activities of a Generic Process framework provides a feedback report?

- a) Communication
- b) Planning
- c) Modeling & Construction
- d) Deployment

[View Answer](#)

Answer: d

Explanation: In Deployment the product is delivered to the customer who evaluates the product and provides feedback based on the evaluation.

---

8. Process adopted for one project is same as the process adopted from another project.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: the overall flow of activities, actions,tasks,the level of autonomy given to the software team and the inter dependencies among two process can never be the same.

---

9. Which one of the following is not an Umbrella Activity that complements the five process framework activities and help team manage and control progress, quality, change, and risk.

- a) Reusability management
- b) Risk management
- c) Measurement
- d) User Reviews

[View Answer](#)

Answer: d

Explanation: None.

---

10. Four types of change are encountered during the support phase. Which one of the following is not one that falls into such category?

- a) Translation
- b) Correction
- c) Adaptation
- d) Prevention

[View Answer](#)

Answer: a

Explanation: Translation is done in the development phase.

## Software Engineering Questions and Answers – Software Process and Product – 2

1. If a software production gets behind schedule, one can add more programmers and catch up.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: As new people are added, people who were working must spend time educating the newcomers, thereby reducing the amount of time spent on productive development effort.

2. Choose an internal software quality from given below:

- a) scalability
- b) usability
- c) reusability
- d) reliability

[View Answer](#)

Answer: c

Explanation: rest all are external qualities which are visible to the user.

3. RUP stands for \_\_\_\_\_ created by a division of \_\_\_\_\_

- a) Rational Unified Program, IBM
- b) Rational Unified Process, Infosys
- c) Rational Unified Process, Microsoft
- d) Rational Unified Process, IBM

[View Answer](#)

Answer: d

Explanation: None.

4. The RUP is normally described from three perspectives-dynamic, static & practice.What does static perspective do ?

- a) It shows the process activities that are enacted
- b) It suggests good practices to be used during the process
- c) It shows the phases of the model over time
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

5. The only deliverable work product for a successful project is the working program.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: A working program is only one part of a software configuration that includes many elements. Documentation provides a foundation for successful engineering and, more important, guidance for software support.

6. Which phase of the RUP is used to establish a business case for the system ?

- a) Transition
- b) Elaboration
- c) Construction
- d) Inception

[View Answer](#)

Answer: d

Explanation: None.

---

7. Which one of the following is not a fundamental activity for software processes in software engineering ?

- a) Software Verification
- b) Software Validation
- c) Software design and implementation
- d) Software evolution

[View Answer](#)

Answer: a

Explanation: Software Verification is accounted for in implementation & testing activity.

---

8. A general statement of objectives is the major cause of failed software efforts.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: A formal and detailed description of the information domain, function, behavior, performance, interfaces, design constraints and validation criteria is essential which can be determined only after thorough communication between customer and developer.

---

9. The longer a fault exists in software

- a) the more tedious its removal becomes
- b) the more costly it is to detect and correct
- c) the less likely it is to be properly corrected
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: None.

---

10. Component-based Software Engineering allows faster delivery.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Due to using previously tested components they produce more reliable system at a faster rate.

---

11. Arrange the following steps to form a basic/general Engineering Process Model.

- i. Test
  - ii. Design
  - iii. Install
  - iv. Specification
  - v. Manufacture
  - vi. Maintain
- a) 2, 4, 5, 1, 6, 3
  - b) 4, 2, 5, 1, 3, 6
  - c) 2, 4, 5, 1, 3, 6
  - d) 4, 2, 5, 1, 6, 3

[View Answer](#)

Answer: b

Explanation: None.

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## Software Engineering Questions and Answers – Agile Software Development

---

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

[View Answer](#)

Answer:d

Explanation: None.

---

2. Agile Software Development is based on

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

[View Answer](#)

Answer:d

Explanation: The software is developed in increments with the customer specifying the requirements to be included in each increment and the highest priority is to satisfy the customer through early and continuous delivery of valuable software. They are iterative because they work on one iteration followed by improvements in next iteration

---

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

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

[View Answer](#)

Answer:b

Explanation: The 4GT approach does not incorporate iteration and the continuous feedback, which is the fundamental aspect of an agile method.

---

4. Agility is defined as the ability of a project team to respond rapidly to a change.

- a) True
- b) False

[View Answer](#)

Answer:b

Explanation: The aim of agile methods is to reduce overheads in the software process and to be able to respond quickly to changing requirements without excessive rework.

---

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

[View Answer](#)

Answer:c

Explanation: A plan-driven approach to software engineering is based around separate development stages with the outputs to be produced at each of these stages planned in advance.

---

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

[View Answer](#)

Answer:b

Explanation: There are three phases in Scrum. The initial phase is an outline planning phase followed by a series of sprint cycles and project closure phase.

7. Agile methods seem to work best when team members have a relatively high skill level.

- a) True
- b) False

[View Answer](#)

Answer:a

Explanation: None.

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

[View Answer](#)

Answer:c

Explanation: Testing is a major part of each software development process which can't be avoided.

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

[View Answer](#)

Answer:c

Explanation: None.

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

[View Answer](#)

Answer:a

Explanation: None.

## Software Engineering Questions and Answers – Extreme Programming

1. Incremental development in Extreme Programming (XP) is supported through a system release once every month.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Incremental development is supported through small, frequent system releases.

2. In XP, as soon as the work on a task is complete, it is integrated into the whole system.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: XP follows a continuous integration approach. After any such integration, all the unit tests in the system must pass.

3. In XP Increments are delivered to customers every \_\_\_\_\_ weeks.

- a) One
- b) Two
- c) Three
- d) Four

[View Answer](#)

Answer: b

Explanation: Extreme Programming (XP) takes an ‘extreme’ approach to iterative development. New versions may be built several times per day, hence delivering the increment for approval every 2nd week after testing the new version.

4. User requirements are expressed as \_\_\_\_\_ in Extreme Programming.

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

[View Answer](#)

Answer: c

Explanation: User requirements are expressed as scenarios or user stories. These are written on cards and the development team break them down into implementation tasks. These tasks are the basis of schedule and cost estimates.

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

[View Answer](#)

Answer: c

Explanation: The role of the customer in the testing process is to help develop acceptance tests for the stories that are to be implemented in the next release of the system. However, people adopting the customer role have limited time available and so cannot work full-time with the development team. They may feel that providing the requirements was enough of a contribution and so may be reluctant to get involved in the testing process.

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

[View Answer](#)

Answer: a

Explanation: In XP Some tests can be very difficult to write incrementally. For example, in a complex user interface, it is often difficult to write unit tests for the code that implements the 'display logic' and workflow between screens.

7. Tests are automated in Extreme Programming.

a) True

b) False

[View Answer](#)

Answer: a

Explanation: Automated test harnesses are used to run all component tests each time that a new release is built.

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

[View Answer](#)

Answer: a

Explanation: XP follows Test-first development approach.

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

[View Answer](#)

Answer: b

Explanation: XP follows the principle of pair programming which means developers work in pairs, checking each other's work and providing the support to always do a good job.

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

[View Answer](#)

Answer: c

Explanation: XP involves the mentioned four activities, and in the same in order.

## Software Engineering Questions and Answers – Requirement Engineering

---

1. What are the types of requirements ?

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

[View Answer](#)

Answer: d

Explanation: All the mentioned traits are beneficial for an effective product to be developed.

---

2. Select the developer-specific requirement ?

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

[View Answer](#)

Answer: d

Explanation: Availability is user specific requirement.

---

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

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

[View Answer](#)

Answer: b

Explanation: Requirement Elicitation, Requirement Analysis, Requirement Documentation and Requirement Review are the four crucial process steps of requirement engineering. Design is in itself a different phase of Software Engineering.

---

4. FAST stands for

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

[View Answer](#)

Answer: c

Explanation: None.

---

5. QFD stands for

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

[View Answer](#)

Answer: c

Explanation: None.

---

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

- a) True

b) False

[View Answer](#)

Answer: b

Explanation: Use-case Actor is anything that needs to interact with the system, be it a person or another (external) system.

---

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

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

[View Answer](#)

Answer: b

Explanation: Software requirements specification (SRS), is a complete description of the behaviour of a system to be developed and may include a set of use cases that describe interactions the users will have with the software.

---

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

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Stakeholders are anyone who has an interest in the project. Project stakeholders are individuals and organizations that are actively involved in the project, or whose interests may be affected as a result of project execution or project completion.

---

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

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: This situation is seen in every field of work as each professional has his/her way of looking onto things & would argue to get his/her point approved.

---

10. 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

[View Answer](#)

Answer: d

Explanation: Users are always the most important stakeholders. After all, without users or customers, what's the point of being in business?

## Software Engineering Questions and Answers – Functional and Non-Functional Requirements

1. Which one of the following is a functional requirement ?

- a) Maintainability
- b) Portability
- c) Robustness
- d) None of the mentioned

[View Answer](#)

Answer: d

Explanation: All are non-functional requirements representing quality of the system. Functional requirements describe what the software has to do.

2. Which one of the following is a requirement that fits in a developer's module ?

- a) Availability
- b) Testability
- c) Usability
- d) Flexibility

[View Answer](#)

Answer: b

Explanation: A developer needs to test his product before launching it into the market.

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

[View Answer](#)

Answer: a

Explanation: Functional requirements describe what the software has to do.

4. Which of the following statements explains portability in non-functional requirements?

- a) It is a degree to which software running on one platform can easily be converted to run on another platform
- b) It cannot be enhanced by using languages, OS' and tools that are universally available and standardized
- c) The ability of the system to behave consistently in a user-acceptable manner when operating within the environment for which the system was intended
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: Option c is termed as reliability and option e refers to efficiency.

5. Functional requirements capture the intended behavior of the system.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: The behavior of functional requirements may be expressed as services, tasks or functions the system is required to perform.

6. 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

[View Answer](#)

Answer: c

Explanation: Quantitative Approaches in NFRs are used to find measurable scales for the quality attributes like efficiency, flexibility, integrity, usability etc.

7. How many classification schemes have been developed for NFRs ?

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

[View Answer](#)

Answer: d

Explanation: Software Quality Tree [Boehm 1976], Roman [IEEE Computer 1985], Process-Product-External considerations [Sommerville 1992], Mc Call's NFR list and Dimensions of Quality–Components of FURPS+ are the five classification schemes for NFRs.

8. According to components of FURPS+, which of the following does not belong to S ?

- a) Testability
- b) Speed Efficiency
- c) Serviceability
- d) Installability

[View Answer](#)

Answer: b

Explanation: Speed Efficiency belong to Performance (P) in FURPS+ .

9. Does software wear & tear by decomposition ?

- a) Yes
- b) No

[View Answer](#)

Answer: b

Explanation: Unlike hardware, software is reliable.

10. 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

[View Answer](#)

Answer: c

Explanation: All the traits of option c sync with dependability.

11. 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

[View Answer](#)

Answer: b

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Explanation: System response to a local user is 2 seconds on average.

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## Software Engineering Questions and Answers – Requirement Elicitation

---

1. What is the first step of requirement elicitation ?

- a) Identifying Stakeholder
- b) Listing out Requirements
- c) Requirements Gathering
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: Stakeholders are the one who will invest in and use the product, so its essential to chalk out stakeholders first.

---

2. Starting from least to most important, choose the order of stakeholder.

- i. Managers
  - ii. Entry level Personnel
  - iii. Users
  - iv. Middle level stakeholder
- a) i, ii, iv, iii
  - b) i, ii, iii, iv
  - c) ii, iv, i, iii
  - d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: Users are your customers, they will be using your product, thus making them most important of all.

---

3. Arrange the tasks involved in requirements elicitation in an appropriate manner.

- i. Consolidation
  - ii. Prioritization
  - iii. Requirements Gathering
  - iv. Evaluation
- a) iii, i, ii, iv
  - b) iii, iv, ii, i
  - c) iii, ii, iv, i
  - d) ii, iii, iv, i

[View Answer](#)

Answer: b

Explanation: Requirements gathering captures viewpoint from different users followed by evaluation of those view points. Now comes the task of checking the relative importance of the requirements and finally to consolidate or bind together the information collected.

---

4. What are the types of requirement in Quality Function Deployment(QFD) ?

- a) Known, Unknown, Undreamed
- b) User, Developer
- c) Functional, Non-Functional
- d) Normal, Expected, Exciting

[View Answer](#)

Answer: d

Explanation: According to QFD, Normal, Expected and Exciting requirements maximizes customer satisfaction from the Software Engineering Process.

---

5. What kind of approach was introduced for elicitation and modelling to give a functional view of the system ?

- a) Object Oriented Design (by Booch)
- b) Use Cases (by Jacobson)

- c) Fusion (by Coleman)
- d) Object Modeling Technique (by Rumbaugh)

[View Answer](#)

Answer: b

Explanation: Use Case captures who does what with the system, for what purpose, without dealing with system internals.

---

6. What are the kinds of actors used in OOSE ?

- a) Primary
- b) Secondary
- c) Ternary
- d) Both Primary and Secondary

[View Answer](#)

Answer: d

Explanation: A primary actor is one having a goal requiring the assistance of the system whereas, a secondary actor is one from which system needs assistance. There is no such thing as ternary actor in Software Engineering.

---

7. Why is Requirements Elicitation a difficult task ?

- a) Problem of scope
- b) Problem of understanding
- c) Problem of volatility
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Users specify unnecessary technical detail that may confuse, rather than clarify overall system objectives. Also, the customers/users are not completely sure of what is needed, have a poor understanding of the capabilities and limitations of their computing environment and they do not understand that the requirements change over time.

---

8. What requirement gathering method developed at IBM in 1970s is used for managing requirement elicitation ?

- a) JAD
- b) Traceability
- c) FAST
- d) Both JAD and Traceability

[View Answer](#)

Answer: d

Explanation: Joint application design (JAD) is a process used to collect business requirements while developing new information systems for a company. Requirements traceability is concerned with documenting the life of a requirement and providing bi-directional traceability between various associated requirements.

---

9. Requirements elicitation is a cyclic process

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Requirements traceability provides bi-directional traceability between various associated requirements.

---

10. How many Scenarios are there in elicitation activities ?

- a) One
- b) Two
- c) Three
- d) Four

[View Answer](#)

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Answer: d

Explanation: As-is Scenario, Visionary Scenario, Evaluation Scenario and Training Scenario are the four scenarios in requirement elicitation activities.

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## Software Engineering Questions and Answers – Requirement Elicitation Techniques -1

---

1. Which of the following elicitation techniques is a viewpoint based method?

- a) FODA
- b) QFD
- c) CORE
- d) IBIS

[View Answer](#)

Answer: c

Explanation: Controlled Requirements Expression(CORE) says that any system can be viewed from a number of view points and that a complete picture of system requirements can only emerge by putting together the various viewpoints.

---

2. \_\_\_\_\_ and \_\_\_\_\_ are the two view points discussed in Controlled Requirements Expression (CORE).

- a) Functional, Non-Functional
- b) User, Developer
- c) Known, Unknown
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: The CORE sessions includes the discussion of functional and non-functional requirements.

---

3. What is the major drawback of CORE ?

- a) Requirements are comprehensive
- b) NFRs are not given enough importance
- c) Role of analyst is passive
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: In CORE the requirement specification are put together by all users, customers and analysts, so a passive analyst will not get the requirements properly.

---

4. Choose a framework that corresponds to Issue Based Information System (IBIS).

- a) Idea -> Question -> Argument
- b) Question -> Idea -> Argument
- c) Issue -> Position -> Justification
- d) Both Question -> Idea -> Argument and Issue -> Position -> Justification

[View Answer](#)

Answer: d

Explanation: IBIS is a simple and non-intrusive method that provides a framework for resolving issues and gathering requirements.

---

5. How is CORE different from IBIS ?

- a) Iterative in nature
- b) Redundancies are removed
- c) It is simple and an easier method to use
- d) Consistency problems are addressed in CORE

[View Answer](#)

Answer: d

Explanation: Preliminary data collection is done in CORE to get some broad level data on each view point to structure the view point and to check consistency from within and outside the viewpoints.

---

6. Which of the following Requirement Elicitation Techniques removes the poor understanding of application domain and lack of common terminology between the users and the analysts ?

- a) FODA
- b) CORE
- c) IBIS
- d) Prototyping

[View Answer](#)

Answer: a

Explanation: Feature Oriented Domain Analysis (FODA) is defined as the process of identifying, collecting, organizing and representing relevant information in a domain .

7. How many steps are involved in Feature Oriented Domain Analysis (FODA) ?

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

[View Answer](#)

Answer: b

Explanation: Context Analysis, Domain Modeling and Architecture Modeling are the three steps involved in Feature Oriented Domain Analysis (FODA).

8. IBIS is a more structured approach than CORE.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: IBIS is a more structured approach as it captures information which is consistent and important.On the other hand CORE gives importance to every view point even if it is obsolete.

9. Which one of the following is not an actor in JAD sessions ?

- a) User
- b) Tester
- c) Scribe
- d) Sponsor

[View Answer](#)

Answer: b

Explanation: A Tester's role is seen in after coding phase rather than in elicitation phase.

10. What of the following is not an output of a JAD session ?

- a) Context Diagrams
- b) DFDs
- c) ER model
- d) UML diagrams

[View Answer](#)

Answer: d

Explanation: Unified Modeling Language (UML) diagrams are constructed during the design phase of the SDLC.

## Software Engineering Questions and Answers – Requirement Elicitation Techniques – 2

1. How is brainstorming different from JAD ? Brainstorming sessions

- a) last for about 2-3 hours
- b) last for about 2-3 days
- c) cover the technology used for the development
- d) all of the mentioned

[View Answer](#)

Answer: a

Explanation: Brainstorming is a group or individual creativity technique by which efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed by its member(s).The idea is to quickly reach to an approved solution ASAP.

2. How is throwaway prototype different from evolutionary prototype ?

- a) It involves successive steps
- b) It involves just one task
- c) The prototype is built with the idea that it will eventually be converted into final system
- d) It has a shorter development time

[View Answer](#)

Answer: b

Explanation: Except option b all other options represent the characteristics of an evolutionary prototype.

3. Keeping the requirements of QFD in mind which of the following is not an example of an Expected Requirement ?

- a) Ease of software installation
- b) Overall operational correctness and reliability
- c) Specific system functions
- d) Quality graphical display

[View Answer](#)

Answer: c

Explanation: Expected requirements are so fundamental that a customer does not explicitly state them.System functions comes under the category of Normal requirements in QFD which is compulsory to be defined,hence is not an expected requirement.

4. QFD works best if it has management commitment.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: QFD involves heavy investment in initial stages, thus bounding the management to provide appropriate funding for the development process .

5. Which of the following Requirement Elicitation Techniques is applicable to messy, changing and ill-defined problem situations ?

- a) Quality Function Deployment (QFD)
- b) Prototyping
- c) Soft Systems Methodology (SSM)
- d) Controlled Requirements Expression (CORE)

[View Answer](#)

Answer: c

Explanation: Soft systems methodology (SSM) is a systemic approach for tackling real-world problematic situations.It is a common misunderstanding that SSM is a methodology for dealing solely with ‘soft problems’ (problems which involve psychological, social, and cultural elements). SSM does not differentiate between ‘soft’ and ‘hard’ problems, it merely provides a different way of dealing with situations perceived as problematic.

6. To ensure that a given root definition is rigorous and comprehensive, The Lancaster team proposed several criteria that are summarized in the mnemonic CATWOE in Soft Systems Methodology (SSM). Which of the following alphabet is representing an entirely different meaning to SSM ?

- a) C – Customer
- b) A – Actor
- c) T – Transformation
- d) E – ER Model

[View Answer](#)

Answer: d

Explanation: 'E' in CATWOE stands for Environmental constraints.

7. Choose the disadvantage of using SSM as an elicitation technique.

- a) It incorporates human element into design
- b) SSM is in its infant stage
- c) SSM is suitable for new systems
- d) Standard methodologies like Role Exploration, Issue Resolution and Reorganization support SSM

[View Answer](#)

Answer: b

Explanation: SSM is still in its infancy. It is evolving and its industrial usage is low.

8. How many phases are there in Brainstorming ?

- a) Two
- b) Three
- c) Four
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: Preparation, Execution and Follow up are the three phases to be achieved for a successful brainstorming session.

9. Who controls the FAST (Facilitated Application Specification Techniques) meeting ?

- a) System Analyst
- b) Scribe
- c) Facilitator
- d) Manager

[View Answer](#)

Answer: c

Explanation: A Facilitator (a customer/developer/an outsider) controls the FAST meeting. His role is to ensure that the meeting is productive.

10. Arrange the steps in order to represent the conducting of Wideband Delphi Technique.

- i. Conduct a group discussion
  - ii. Conduct another group discussion
  - iii. Present experts with a problem
  - iv. Collect expert opinion anonymously
  - v. Iterate until consensus is reached
  - vi. Feedback a summary of result to each expert
- a) i, iii, ii, iv, v, vi
  - b) iii, i, ii, iv, v, vi
  - c) i, ii, iii, iv, vi, v
  - d) iii, i, iv, vi, ii, v

[View Answer](#)

Answer: d

Explanation: The sequence represents the working steps of a Wideband Delphi technique .

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## Software Engineering Questions and Answers – Requirement Analysis

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1. 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

[View Answer](#)

Answer: d

Explanation: Activity Diagram comes under the design phase of SDLC.

---

2. How many feasibility studies is conducted in Requirement Analysis ?

- a) Two
- b) Three
- c) Four
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: Economic feasibility (cost/benefit analysis), Technical feasibility (hardware/software/people, etc.) and Legal feasibility studies are done in Requirement Analysis.

---

3. How many phases are there in Requirement Analysis ?

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

[View Answer](#)

Answer: c

Explanation: Problem Recognition, Evaluation and Synthesis (focus is on what not how), Modeling, Specification and Review are the five phases.

---

4. Traceability is not considered in Requirement Analysis.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Requirements traceability is concerned with documenting the life of a requirement and providing bi-directional traceability between various associated requirements, hence requirements must be traceable.

---

5. 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

[View Answer](#)

Answer: a

Explanation: Requirements must be actionable, measurable, testable, related to identified business needs or opportunities, and defined to a level of detail sufficient for system design.

---

6. \_\_\_\_\_ and \_\_\_\_\_ are the two issues of Requirement Analysis.

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

[View Answer](#)

Answer: b

Explanation: Option a and c are the types of requirements and not the issues of requirement analysis..

---

7. 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

[View Answer](#)

Answer: d

Explanation: The perspectives or views have been described as the Operational, Functional, and Physical views. All three are necessary and must be coordinated to fully understand the customers' needs and objectives.

---

8. Requirements Analysis is an Iterative Process.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Requirements analysis is conducted iteratively with functional analysis to optimize performance requirements for identified functions, and to verify that synthesized solutions can satisfy customer requirements.

---

9. 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

[View Answer](#)

Answer: d

Explanation: Retained information, Needed services, Multiple attributes, Common attributes, Common operations and Essential requirements are the six criterion mentioned by Coad and Yourdon.

---

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

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: 'What' refers to a system's purpose, while 'How' refers to a system's structure and behavior.

## Software Engineering Questions and Answers – Requirement Documentation

1. Which of the following property does not correspond to a good Software Requirements Specification (SRS) ?

- a) Verifiable
- b) Ambiguous
- c) Complete
- d) Traceable

[View Answer](#)

Answer: b

Explanation: The SRS should be unambiguous in nature which means each sentence in SRS should have a unique interpretation.

2. Which of the following property of SRS is depicted by the statement : “Conformity to a standard is maintained” ?

- a) Correct
- b) Complete
- c) Consistent
- d) Modifiable

[View Answer](#)

Answer: b

Explanation: The SRS is complete full labeling and referencing of all figures, tables etc. and definition of all terms and units of measure is defined.

3. The SRS is said to be *consistent* if and only if

- a) its structure and style are such that any changes to the requirements can be made easily while retaining the style and structure
- b) every requirement stated therein is one that the software shall meet
- c) every requirement stated therein is verifiable
- d) no subset of individual requirements described in it conflict with each other

[View Answer](#)

Answer: d

Explanation: Real world object may conflict with each other for example one requirement says that all lights should be red while the other states that all lights should green.

4. Which of the following statements about SRS is/are true ?

- i. SRS is written by customer
  - ii. SRS is written by a developer
  - iii. SRS serves as a contract between customer and developer
- a) Only i is true
  - b) Both ii and iii are true
  - c) All are true
  - d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: The SRS acts as a communication media between the Customer, Analyst, system developers, maintainers etc. Thus it is a contract between Purchaser and Supplier. It is essentially written by a developer on the basis of customer' need but in some cases it may be written by a customer as well.

5. The SRS document is also known as \_\_\_\_\_ specification.

- a) black-box
- b) white-box
- c) grey-box
- d) none of the mentioned

[View Answer](#)

Answer: a

Explanation: The system is considered as a black box whose internal details are not known that is, only its visible external (input/output) behavior is documented.

6. Which of the following is included in SRS ?

- a) Cost
- b) Design Constraints
- c) Staffing
- d) Delivery Schedule

[View Answer](#)

Answer: b

Explanation: Design constraints include standards to be incorporated in the software, implementation language, resource limits, operating environment etc.

7. Which of the following is not included in SRS ?

- a) Performance
- b) Functionality
- c) Design solutions
- d) External Interfaces

[View Answer](#)

Answer: c

Explanation: The SRS document concentrates on "what needs to be done" and carefully avoids the solution ("how to do") aspects.

8. Arrange the given sequence to form a SRS Prototype outline as per IEEE SRS Standard.

- i. General description
  - ii. Introduction
  - iii. Index
  - iv. Appendices
  - v. Specific Requirements
- a) iii, i, ii, v, iv
  - b) iii, ii, i, v, iv
  - c) ii, i, v, iv, iii
  - d) iii, i, ii

[View Answer](#)

Answer: c

Explanation: The given sequence correctly resemble a standard SRS prototype as per IEEE.

9. Consider the following Statement: "The output of a program shall be given within 10 secs of event X 10% of the time." What characteristic of SRS is being depicted here ?

- a) Consistent
- b) Verifiable
- c) Non-verifiable
- d) Correct

[View Answer](#)

Answer: b

Explanation: An SRS is verifiable, if and only if, every requirement stated therein is verifiable. Here the given condition can be verified during testing phase.

10. Consider the following Statement: "The data set will contain an end of file character." What characteristic of SRS is being depicted here ?

- a) Consistent
- b) Non-verifiable
- c) Correct

d) Ambiguous

[View Answer](#)

Answer: b

Explanation: An SRS is unambiguous if and only if, every requirement stated therein has only one unique interpretation. The given statement does not answer the question: "which data set will have an end of file character ?".

---

11. Consider the following Statement: "The product should have a good human interface." What characteristic of SRS is being depicted here ?

a) Consistent

b) Non-Verifiable

c) Correct

d) Ambiguous

[View Answer](#)

Answer: b

Explanation: An SRS is verifiable, if and only if, every requirement stated therein is verifiable. The statement can only be answered on completion of the software and customer evaluation but still human interface will vary from person to person.

---

12. Narrative essay is one of the best types of specification document ?

a) True

b) False

[View Answer](#)

Answer:b

Explanation: Narrative essay is one of the worst types of specification document as it is difficult to change, difficult to be precise, has scope for contradictions, etc.

## Software Engineering Questions and Answers – Requirement Management

1. Which two requirements are given priority during Requirement Management of a product ?

- a) User and Developer
- b) Functional and Non-functional
- c) Enduring and Volatile
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: Enduring requirements are core requirements & are related to main activity of the organization while volatile requirements are likely to change during software development life cycle or after delivery of the product.

2. Considering the example of issue/return of a book, cataloging etc. in a library management.What type of management requirement is being depicted here?

- a) Enduring
- b) Volatile
- c) Both Enduring & Volatile
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: For library management system issue/return of a book, cataloging etc. are core activities and are stable for any system.

3. 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.

[View Answer](#)

Answer: d

Explanation: Systems continue to be built as the advancement of new products being launched in the market and so does the market changes, the technology and in turn customer's expectation.

4. Requirements Management is a prerequisite for Quality-Oriented Development.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Quality makes no sense without reference to requirements, which means quality-oriented development is requirements-driven development, thus requirements management is a prerequisite for quality-oriented development.

5. Requirements traceability is one of the most important part requirement management. It may also be referred to as the heart of requirement management.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Requirements traceability refers to the ability to describe and follow the life of a requirement in both forwards and backwards direction. Requirements can be traced from its origins, through its development and specification, to its subsequent deployment and use, and through periods of ongoing refinement and iteration in any of these phases.

6. Requirements Management has a high initial start-up cost but does not need ongoing funding throughout a project.

- a) True

- b) False

[View Answer](#)

Answer: b

Explanation: Requirements Management needs continued funding throughout a project. Project funding is often limited at the onset of a project, restricted to those aspects of the project which are tangible and visible, and subsequently allocated in a phase-by-phase manner.

7. Which of the following is not a Requirement Management workbench tool ?

- a) RTM
- b) DOORS
- c) Rational Suite
- d) RDD 100

[View Answer](#)

Answer: c

Explanation: Rational Suite is an environment tool for requirement management.

8. Which of the following is a requirement management activity ?

- a) Investigation
- b) Design
- c) Construction and Test
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: All the options are the activities of requirement management.

9. What functionality of Requirement Management Tool (RMT) is depicted by the statement: “the tool should be able to automatically detect relations between artifacts. For example information retrieval techniques, monitoring of change history, naming schemas or model transformations.”

- a) Automatic Link Detection
- b) Documentation Support
- c) Graphical Representation
- d) Automatic Link Creation and Change

[View Answer](#)

Answer: a

Explanation: DOORS is one such tool that supports Automatic Link Detection.

10. According to a statistical report: “over 30% of all software projects are cancelled before completion and over 70% of the remainder fail to deliver expected features”. What must be the reason for such a situation ?

- a) Poor change management
- b) Poor requirements management
- c) Poor quality control
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: Fundamental to the problem mentioned in the statistical report is poor requirements management. Option a and c are its sub parts.

## Software Engineering Questions and Answers – System Modelling – 1

1. The Unified Modeling Language (UML) has become an effective standard for software modelling. How many different notations does it have ?

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

[View Answer](#)

Answer: d

Explanation: The different notations of UML includes the nine UML diagrams namely class, object, sequence, collaboration, activity, state-chart, component, deployment and use case diagrams.

2. Which model in system modelling depicts the dynamic behaviour of the system ?

- a) Context Model
- b) Behavioral Model
- c) Data Model
- d) Object Model

[View Answer](#)

Answer: b

Explanation: Behavioral models are used to describe the dynamic behavior of an executing system. This can be modeled from the perspective of the data processed by the system or by the events that stimulate responses from a system.

3. Which model in system modelling depicts the static nature of the system ?

- a) Behavioral Model
- b) Context Model
- c) Data Model
- d) Structural Model

[View Answer](#)

Answer: d

Explanation: Structural models show the organization and architecture of a system. These are used to define the static structure of classes in a system and their associations.

4. Which perspective in system modelling shows the system or data architecture.

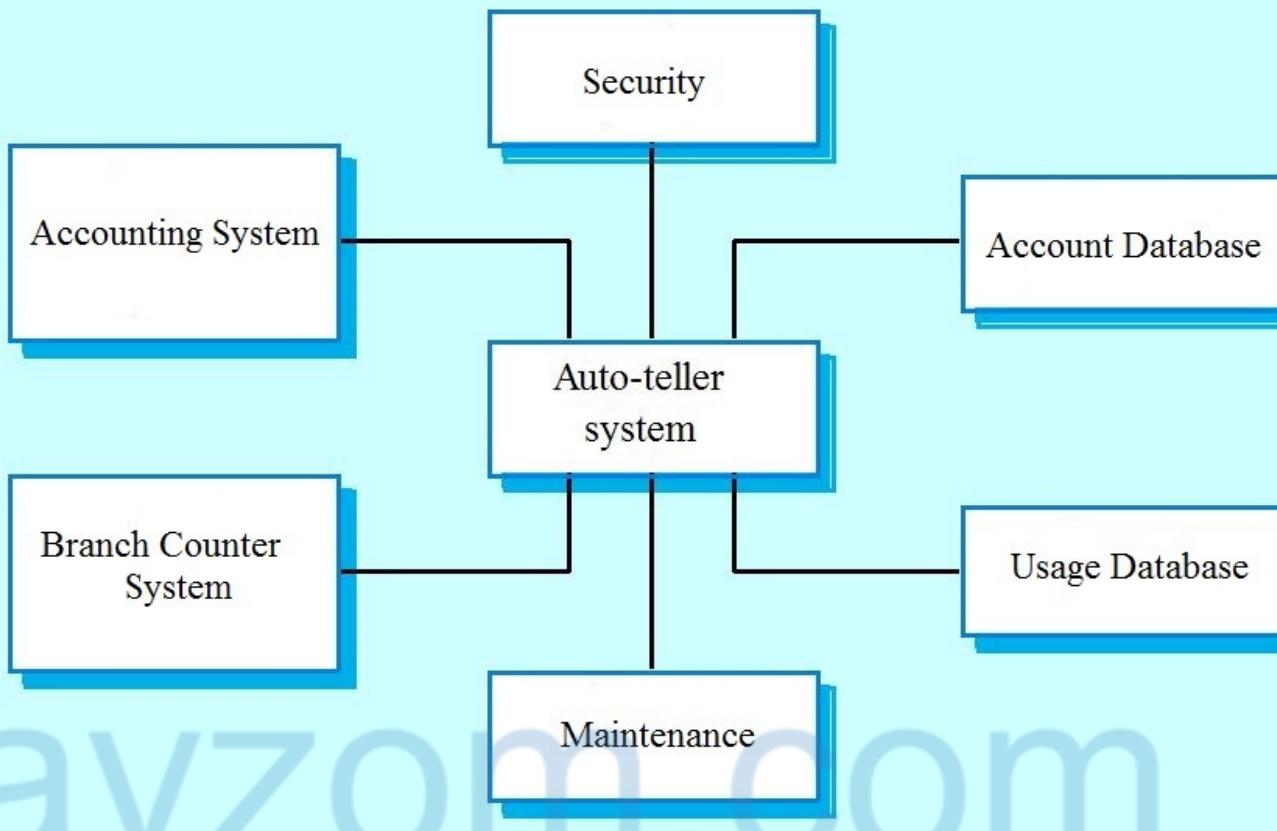
- a) Structural perspective
- b) Behavioral perspective
- c) External perspective
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: Structural perspective is used to define the static structure of classes in a system and their associations.

5. Which system model is being depicted by the ATM operations shown below:



- a) Structural model
- b) Context model
- c) Behavioral model
- d) Interaction model

[View Answer](#)

Answer: b

Explanation: Context models are used to illustrate the operational context of a system. They show what lies outside the system boundaries.

6. Activity diagrams are used to model the processing of data.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: The statement mentioned is true and each activity represents one process step.

7. Model-driven engineering is just a theoretical concept. It cannot be converted into a working/executable code.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Model-driven engineering is an approach to software development in which a system is represented as a set of models that can be automatically transformed to executable code.

8. The UML supports event-based modeling using \_\_\_\_\_ diagrams.

- a) Deployment

- b) Collaboration
- c) State chart
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: State diagrams show system states and events that cause transitions from one state to another.

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## Software Engineering Questions and Answers – System Modelling – 2

1. 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

[View Answer](#)

Answer: b

Explanation: DFDs focus on system functions and do not recognize system objects.

2. \_\_\_\_\_ allows us to infer that different members of classes have some common characteristics.

- a) Realization
- b) Aggregation
- c) Generalization
- d) dependency

[View Answer](#)

Answer: c

Explanation: Generalization is an everyday technique that we use to manage complexity. This means that common information will be maintained in one place only.

3. One creates Behavioral models of a system when you are discussing and designing the system architecture.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Structural models of software display the organization of a system in terms of the components that make up that system and their relationships.

4. \_\_\_\_\_ & \_\_\_\_\_ diagrams of UML represent Interaction modeling.

- a) Use Case, Sequence
- b) Class, Object
- c) Activity, State Chart
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: Use case modeling is mostly used to model interactions between a system and external actors. Sequence diagrams are used to model interactions between system components, although external agents may also be included.

5. Which level of Entity Relationship Diagram (ERD) models all entities and relationships ?

- a) Level 1
- b) Level 2
- c) Level 3
- d) Level 4

[View Answer](#)

Answer: b

Explanation: Level 1 ERD models all data objects (entities) and their “connections” to one another while Level 3 ERD models all entities, relationships, and the attributes that provide further depth. Thus option b is correct.

6. \_\_\_\_\_ classes are used to create the interface that the user sees and interacts with as the software is used.

- a) Controller
- b) Entity
- c) Boundary
- d) Business

[View Answer](#)

Answer: c

Explanation: The answer is self-explanatory.

---

7. Which of the following statement is incorrect regarding the Class-responsibility-collaborator (CRC) modeling ?

- a) All use-case scenarios (and corresponding use-case diagrams) are organized into categories in CRC modelling
- b) The review leader reads the use-case deliberately
- c) Only developers in the review (of the CRC model) are given a subset of the CRC model index cards
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: All participants in the review (of the CRC model) are given a subset of the CRC model index cards.

---

8. A data object can encapsulates processes and operation as well.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: A data object encapsulates data only. There is no reference within a data object to operations that act on the data.

## Software Engineering Questions and Answers – Software Evolution

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1. The two dimensions of spiral model are

- a) diagonal, angular
- b) radial, perpendicular
- c) radial, angular
- d) diagonal, perpendicular

[View Answer](#)

Answer: c

Explanation: The radial dimension depicts the cumulative costs and the angular dimension depicts the progress made in completing each cycle. Each loop of the spiral model represents a phase.

---

2. The Incremental Model is combination of elements of

- a) Build & FIX Model & Waterfall Model
- b) Linear Model & RAD Model
- c) Linear Model & Prototyping Model
- d) Waterfall Model & RAD Model

[View Answer](#)

Answer: c

Explanation: Each linear sequence produces a deliverable “increment” of the software system, particularly needed in case of quick delivery of a limited functionality system..

---

3. Model preferred to create client/server applications is

- a) WINWIN Spiral Model
- b) Spiral Model
- c) Concurrent Model
- d) Incremental Model

[View Answer](#)

Answer: c

Explanation: In case of client/server applications, the concurrent process model specifies activities in two dimensions: a system dimension and a component dimension. Hence Concurrency is achieved by these two activities occurring simultaneously and can be modeled using the state-oriented approach.

---

4. Identify the correct statement with respect to Evolutionary development:

- a) Evolutionary development usually has two flavors; exploratory development, and throw-away prototyping
- b) Very large projects are usually done using evolutionary development based approach
- c) It facilitates easy project management, through the high volume of documentation it generates
- d) Sometimes the construction of a throw-away prototype is not followed by a re- implementation of the software system using a more structured approach

[View Answer](#)

Answer: a

Explanation: Evolutionary development usually has two flavors; exploratory development, and throw-away prototyping.

---

5. Spiral model was developed by

- a) Victor Bisili
- b) Berry Boehm
- c) Bev Littlewood
- d) Roger Pressman

[View Answer](#)

Answer: b

Explanation: Berry Boehm in 1986 in his Article “A spiral model of software development and enhancement”.

6. Software evolution does not comprises:

- a) Development activities
- b) Negotiating with client
- c) Maintenance activities
- d) Re-engineering activities

[View Answer](#)

Answer: b

Explanation: Software evolution refers to the study and management of the process of making changes to software over time. Thus it comprises rest three options.

7. Processes for evolving a software product depend on:

- a) Type of software to be maintained
- b) Development processes used
- c) Skills and experience of the people involved
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Processes used for software evolution depend on all these factors.

8. Which technique is applied to ensure the continued evolution of legacy systems ?

- a) Forward engineering
- b) Reverse Engineering
- c) Reengineering
- d) Reverse Engineering and Reengineering

[View Answer](#)

Answer: d

Explanation: Processes used for software evolution depend rely on these two techniques.

9. Program modularization and Source code translation are the activities of \_\_\_\_\_

- a) Forward engineering
- b) Reverse Engineering
- c) Reengineering
- d) Reverse Engineering and Reengineering

[View Answer](#)

Answer: c

Explanation: Reengineering is the examination and alteration of a subject system to reconstitute it in a new form and the subsequent implementation of the new form.

10. Reverse engineering is the last activity in a reengineering project.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Reverse engineering is often the initial activity in a reengineering project.

11. The cost of re-engineering is often significantly less than the costs of developing new software.

- a) True
- b) False

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[View Answer](#)

Answer: a

Explanation: There is a high risk in new software development. There may be development problems, staffing problems and specification problems, thereby increasing the cost.

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## Software Engineering Questions and Answers – Sociotechnical Systems

1. A sociotechnical system is a system that includes
- a) people
  - b) software
  - c) hardware
  - d) all of the mentioned

[View Answer](#)

Answer: d

Explanation: A sociotechnical system is a system that includes people, software, and hardware to show that you need to take a systems perspective on security and dependability.

2. Which layer is missing in the sociotechnical system stack as shown below:



- a) organizational layer
- b) application layer
- c) physical layer
- d) transport layer

[View Answer](#)

Answer: b

Explanation: The application layer This layer delivers the application-specific functionality that is required.

3. Consider an example of a system which has a police command and control system that may include a geographical information system to provide details of the location of incidents. What kind of system the example represents?

- a) Complex System
- b) Technical computer-based system
- c) Sociotechnical System
- d) Both Complex and Sociotechnical System

[View Answer](#)

Answer: d

Explanation: Complex systems are usually hierarchical and so include other systems.

4. Which property of a sociotechnical system varies depending on how the component assemblies are arranged and connected?
- a) security
  - b) usability

- c) volume
- d) reliability

[View Answer](#)

Answer: c

Explanation: The volume of a system (the total space occupied) varies depending on how the component assemblies are arranged and connected.

5. Which property of a sociotechnical system depends on the technical system components, its operators, and its operating environment?

- a) security
- b) usability
- c) volume
- d) reliability

[View Answer](#)

Answer: b

Explanation: Usability reflects how easy it is to use the system.

6. In a sociotechnical system, you need to consider reliability from perspectives namely:

- a) only software reliability
- b) only hardware reliability
- c) hardware and software reliability
- d) hardware, software and operator reliability

[View Answer](#)

Answer: d

Explanation: In a sociotechnical system, you need to consider reliability from all three perspectives.

7. There are \_\_\_\_\_ overlapping stages in the lifetime of large and complex sociotechnical systems.

- a) two
- b) three
- c) four
- d) five

[View Answer](#)

Answer: b

Explanation: The stages are Procurement, Development and Operation.

8. Sociotechnical systems are deterministic.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Sociotechnical systems are non-deterministic partly because they include people and partly because changes to the hardware, software, and data in these systems are so frequent

9. What are the two ways to view the human error of a sociotechnical system?

- a) hardware and software approach
- b) management and users approach
- c) person and systems approach
- d) all of the mentioned

[View Answer](#)

Answer: c

Explanation: The answer is self explanatory.

10. Human and organizational factors such as organizational structure and politics have a significant effect on the operation of sociotechnical systems.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: As people are a part of the system, hence they affect the sociotechnical system.

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## Software Engineering Questions and Answers – Dependability and Security

---

1. 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

[View Answer](#)

Answer: b

Explanation: None.

---

2. An erroneous system state that can lead to system behavior that is unexpected by system users is known as?

- a) Human error or mistake
- b) System fault
- c) System error
- d) System failure

[View Answer](#)

Answer: c

Explanation: None.

---

3. An event that occurs at some point in time when the system does not deliver a service as expected by its users is called \_\_\_\_\_

- a) Human error or mistake
- b) System fault
- c) System error
- d) System failure

[View Answer](#)

Answer: d

Explanation: None.

---

4. A chemical plant system may detect excessive pressure and open a relief valve to reduce these pressures before an explosion occurs. What kind of dependability and security issue the example states?

- a) Hazard avoidance
- b) Damage limitation
- c) Hazard detection
- d) Hazard detection and removal

[View Answer](#)

Answer: d

Explanation: The system is designed so that hazards are detected and removed before they result in an accident.

---

5. 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

[View Answer](#)

Answer: b

Explanation: The system may include protection features that minimize the damage that may result from an accident.

---

6. An assessment of the worst possible damage that could result from a particular hazard is known as

- a) Risk

- b) Hazard probability
- c) Hazard severity
- d) Mishap

[View Answer](#)

Answer: c

Explanation: Hazard severity can range from catastrophic, where many people are killed, to minor, where only minor damage results. When an individual death is a possibility, a reasonable assessment of hazard severity is ‘very high’.

---

7. which of the following terms is a measure of the probability that the system will cause an accident?

- a) Risk
- b) Hazard probability
- c) Accident
- d) Damage

[View Answer](#)

Answer: a

Explanation: The risk is assessed by considering the hazard probability, the hazard severity, and the probability that the hazard will lead to an accident.

---

8. A weakness in a computer-based system that may be exploited to cause loss or harm is known as?

- a) Vulnerability
- b) Attack
- c) Threat
- d) Exposure

[View Answer](#)

Answer: a

Explanation: None.

---

9. A password checking system that disallows user passwords that are proper names or words that are normally included in a dictionary is an example of \_\_\_\_\_ with respect to security systems.

- a) risk
- b) control
- c) attack
- d) asset

[View Answer](#)

Answer: b

Explanation: A control protective measure that reduces a system’s vulnerability.

---

10. The safety of a system is a system attribute that reflects the system’s ability to operate, normally or abnormally, without injury to people or damage to the environment.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: None.

## Software Engineering Questions and Answers – Dependability and Security Specification

---

1. How many stages are there in Risk-driven requirements specification?

- a) three
- b) four
- c) five
- d) six

[View Answer](#)

Answer: b

Explanation: These include Risk identification, Risk analysis, Risk reduction and Risk decomposition

---

2. Consider a case where the system is unavailable and cannot deliver its services to users. What type of failure is being described here?

- a) Loss of service
- b) Incorrect service delivery
- c) System/data corruption
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: One may separate this into loss of critical services and loss of non-critical services, where the consequences of a failure in non-critical services are less than the consequences of critical service failure.

---

3. Consider a case where the failure of the system causes damage to the system itself or it data. What type of failure is being described here?

- a) Loss of service
- b) Incorrect service delivery
- c) System/data corruption
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: None.

---

4. POFOD stands for

- a) Possibility of failure of data
- b) Probability of failure of data
- c) Possibility of failure on demand
- d) Probability of failure on demand

[View Answer](#)

Answer: d

Explanation: None.

---

5. Which reliability metric sets out the probable number of system failures that are likely to be observed relative to a certain time period?

- a) POFOD
- b) ROCOF
- c) AVAIL
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: Rate of occurrence of failures (ROCOF) sets out the probable number of system failures that are likely to be observed relative to the number of system executions.

---

6. Which of the following is not a functional reliability requirement for a system?

- a) Checking requirements
- b) Recovery requirements
- c) Redundancy requirements
- d) Ambiguous requirements

[View Answer](#)

Answer: d

Explanation: All the options are correct except option d.

---

7. To specify security requirements, one should identify the risks that are to be dealt with.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: To specify security requirements, one should identify the assets that are to be dealt with.

---

8. The aim of preliminary risk analysis and assessment process is to derive security requirements for the system as a whole.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: In preliminary risk analysis stage, decisions on the detailed system requirements, the system design, or the implementation technology have not been made.

---

9. At which stage of risk analysis specification, the additional security requirements take account of the technologies used in building the system and system design and implementation decisions?

- a) Preliminary risk analysis
- b) Life-cycle risk analysis
- c) Operational risk analysis
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: This risk assessment takes place during the system development life cycle after design choices have been made..

---

10. Which reliability requirements are concerned with maintaining copies of the system?

- a) Checking requirements
- b) Recovery requirements
- c) Redundancy requirements
- d) Ambiguous requirements

[View Answer](#)

Answer: b

Explanation: These requirements are geared to helping the system recover after a failure has occurred.

## Software Engineering Questions and Answers – Dependability Engineering

1. Which of the following examples does not involve dependability engineering ?

- a) Medical Systems
- b) Power Systems
- c) Library Management
- d) Telecommunications

[View Answer](#)

Answer: c

Explanation: Software customers expect all software to be dependable. However, for non-critical applications such as certain management systems, they may be willing to accept some system failures.

2. What is the term for development process organised such that faults in the system are detected and repaired before delivery to the customer ?

- a) Fault Avoidance
- b) Fault detection
- c) Fault tolerance
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: In Fault Avoidance, the system is developed in such a way that human error is avoided and thus system faults are minimised.

3. What is the term for a system that is designed such that the faults in the delivered software do not result in system failure ?

- a) Fault Avoidance
- b) Fault detection
- c) Fault tolerance
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: None.

4. Which process characteristic with respect to Dependability Engineering is mentioned by the statement: “The process should be understandable by people apart from process participants”?

- a) Diverse
- b) Documentable
- c) Auditable
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: It means that process standards are being followed and make suggestions for process improvement.

5. Which of the following is not a Protection system ?

- a) System to stop a train if it passes a red light
- b) System to indicate not returning of the library book
- c) System to shut down a reactor if temperature/pressure are too high
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: A Protection system is a specialized system that is associated with some other control system, which can take emergency action if a failure occurs.

6. The use of a well-defined, repeatable process is essential if faults in a system are to be minimized.

a) True

b) False

[View Answer](#)

Answer: a

Explanation: The answer is self explanatory.

---

7. Which of the following is a Strategy to achieve Software diversity ?

a) Different programming languages

b) Different design methods and tools

c) Explicit specification of different algorithms

d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Diversity means to provide the same functionality in different ways so that critical components of a dependable system will not fail in the same way.

---

8. Exception handling is a mechanism to provide some fault avoidance.

a) True

b) False

[View Answer](#)

Answer: b

Explanation: Exception handling is a mechanism to provide some fault tolerance.

---

9. Which of the following is a bad practice of Dependable programming ?

a) Limit the visibility of information in a program

b) Check array bounds

c) Check all inputs for validity

d) None of the mentioned

[View Answer](#)

Answer: d

Explanation: All the options are good practices to achieve Dependability Engineering.

---

10. What is a Range check?

a) Check that the input does not exceed some maximum size e.g. 40 characters for a name

b) Check that the input falls within a known range

c) Use information about the input to check if it is reasonable rather than an extreme value

d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

## Software Engineering Questions and Answers – Security Engineering

1. Which of the following is a layer of protection for Security ?

- a) Platform-level protection
- b) Application-level protection
- c) Record-level protection
- d) All of the mentioned

[View Answer](#)

Answer:d

Explanation: None.

2. Security engineering is only concerned with maintenance of systems such that they can resist malicious attacks.

- a) True
- b) False

[View Answer](#)

Answer:b

Explanation: Security engineering is concerned with maintenance as well as development of such systems.

3. What are security controls ?

- a) Controls that are intended to ensure that attacks are unsuccessful
- b) Controls that are intended to detect and repel attacks
- c) Controls that are intended to support recovery from problems
- d) All of the mentioned

[View Answer](#)

Answer:d

Explanation: All the options define a security control property.

4. Controls that are intended to repel attacks is analogous to \_\_\_\_\_ in dependability engineering.

- a) Fault avoidance
- b) Fault tolerance
- c) Fault detection
- d) None of the mentioned

[View Answer](#)

Answer:b

Explanation: Here the system is designed so that faults in the delivered software do not result in system failure.

5. Controls that are intended to ensure that attacks are unsuccessful is analogous to \_\_\_\_\_ in dependability engineering.

- a) Fault avoidance
- b) Fault tolerance
- c) Fault detection
- d) Fault Recovery

[View Answer](#)

Answer:a

Explanation: In Fault avoidance the system is developed in such a way that human error is avoided and thus system faults are minimised.

6. What is Life cycle risk assessment ?

- a) Risk assessment before the system has been deployed
- b) Risk assessment while the system is being developed
- c) All of the mentioned
- d) None of the mentioned

[View Answer](#)

Answer:c

Explanation: None.

---

7. A system resource that has a value and has to be protected is known as

- a) Asset
- b) Control
- c) Vulnerability
- d) None of the mentioned

[View Answer](#)

Answer:a

Explanation: The answer is self explanatory.

---

8. An impersonation of an authorised user is an example of a security threat.

- a) True
- b) False

[View Answer](#)

Answer:b

Explanation: It is a security attack.

---

9. The records of each patient that is receiving or has received treatment resembles which security concept ?

- a) Asset
- b) Threat
- c) Vulnerability
- d) Control

[View Answer](#)

Answer:a

Explanation: Asset is a system resource that has a value and has to be protected.

---

10. Circumstances that have potential to cause loss or harm is known as

- a) Attack
- b) Threat
- c) Vulnerability
- d) Control

[View Answer](#)

Answer:b

Explanation: The answer is self explanatory.

## Software Engineering Questions and Answers – Dependability and Security Assurance

---

1. Static Analysis involves executing a program.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Static analysis techniques are system verification techniques that don't involve executing a program.

---

2. Which of the following is a technique covered in Static Analysis ?

- a) Formal verification
- b) Model checking
- c) Automated program analysis
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: None.

---

3. Select the disadvantage of using Formal methods

- a) Concurrent systems can be analysed to discover race conditions that might lead to deadlock
- b) Producing a mathematical specification requires a detailed analysis of the requirements
- c) They require the use of specialised notations that cannot be understood by domain experts
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: Formal methods are the ultimate static verification technique that may be used at different stages in the development process.

---

4. Which of the following is incorrect with respect to Model Checking?

- a) Model checking is particularly valuable for verifying concurrent systems
- b) Model checking is computationally very inexpensive
- c) The model checker explores all possible paths through the model
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: Model checking is very expensive. It is only practical to use it in the verification of small to medium sized critical systems.

---

5. Choose the fault class in which the following automated static analysis check would fall: "Variables declared but never used".

- a) Control Faults
- b) Data Faults
- c) Input/Output Faults
- d) Interface faults

[View Answer](#)

Answer: b

Explanation: None.

---

6. Choose the fault class in which the following automated static analysis check would fall: "Unreachable code".

- a) Control Faults
- b) Data Faults
- c) Input/Output Faults
- d) Interface faults

[View Answer](#)

Answer: a

Explanation: None.

---

7. Choose the fault class in which the following automated static analysis check would fall?"Non-usage of the results of functions".

- a) Storage management faults
- b) Data Faults
- c) Input/Output Faults
- d) Interface faults

[View Answer](#)

Answer: d

Explanation: None.

---

8. Static analysis is now routinely used in the development of many safety and security critical systems.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: The static analyzer can discover areas of vulnerability such as buffer overflows or unchecked inputs

---

9. Which level of Static Analysis allows specific rules that apply to a program to be checked ?

- a) Characteristic error checking
- b) User-defined error checking
- c) Assertion checking
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: Users of a programming language define error patterns, thus extending the types of error that can be detected.

---

10. Choose the fault class in which the following automated static analysis check would fall."Pointer Arithmetic".

- a) Storage management faults
- b) Data Faults
- c) Input/Output Faults
- d) Interface faults

[View Answer](#)

Answer: a

Explanation: None.

## Software Engineering Questions and Answers – Software Design

---

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.

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## Software Engineering Questions and Answers – Modularity in Software Design

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 another.

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.

## Software Engineering Questions and Answers – Function Oriented Design using Structured Analysis Structured Design

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

[View Answer](#)

Answer: d

Explanation: None.

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

[View Answer](#)

Answer: c

Explanation: The module structure is the software architecture.

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

[View Answer](#)

Answer: b

Explanation: None.

4. The results of structured analysis can be easily understood by ordinary customers.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: The results of structured analysis directly represents customer's perception of the problem and uses customer's terminology for naming different functions and data.

5. Structured Analysis is based on the principle of Bottom-Up Approach.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Structured Analysis follows decomposition approach.

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

[View Answer](#)

Answer: a

Explanation: Context diagram captures the various entities external to the system interacting with it and data flow occurring between the system and the external entities.

---

7. A directed arc or line in DFD represents

- a) Data Store
- b) Data Process
- c) Data Flow
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: It resembles data flow in the direction of the arrow.

---

8. A DFD is always accompanied by a data dictionary.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: A data dictionary lists all data items appearing in a DFD including definition and data names.

---

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

[View Answer](#)

Answer: a

Explanation: None.

---

10. Data Store Symbol in DFD represents a

- a) Physical file
- b) Data Structure
- c) Logical file
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: A logical file can be a data structure or a physical file on disk.

## Software Engineering Questions and Answers – Object Oriented Software Design – 1

---

1. Choose the incorrect statement in terms of Objects.  
a) Objects are abstractions of real-world  
b) Objects can't manage themselves  
c) Objects encapsulate state and representation information  
d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: Objects are independent.

---

2. What encapsulates both data and data manipulation functions ?

- a) Object
- b) Class
- c) Super Class
- d) Sub Class

[View Answer](#)

Answer: a

Explanation: None.

---

3. Which of the following is a mechanism that allows several objects in a class hierarchy to have different methods with the same name?

- a) Aggregation
- b) Polymorphism
- c) Inheritance
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: In polymorphism instances of each subclass will be free to respond to messages by calling their own version of the method.

---

4. Inherited object classes are self-contained.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Inherited object classes are not self-contained. They cannot be understood without reference to their super-classes.

---

5. Which of the following points related to Object-oriented development (OOD) is true?

- a) OOA is concerned with developing an object model of the application domain
- b) OOD is concerned with developing an object-oriented system model to implement requirements
- c) All of the mentioned
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: The answer is in support with the OOD.

---

6. How is generalization implemented in Object Oriented programming languages?

- a) Inheritance
- b) Polymorphism
- c) Encapsulation
- d) Abstract Classes

[View Answer](#)

Answer: a

Explanation: None.

---

7. Which of the following is a disadvantage of OOD ?

- a) Easier maintenance
- b) Objects may be understood as stand-alone entities
- c) Objects are potentially reusable components
- d) None of the mentioned

[View Answer](#)

Answer: d

Explanation: All the options define the characteristics of OOD.

---

8. Which of the following describes "Is-a-Relationship" ?

- a) Aggregation
- b) Inheritance
- c) Dependency
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

---

9. Object that collects data on request rather than autonomously is known as

- a) Active Object
- b) Passive Object
- c) Multiple instance
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: A passive object holds data, but does not initiate control.

---

10. Objects are executed

- a) sequentially
- b) in Parallel
- c) sequentially & Parallel
- d) none of the mentioned

[View Answer](#)

Answer: c

Explanation: Objects may be distributed and may execute sequentially or in parallel.

## Software Engineering Questions and Answers – Object Oriented Software Design – 2

---

1. How many layers are present in the OO design pyramid?

- a) three
- b) four
- c) five
- d) one

[View Answer](#)

Answer: b

Explanation: The four layers are: Subsystem layer, class and object layer, message layer and responsibilities layer

---

2. Which of the following early OOD methods incorporates both a “micro development process” and a “macro development process.”?

- a) Booch method
- b) Rumbaugh method
- c) Wirfs-Brock method
- d) Coad and Yourdon method

[View Answer](#)

Answer: a

Explanation: The macro development process includes the architectural planning and micro developments process defines rules that govern the use of operations and attributes and the domain-specific policies for memory management, error handling, and other infrastructure functions.

---

3. Grady Booch, James Rumbaugh, and Ivar Jacobson combined the best features of their individual object-oriented analysis into a new method for object oriented design known as

- a) HTML
- b) XML
- c) UML
- d) SGML

[View Answer](#)

Answer: c

Explanation: The Unified Modeling Language (UML) has become widely used throughout the industry as the standard approach to OOD.

---

4. A design description of an object is known as a class

- a) instance
- b) object
- c) case
- d) both instance and object

[View Answer](#)

Answer: d

Explanation: None.

---

5. Which of the following is conceptually similar to objects?

- a) PACKAGE
- b) PROC
- c) PRIVATE
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: A package is a namespace that organizes a set of related classes and interfaces.

---

6. A design description in OOD includes

- a) Protocol Description
- b) Implementation Description
- c) Type Description
- d) both Protocol and Implementation Description

[View Answer](#)

Answer: d

Explanation: None.

---

7. Which of the following is not an operation as per OOD algorithms and data structures?

- a) operations that manipulate data in some way
- b) operations that perform a computation
- c) operations that check for syntax errors
- d) operations that monitor an object for the occurrence of a controlling event

[View Answer](#)

Answer: c

Explanation: Operations that check for syntax errors is concerned with the programming language used, so it will be handled by the compiler.

---

8. Throughout the OOD process, a software engineer should look for every opportunity for creating new design process.

- a) True

- b) False

[View Answer](#)

Answer: b

Explanation: A software engineer should look for every opportunity to reuse existing design patterns whenever they meet the needs of the design rather than creating new ones.

## Software Engineering Questions and Answers – Web Engineering Project Metrics

---

1. The user has no control over the contents of a static web page.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Static web pages are just for information purposes.

---

2. Which metric gives the idea about the contents on a web page ?

- a) Word Token
- b) Word Count
- c) Word Size
- d) Word Length

[View Answer](#)

Answer: b

Explanation: The word count metric gives the total number of words on a web page.

---

3. How is the complexity of a web page related to link count ?

- a) Directly
- b) Indirectly
- c) No relation
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: If link count is more, complexity will be more.

---

4. It is expected to have less number of connections for a good web application.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: More the link count, more the complexity and the web page dependence factor will increase.

---

5. Number of dynamic web pages provides an idea about \_\_\_\_\_ for a web page that is to be built.

- a) size
- b) complexity
- c) effort
- d) all of the mentioned

[View Answer](#)

Answer: d

Explanation: None.

---

6. Which of the following web engineering metric measures the extent of relatedness between two or more web pages ?

- a) Number of Static Content Objects
- b) Number of Dynamic Content Objects
- c) Web Page Similarity
- d) Number of Internal Page Links

[View Answer](#)

Answer: c

Explanation: None.

---

7. Which of the following is not a classification of the web engineering metric, Web Page Similarity ?

- a) Content based
- b) Link based
- c) Usage based
- d) Traffic based

[View Answer](#)

Answer: d

Explanation: Similarity between two web pages is not judged upon its traffic activity.

---

8. The static content objects are dependent on the actions of the user.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Dynamic Objects are user dependent

---

9. Link based measures rely on \_\_\_\_\_ structure of a web graph to obtain related pages.

- a) Embedded
- b) Hyperlink
- c) Dynamic
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: Only option b answers the blank, rest are not in accordance to the question.

---

10. Which of the following is not a web engineering project metric ?

- a) Number of Static Content Objects
- b) Number of Dynamic Content Objects
- c) Number of Inherited Objects
- d) Word Count

[View Answer](#)

Answer: c

Explanation: There is no such metric as an inherited object's count.

## Software Engineering Questions and Answers – Metrics Analysis

---

1. Which of the following is not a metric for design model?

- a) Interface design metrics
- b) Component-level metrics
- c) Architectural metrics
- d) Complexity metrics

[View Answer](#)

Answer: d

Explanation: Complexity metrics measure the logical complexity of source code.

---

2. Statement and branch coverage metrics are part of

- a) Analysis Model
- b) Testing
- c) Design Model
- d) Source Code

[View Answer](#)

Answer: b

Explanation: These metrics lead to the design of test cases that provide program coverage.

---

3. Function Points in software engineering was first proposed by

- a) Booch
- b) Boehm
- c) Albrecht
- d) Jacobson

[View Answer](#)

Answer: c

Explanation: First proposed by Albrecht in 1979, hundreds of books and papers have been written on functions points since then.

---

4. How many Information Domain Values are used for Function Point Computation?

- a) three
- b) four
- c) five
- d) six

[View Answer](#)

Answer: c

Explanation: The five values are: External Inputs, External Outputs, External Inquiries, Internal Logical Files and External Interface Files.

---

5. Function Point Computation is given by the formula

- a)  $FP = [\text{count total} * 0.65] + 0.01 * \sum(F_i)$
- b)  $FP = \text{count total} * [0.65 + 0.01 * \sum(F_i)]$ .
- c)  $FP = \text{count total} * [0.65 + 0.01] * \sum(F_i)$
- d)  $FP = [\text{count total} * 0.65 + 0.01] * \sum(F_i)$

[View Answer](#)

Answer: b

Explanation: Option b is the correct formula for Function Point Computation.

---

6. Architectural Design Metrics are \_\_\_\_\_ in nature.

- a) Black Box
- b) White Box

- c) Gray Box
- d) Green Box

[View Answer](#)

Answer: a

Explanation: They are “black box” in that they do not require any knowledge of the inner workings of a particular software component.

---

7. Structural complexity of a module  $i$  is given as  $S(i) = f^*f(i)$ . What does  $f$  symbolizes here?

- a) “fan check-out” of module  $i$
- b) “fan check-in” of module  $i$
- c) “fan in” of module  $i$
- d) “fan out” of module  $i$

[View Answer](#)

Answer: d

Explanation: Fan out is number of modules directly invoked by module  $i$ .

---

8. SMI stands for

- a) Software Mature Indicator
- b) Software Maturity Index
- c) Software Mature Index
- d) Software Maturity Indicator

[View Answer](#)

Answer: b

Explanation: None.

---

9. As the SMI approaches 1.0, the software product starts becoming unstable

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: As the SMI approaches 1.0, the software product begins to stabilize.

---

10.  $SMI = [Mt - (Fa + Fc + Fd)]/Mt$ . Here Mt is the number of modules

- a) in the current release
- b) in the current release that have been changed
- c) from the preceding release that were deleted in the current release
- d) none of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

---

11. The amount of time that the software is available for use is known as

- a) Reliability
- b) Usability
- c) Efficiency
- d) Functionality

[View Answer](#)

Answer: a

Explanation: None.

---

12. Usability in metric analysis is defined as the degree to which the software

- a) stated needs
- b) is easy to use
- c) makes optimal use of system resources
- d) none of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

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## Software Engineering Questions and Answers – Metrics for Quality Control

---

1. Size and Complexity are a part of

- a) Product Metrics
- b) Process Metrics
- c) Project Metrics
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: Product Metrics describe the characteristics of product.

---

2. Cost and schedule are a part of

- a) Product Metrics
- b) Process Metrics
- c) Project Metrics
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: Project Metrics describe the project characteristics and execution.

---

3. Number of errors found per person hours expended is an example of a

- a) measurement
- b) measure
- c) metric
- d) all of the mentioned

[View Answer](#)

Answer: c

Explanation: Metric is a quantitative measure of the degree to which a system, component, or process possesses a given attribute.

---

4. Which of the following is not categorized under Product Operation of McCall's Software Quality Factors?

- a) Flexibility
- b) Reliability
- c) Usability
- d) Integrity

[View Answer](#)

Answer: a

Explanation: Flexibility is a part of Product revision as per McCall's Software Quality Factors.

---

5. The arc-to-node ratio is given as  $r = a/n$ . What does 'a' represent in the ratio?

- a) maximum number of nodes at any level
- b) longest path from the root to a leaf
- c) number of modules
- d) lines of control

[View Answer](#)

Answer: d

Explanation: 'a' represents the arcs or the lines of control.

---

6. Which of the following is not categorized under Component-Level Design Metrics?

- a) Complexity Metrics
- b) Cohesion Metrics

- c) Morphology Metrics
- d) Coupling Metrics

[View Answer](#)

Answer: c

Explanation: Morphology metrics are a part of High level design metrics.

---

7. Percentage of modules that were inspected is a part of

- a) Product Metrics
- b) Process Metrics
- c) Project Metrics
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

---

8. Metric is the act of obtaining a measure.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Measurement is the act of obtaining a measure.

---

9. MTTC falls the the category of

- a) correctness
- b) integrity
- c) maintainability
- d) all of the mentioned

[View Answer](#)

Answer: c

Explanation: Mean time to change (MTTC) is the time it takes to analyze the change request, design an appropriate modification, implement the change, test it, and distribute the change to all users.

---

10. Identify the correct option with reference to Software Quality Metrics.

- a) Integrity =  $[\Sigma(1 - threat)] * (1 - security)$
- b) Integrity =  $[1 - \Sigma(threat)] * (1 - security)$
- c) Integrity =  $[1 - threat * \Sigma(1 - security)]$ .
- d) Integrity =  $\Sigma[1 - threat * (1 - security)]$ .

[View Answer](#)

Answer: d

Explanation: None.

## Software Engineering Questions and Answers – Project Management

1. Which of the following is not project management goal?  
a) Keeping overall costs within budget  
b) Delivering the software to the customer at the agreed time  
c) Maintaining a happy and well-functioning development team  
d) Avoiding customer complaints

[View Answer](#)

Answer: d

Explanation: Projects need to be managed because professional software engineering is always subject to organizational budget and schedule constraints.

2. Project managers have to assess the risks that may affect a project.

- a) True

- b) False

[View Answer](#)

Answer: b

Explanation: Risk management involves anticipating risks that might affect the project schedule or the quality of the software being developed, and then taking action to avoid these risks.

3. Which of the following is not considered as a risk in project management?

- a) Specification delays  
b) Product competition  
c) Testing  
d) Staff turnover

[View Answer](#)

Answer: c

Explanation: Testing is a part of project, thus it can't be categorized as risk.

4. The process each manager follows during the life of a project is known as

- a) Project Management  
b) Manager life cycle  
c) Project Management Life Cycle  
d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: A proven methodical life cycle is necessary to repeatedly implement and manage projects successfully.

5. A 66.6% risk is considered as

- a) very low  
b) low  
c) moderate  
d) high

[View Answer](#)

Answer: d

Explanation: The probability of the risk might be assessed as very low (<10%), low (10–25%), moderate (25–50%), high (50–75%), or very high (>75%).

6. Which of the following is/are main parameters that you should use when computing the costs of a software development project?

- a) travel and training costs

- b) hardware and software costs
- c) effort costs (the costs of paying software engineers and managers)
- d) all of the mentioned

[View Answer](#)

Answer: d

Explanation: Estimation involves working out how much effort is required to complete each activity and, from this, calculating the total cost of activities.

---

7. Quality planning is the process of developing a quality plan for

- a) team
- b) project
- c) customers
- d) project manager

[View Answer](#)

Answer: b

Explanation: The quality plan should set out the desired software qualities and describe how these are to be assessed.

---

8. Which of the following is incorrect activity for the configuration management of a software system?

- a) Internship management
- b) Change management
- c) Version management
- d) System management

[View Answer](#)

Answer: a

Explanation: Configuration management policies and processes define how to record and process proposed system changes, how to decide what system components to change, how to manage different versions of the system and its components, and how to distribute changes to customers.

---

9. Identify the sub-process of process improvement

- a) Process introduction
- b) Process analysis
- c) De-processification
- d) Process distribution

[View Answer](#)

Answer: b

Explanation: The current process is assessed, and process weaknesses and bottlenecks are identified.

---

10. An independent relationship must exist between the attribute that can be measured and the external quality attribute.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: The value of the quality attribute must be related, in some way, to the value of the attribute than can be measured.

## Software Engineering Questions and Answers – Project Planning

---

1. Which of the following is an important factor that can affect the accuracy and efficacy of estimates?

- a) Project size
- b) Planning process
- c) Project complexity
- d) Degree of structural uncertainty

[View Answer](#)

Answer: a

Explanation: As size increases, the interdependence among various elements of the software grows rapidly.

---

2. What describes the data and control to be processed?

- a) Planning process
- b) Software scope
- c) External hardware
- d) Project complexity

[View Answer](#)

Answer: b

Explanation: Functions described in the statement of scope are evaluated and in some cases refined to provide more detail prior to the beginning of estimation.

---

3. A number of independent investigators have developed a team-oriented approach to requirements gathering that can be applied to establish the scope of a project called

- a) JAD
- b) CLASS
- c) FAST
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: Facilitated application specification techniques (FAST), this approach encourages the creation of a joint team of customers and developers who work together to identify the problem, propose elements of the solution, negotiate different approaches, and specify a preliminary set of requirements.

---

4. CLSS stands for

- a) conveyor line sorting system
- b) conveyor line sorting software
- c) conveyor line sorting speed
- d) conveyor line sorting specification

[View Answer](#)

Answer: a

Explanation: The conveyor line sorting system (CLSS) sorts boxes moving along a conveyor line. Each box is identified by a barcode that contains a part number and is sorted into one of six bins at the end of the line.

---

5. The project planner examines the statement of scope and extracts all important software functions which is known as

- a) Association
- b) Decomposition
- c) Planning process
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: None

---

6. The environment that supports the software project is called

- a) CLSS
- b) SEE
- c) FAST
- d) CBSE

[View Answer](#)

Answer: b

Explanation: Software engineering environment (SEE), incorporates hardware and software.

---

7. Which of the following is not an option to achieve reliable cost and effort estimate?

- a) Base estimates on similar projects that have already been completed
- b) Use one or more empirical models for software cost and effort estimation
- c) Use relatively simple decomposition techniques to generate project cost and effort estimates
- d) The ability to translate the size estimate into human effort, calendar time, and dollars

[View Answer](#)

Answer: d

Explanation: None.

---

8. What can be used to complement decomposition techniques and offer a potentially valuable estimation approach in their own right?

- a) Automated estimation tools
- b) Empirical estimation models
- c) Decomposition techniques
- d) Both Automated estimation tools and Empirical estimation models

[View Answer](#)

Answer: b

Explanation: An estimation model for computer software uses empirically derived formulas to predict effort as a function of LOC or FP.

---

9. Which of the following is not achieved by an automated estimation tools?

- a) Predicting staffing levels
- b) Predicting software cost
- c) Predicting software schedules
- d) Predicting clients demands

[View Answer](#)

Answer: d

Explanation: Demands can vary from client to client.

---

10. Software project estimation can never be an exact science, but a combination of good historical data and systematic techniques can improve estimation accuracy.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: None.

## Software Engineering Questions and Answers – Size and Cost Estimation of Software

1. Which of the following are parameters involved in computing the total cost of a software development project?

- a) Hardware and software costs
- b) Effort costs
- c) Travel and training costs
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: All these are accounted for in estimating a software development cost.

2. Which of the following costs is not part of the total effort cost?

- a) Costs of networking and communications
- b) Costs of providing heating and lighting office space
- c) Costs of lunch time food
- d) Costs of support staff

[View Answer](#)

Answer: c

Explanation: This is incurred by the employees.

3. What is related to the overall functionality of the delivered software?

- a) Function-related metrics
- b) Product-related metrics
- c) Size-related metrics
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: Productivity is expressed in terms of the amount of useful functionality produced in some given time. Function points and object points are the best-known metrics of this type.

4. A \_\_\_\_\_ is developed using historical cost information that relates some software metric to the project cost.

- a) Algorithmic cost modelling
- b) Expert judgement
- c) Estimation by analogy
- d) Parkinson's Law

[View Answer](#)

Answer: a

Explanation: The model uses a basic regression formula with parameters that are derived from historical project data and current as well as future project characteristics.

5. It is often difficult to estimate size at an early stage in a project when only a specification is available

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Function-point and object-point estimates are easier to produce than estimates of code size but are often still inaccurate.

6. Which technique is applicable when other projects in the same analogy application domain have been completed?

- a) Algorithmic cost modelling

- b) Expert judgement
- c) Estimation by analogy
- d) Parkinson's Law

[View Answer](#)

Answer: c

Explanation: The cost of a new project is estimated by analogy with these completed projects.

---

7. Which model assumes that systems are created from reusable components, scripting or database programming?

- a) An application-composition model
- b) A post-architecture model
- c) A reuse model
- d) An early design model

[View Answer](#)

Answer: a

Explanation: It is designed to make estimates of prototype development.

---

8. Which of the following states that work expands to fill the time available.

- a) CASE tools
- b) Pricing to win
- c) Parkinson's Law
- d) Expert judgement

[View Answer](#)

Answer: c

Explanation: The cost is determined by available resources rather than by objective assessment. If the software has to be delivered in 12 months and 5 people are available, the effort required is estimated to be 60 person-months.

---

9. Which model is used during early stages of the system design after the requirements have been established?

- a) An application-composition model
- b) A post-architecture model
- c) A reuse model
- d) An early design model

[View Answer](#)

Answer: d

Explanation: Estimates are based on function points, which are then converted to number of lines of source code. The formula follows the standard form discussed above with a simplified set of seven multipliers.

---

10. Which model is used to compute the effort required to integrate reusable components or program code that is automatically generated by design or program translation tools?

- a) An application-composition model
- b) A post-architecture model
- c) A reuse model
- d) An early design model

[View Answer](#)

Answer: c

Explanation: None.

---

11. The COCOMO model takes into account different approaches to software development, reuse, etc.

- a) True
- b) False

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Answer: b

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Explanation: Its the COCOMO-2 model. COCOMO 2 incorporates a range of sub-models that produce increasingly detailed software estimates.

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## Software Engineering Questions and Answers – Empirical Estimation Models

1. Which of the following uses empirically derived formulas to predict effort as a function of LOC or FP?  
a) FP-Based Estimation  
b) Process-Based Estimation  
c) COCOMO  
d) Both FP-Based Estimation and COCOMO

[View Answer](#)

Answer: d

Explanation: Function points and COCOMO are used to evaluate effort.

2. The empirical data that support most estimation models are derived from a vast sample of projects.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: The Empirical data is derived from a limited sample of projects. For this reason, no estimation model is appropriate for all classes of software and in all development environments.

3. COCOMO stands for

- a) Constructive cost model
- b) Comprehensive cost model
- c) Constructive cost estimation model
- d) Complete cost estimation model

[View Answer](#)

Answer: a

Explanation: None.

4. Which version of COCOMO states that once requirements have been stabilized, the basic software architecture has been established?

- a) Early design stage model
- b) Post-architecture-stage model
- c) Application composition model
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

5. Which model was used during the early stages of software engineering, when prototyping of user interfaces, consideration of software and system interaction, assessment of performance, and evaluation of technology maturity were paramount.

- a) Early design stage model
- b) Post-architecture-stage model
- c) Application composition model
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: None.

6. Which one is not a size measure for software product?

- a) LOC
- b) Halstead's program length

- c) Function Count
- d) Cyclomatic Complexity

[View Answer](#)

Answer: d

Explanation: It is the part of white box testing.

---

7. COCOMO was developed initially by

- a) B.Beizer
- b) Rajiv Gupta
- c) B.W.Bohem
- d) Gregg Rothermal

[View Answer](#)

Answer: c

Explanation: Barry Boehm introduced a hierarchy of software estimation models bearing the name COCOMO, for COnstructive COst MOdel.

---

8. Estimation of size for a project is dependent on

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

[View Answer](#)

Answer: d

Explanation: Estimation depends on factors such as Function points and LOC.

---

9. COCOMO-II was developed at

- a) University of Texas
- b) University of Southern California
- c) MIT
- d) IIT-Kanpur

[View Answer](#)

Answer: b

Explanation: None.

---

10. Which one is not a stage of COCOMO-II?

- a) Early design estimation model
- b) Application Composition estimation model
- c) Comprehensive cost estimation model
- d) Post architecture estimation model

[View Answer](#)

Answer: a

Explanation: It was a part of COCOMO.

## Software Engineering Questions and Answers – Software Risks and Identification

---

1. What all has to be identified as per risk identification?

- a) Threats
- b) Vulnerabilities
- c) Consequences
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Risk identification states what could cause a potential loss.

---

2. Which one is not a risk management activity?

- a) Risk assessment
- b) Risk generation
- c) Risk control
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: Risk management activities would never want a new risk to be generated.

---

3. What is the product of the probability of incurring a loss due to the risk and the potential magnitude of that loss?

- a) Risk exposure
- b) Risk prioritization
- c) Risk analysis
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

---

4. What threatens the quality and timeliness of the software to be produced?

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

[View Answer](#)

Answer: d

Explanation: Technical risks identify potential design, implementation, interface, verification, and maintenance problems.

---

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

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

[View Answer](#)

Answer: b

Explanation: Business risks often jeopardize the project or the product.

---

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

[View Answer](#)

Answer: c

Explanation: This is not considered as a business risk.

---

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

[View Answer](#)

Answer: d

Explanation: By identifying known and predictable risks, the project manager takes a first step toward avoiding them when possible and controlling them when necessary.

---

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

[View Answer](#)

Answer: c

Explanation: None.

---

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

[View Answer](#)

Answer: a

Explanation: None.

---

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

[View Answer](#)

Answer: a

Explanation: None.

## Software Engineering Questions and Answers – Risk Management

---

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

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

[View Answer](#)

Answer: d

Explanation: Risk management involves anticipating risks that might affect the project schedule or the quality of the software being developed, and then taking action to avoid these risks.

---

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

[View Answer](#)

Answer: a

Explanation: Risks that affect the quality or performance of the software being developed.

---

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

[View Answer](#)

Answer: c

Explanation: None.

---

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

[View Answer](#)

Answer: a

Explanation: Technology changes are common in the competitive environment of software engineering.

---

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

[View Answer](#)

Answer: a

Explanation: None.

---

6. Which of the following risks are derived from the organizational environment where the software is being developed?

- a) People risks
- b) Technology risks
- c) Estimation risks
- d) Organizational risks

[View Answer](#)

Answer: d

Explanation: These risks are at management level.

---

7. Which of the following risks are derived from the software or hardware technologies that are used to develop the system?

- a) Managerial risks
- b) Technology risks
- c) Estimation risks
- d) Organizational risks

[View Answer](#)

Answer: b

Explanation: The risks associated with technology might affect the product development.

---

8. Which of the following term is best defined by the statement: “Derive traceability information to maximize information hiding in the design.”?

- a) Underestimated development time
- b) Organizational restructuring
- c) Requirements changes
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: Tracing the requirements can help us understand the risk.

---

9. Which of the following strategies means that the impact of the risk will be reduced?

- a) Avoidance strategies
- b) Minimization strategies
- c) Contingency plans
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

---

10. Risk management is now recognized as one of the most important project management tasks.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: None.

## Software Engineering Questions and Answers – Decomposition Techniques in Software Project Planning

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

[View Answer](#)

Answer: c

Explanation: For these reasons, we decompose the problem, re-characterizing it as a set of smaller problems.

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

[View Answer](#)

Answer: b

Explanation: Estimation uses one or both forms of partitioning.

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

[View Answer](#)

Answer: a

Explanation: LOC or Line of Code is a direct measure to estimate project size.

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

[View Answer](#)

Answer: a

Explanation: None.

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 as

- 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)  $EV = (S_{opt} + 2S_m + S_{pess})/4$

[View Answer](#)

Answer: b

Explanation: This assumes that there is a very small probability that the actual size result will fall outside the optimistic or pessimistic values.

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

- a) Two
- b) Three

- c) Four
- d) No form exists

[View Answer](#)

Answer: b

Explanation: The three forms include the basic, intermediate and advanced COCOMO model.

---

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

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

[View Answer](#)

Answer: d

Explanation: None.

---

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

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Managers are faced with a make-buy decision in such situations.

---

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

[View Answer](#)

Answer: d

Explanation: None..

---

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

[View Answer](#)

Answer: c

Explanation: External inputs, external outputs, external inquiries, internal logical files, external interface files are the five domains.

---

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

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: The planner must determine the cause of divergence and then reconcile the estimates.

---

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

[View Answer](#)

Answer: a

Explanation: None.

---

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

[View Answer](#)

Answer: b

Explanation: A function point (FP) is a unit of measurement to express the amount of business functionality an information system provides to a user.

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## Software Engineering Questions and Answers – Managing Software Projects – 1

1. Project management involves the planning, monitoring, and control of the people, process, and events that occur as software evolves from a preliminary concept to an operational implementation.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: None.

2. Which of the following is not an effective software project management focus?

- a) people
- b) product
- c) popularity
- d) process

[View Answer](#)

Answer: c

Explanation: Effective software project management focuses on the four P's: people, product, process, and project.

3. PM-CMM stands for

- a) people management capability maturity model
- b) process management capability maturity model
- c) product management capability maturity model
- d) project management capability maturity model

[View Answer](#)

Answer: a

Explanation: The people management maturity model defines the following key practice areas for software people: recruiting, selection, performance management, training, compensation, career development, organization and work design, and team/culture development.

4. Which of the following is not a project manager's activity?

- a) project control
- b) project management
- c) project planning
- d) project design

[View Answer](#)

Answer: d

Explanation: The design part of any project management is done by the project team.

5. A software \_\_\_\_\_ provides the framework from which a comprehensive plan for software development can be established.

- a) people
- b) product
- c) process
- d) none of the mentioned

[View Answer](#)

Answer: c

Explanation: A small number of framework activities are applicable to all software projects, regardless of their size or complexity.

6. Who defines the business issues that often have significant influence on the project?

- a) Practitioners
- b) Project managers

- c) Senior managers
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: None.

---

7. Who delivers the technical skills that are necessary to engineer a product or an application?

- a) Practitioners
- b) Project managers
- c) Senior managers
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

---

8. Which of the following paradigm attempts to structure a team in a manner that achieves some of the controls associated with the closed paradigm but also much of the innovation that occurs when using the random paradigm?

- a) asynchronous paradigm
- b) open paradigm
- c) closed paradigm
- d) synchronous paradigm

[View Answer](#)

Answer: b

Explanation: Open paradigm team structures are well suited to the solution of complex problems but may not perform as efficiently as other teams.

---

9. Which of the following is a people-intensive activity?

- a) Problem solving
- b) Organization
- c) Motivation
- d) Project management

[View Answer](#)

Answer: d

Explanation: For this reason, competent practitioners often make poor team leaders.

---

10. Which paradigm structures a team loosely and depends on individual initiative of the team members?

- a) random paradigm
- b) open paradigm
- c) closed paradigm
- d) synchronous paradigm

[View Answer](#)

Answer: d

Explanation: None.

---

11. Which of the following is not an approach to software cost estimation?

- a) Empirical
- b) Heuristic
- c) Analytical
- d) Critical

[View Answer](#)

Answer: d

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Explanation: Critical is no such standard approach of cost estimation.

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## Software Engineering Questions and Answers – Managing Software Projects – 2

---

1. Which paradigm relies on the natural compartmentalization of a problem and organizes team members to work on pieces of the problem with little active communication among themselves?

- a) random paradigm
- b) open paradigm
- c) closed paradigm
- d) synchronous paradigm

[View Answer](#)

Answer: c

Explanation: None.

---

2. Who interacts with the software once it is released for production use?

- a) End-users
- b) Client
- c) Project (technical) managers
- d) Senior managers

[View Answer](#)

Answer: a

Explanation: A product is always built to satisfy an end-user.

---

3. Which of the following is not an effective project manager trait?

- a) Problem solving
- b) Managerial identity
- c) Influence and team building
- d) None of the mentioned

[View Answer](#)

Answer: d

Explanation: All are key traits of an effective project manager.

---

4. Which type of software engineering team has a defined leader who coordinates specific tasks and secondary leaders that have responsibility for sub tasks?

- a) Controlled decentralized (CD)
- b) Democratic decentralized (DD)
- c) Controlled centralized (CC)
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: Problem solving remains a group activity, but implementation of solutions is partitioned among subgroups by the team leader.

---

5. Commitments to unrealistic time and resource estimates may result in

- a) project delay
- b) poor quality work
- c) project failure
- d) all of the mentioned

[View Answer](#)

Answer: d

Explanation: None.

---

6. Which software engineering team has no permanent leader?

- a) Controlled decentralized (CD)
- b) Democratic decentralized (DD)
- c) Controlled Centralized (CC)
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: Here Communication among team members is horizontal.

---

7. Which of the following is not a project factor that should be considered when planning the structure of software engineering teams?

- a) The difficulty of the problem to be solved
- b) High frustration caused by personal, business, or technological factors that causes friction among team members
- c) The degree of sociability required for the project
- d) The rigidity of the delivery date

[View Answer](#)

Answer: c

Explanation: Development is irrelevant of social quotient.

---

8. Which of the following is a collection of project coordination technique?

- a) Formal approaches
- b) Formal, interpersonal procedures
- c) Informal, interpersonal procedures
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: None.

---

9. Which activity sits at the core of software requirements analysis?

- a) Problem decomposition
- b) Partitioning
- c) Problem elaboration
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: During the scoping activity decomposition is applied in two major areas: the functionality that must be delivered and the process that will be used to deliver it.

---

10. Which of the following is not a sign that indicates that an information systems project is in jeopardy?

- a) Software people don't understand their customers needs
- b) Changes are managed poorly
- c) Sponsorship is gained
- d) Users are resistant

[View Answer](#)

Answer: c

Explanation: Other options are contradictory to the question.

---

11. SPMP stands for

- a) Software Project Manager's Plan
- b) Software Project Management Plan
- c) Software Product Management Plan
- d) Software Product Manager's Plan

[View Answer](#)

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Answer: b

Explanation: After planning is complete, documenting of the plans is done in a Software Project Management Plan(SPMP) document.

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## Software Engineering Questions and Answers – Project Scheduling and Tracking

---

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

[View Answer](#)

Answer: d

Explanation: None.

---

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

[View Answer](#)

Answer: b

Explanation: None.

---

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

[View Answer](#)

Answer: c

Explanation: These responsibilities are domain specific.

---

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

[View Answer](#)

Answer: a

Explanation: None.

---

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

[View Answer](#)

Answer: b

Explanation: None.

---

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

[View Answer](#)

Answer: b

Explanation: Four different degrees of rigor are: casual, structured, strict, and quick reaction.

---

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

[View Answer](#)

Answer: b

Explanation: None.

---

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

[View Answer](#)

Answer: b

Explanation: These can vary from client to client.

---

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

[View Answer](#)

Answer: d

Explanation: Program evaluation and review technique (PERT) and critical path method (CPM) are two project scheduling methods that can be applied to software development.

---

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

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

[View Answer](#)

Answer: b

Explanation: The earned value system provides a common value scale for every task, regardless of the type of work being performed. The total hours to do the whole project are estimated, and every task is given an earned value based on its estimated percentage of the total.

---

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

[View Answer](#)

Answer: a

Explanation: A recommended distribution of effort across the software process is 40% (analysis and design), 20% (coding), and 40% (testing).

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

[View Answer](#)

Answer: a

Explanation: Timeline chart, also called a Gantt chart was invented by Henry Gantt, an industrial engineer in 1917 .

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## Software Engineering Questions and Answers – Software Configuration Management – 1

---

1. Which of the following categories is part of the output of software process?

- a) computer programs
- b) documents that describe the computer programs
- c) data
- d) all of the mentioned

[View Answer](#)

Answer: d

Explanation: None

---

2. Which is a software configuration management concept that helps us to control change without seriously impeding justifiable change?

- a) Baselines
- b) Source code
- c) Data model
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: A baseline is analogous to the kitchen doors in the restaurant. Before a software configuration item becomes a baseline, change may be made quickly and informally.

---

3. 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

[View Answer](#)

Answer: a

Explanation: None

---

4. What combines procedures and tools to manage different versions of configuration objects that are created during the software process?

- a) Change control
- b) Version control
- c) SCIs
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: Configuration management allows a user to specify alternative configurations of the software system through the selection of appropriate versions.

---

5. What complements the formal technical review by assessing a configuration object for characteristics that are generally not considered during review?

- a) Software configuration audit
- b) Software configuration management
- c) Baseline
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

---

6. Which of the following is the process of assembling program components, data, and libraries, and then compiling and linking these to create an executable system?

- a) System building
- b) Release management
- c) Change management
- d) Version management

[View Answer](#)

Answer: a

Explanation: None.

---

7. Which of the following option is not tracked by configuration management tools?

- a) Tracking of change proposals
- b) Storing versions of system components
- c) Tracking the releases of system versions to customers
- d) None of the mentioned

[View Answer](#)

Answer: d

Explanation: All the options are tracked.

---

8. Which of the following is not a Software Configuration Management Activity?

- a) Configuration item identification
- b) Risk management
- c) Release management
- d) Branch management

[View Answer](#)

Answer: b

Explanation: Risk management is an entirely different domain.

---

9. The definition and use of configuration management standards is essential for quality certification in

- a) ISO 9000
- b) CMM
- c) CMMI
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: It is defined in all the mentioned options.

---

10. What involves preparing software for external release and keeping track of the system versions that have been released for customer use?

- a) System building
- b) Release management
- c) Change management
- d) Version management

[View Answer](#)

Answer: b

Explanation: None.

## Software Engineering Questions and Answers – Software Configuration Management – 2

1. Which of the following process ensures that versions of systems and components are recorded and maintained?

- a) Codeline
- b) Configuration control
- c) Version
- d) Workspace

[View Answer](#)

Answer: b

Explanation: In configuration control changes are managed and all versions of components are identified and stored for the lifetime.

2. Which of the following process is concerned with analyzing the costs and benefits of proposed changes?

- a) Change management
- b) Version management
- c) System building
- d) Release management

[View Answer](#)

Answer: a

Explanation: It involves approving those changes that are worthwhile, and tracking which components in the system have been changed.

3. Which of the following is not a Version management feature?

- a) Version and release identification
- b) Build script generation
- c) Project support
- d) Change history recording

[View Answer](#)

Answer: b

Explanation: All other options are a part of version management.

4. Which method recommends that very frequent system builds should be carried out with automated testing to discover software problems?

- a) Agile method
- b) Parallel compilation method
- c) Large systems method
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: In keeping with the agile methods notion of making many small changes, continuous integration involves rebuilding the mainline frequently, after small source code changes have been made.

5. Which of the following is not a build system feature?

- a) Minimal recompilation
- b) Documentation generation
- c) Storage management
- d) Reporting

[View Answer](#)

Answer: c

Explanation: To reduce the storage space required by multiple versions of components that differ only slightly, version management systems usually provide storage management facilities.

6. Which of the following is a collection of component versions that make up a system?

- a) Version
- b) Codeline
- c) Baseline
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: Baselines are controlled, which means that the versions of the components making up the system cannot be changed.

7. Which of the following is a configuration item?

- a) Design & Test specification
- b) Source code
- c) Log information
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: A configuration item is an approved and accepted deliverable, changes have to be made through formal procedure.

8. Which of the following is a part of system release?

- a) electronic and paper documentation describing the system
- b) packaging and associated publicity that have been designed for that release
- c) an installation program that is used to help install the system on target hardware
- d) all of the mentioned

[View Answer](#)

Answer: d

Explanation: Release creation is the process of creating the collection of files and documentation that includes all of the components of the system release.

9. A sequence of baselines representing different versions of a system is known as

- a) System building
- b) Mainline
- c) Software Configuration Item(SCI)
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

10. Which of the following term is best defined by the statement “The creation of a new codeline from a version in an existing codeline”?

- a) Branching
- b) Merging
- c) Codeline
- d) Mainline

[View Answer](#)

Answer: a

Explanation: The code may then be developed independently.

## Software Engineering Questions and Answers – Software Maintenance – 1

---

1. Software Maintenance includes

- a) Error corrections
- b) Enhancements of capabilities
- c) Deletion of obsolete capabilities
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: None.

---

2. Maintenance is classified into how many categories ?

- a) two
- b) three
- c) four
- d) five

[View Answer](#)

Answer: c

Explanation: Adaptive, corrective, perfective and preventive are the four types of software maintenance.

---

3. The modification of the software to match changes in the ever changing environment, falls under which category of software maintenance?

- a) Corrective
- b) Adaptive
- c) Perfective
- d) Preventive

[View Answer](#)

Answer: b

Explanation: None.

---

4. How many phases are there in Taute Maintenance Model?

- a) six
- b) seven
- c) eight
- d) nine

[View Answer](#)

Answer: c

Explanation: None.

---

5. What type of software testing is generally used in Software Maintenance?

- a) Regression Testing
- b) System Testing
- c) Integration Testing
- d) Unit Testing

[View Answer](#)

Answer: a

Explanation: All other options are known as levels of software testing which further have types of software testing.

---

6. Regression testing is a very expensive activity.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: As regression testing is performed many times over the life of the software product, it becomes a costly affair.

---

7. Selective retest techniques may be more economical than the “retest-all” technique. How many selective retest techniques are there?

- a) two
- b) three
- c) four
- d) five

[View Answer](#)

Answer: b

Explanation: The three categories include: Coverage, Minimization and Safe techniques.

---

8. Which selective retest technique selects every test case that causes a modified program to produce a different output than its original version?

- a) Coverage
- b) Minimization
- c) Safe
- d) Maximization

[View Answer](#)

Answer: c

Explanation: Safe techniques do not focus on coverage criteria, instead they select every test case that cause a modified program to produce different output than its original version.

---

9. \_\_\_\_\_ measures the ability of a regression test selection technique to handle realistic applications.

- a) Efficiency
- b) Precision
- c) Generality
- d) Inclusiveness

[View Answer](#)

Answer: c

Explanation: Generality measures the ability of a technique to handle realistic and diverse language constructs, arbitrarily complex modifications, and realistic testing applications.

---

10. Which regression test selection technique exposes faults caused by modifications?

- a) Efficiency
- b) Precision
- c) Generality
- d) Inclusiveness

[View Answer](#)

Answer: d

Explanation: Inclusiveness measures the extent to which a technique chooses test cases that will cause the modified program to produce different output than the original program, and thereby expose faults caused by modifications.

## Software Engineering Questions and Answers – Software Maintenance – 2

---

1. The process of generating analysis and design documents is known as

- a) Software engineering
- b) Software re-engineering
- c) Reverse engineering
- d) Re-engineering

[View Answer](#)

Answer: c

Explanation: Reverse engineering is the process followed in order to find difficult, unknown and hidden information about a software system..

---

2. What is a software patch?

- a) Required or Critical Fix
- b) Emergency Fix
- c) Daily or routine Fix
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: A software patch is an emergency fix which is worked upon the obsolete version whenever a vulnerability is encountered.

---

3. Which one of the following is not a maintenance model?

- a) Waterfall model
- b) Reuse-oriented model
- c) Iterative enhancement model
- d) Quick fix model

[View Answer](#)

Answer: a

Explanation: Waterfall model is a software development model.

---

4. What does ACT stands for in Boehm model for software maintenance?

- a) Actual change track
- b) Annual change track
- c) Annual change traffic
- d) Actual change traffic

[View Answer](#)

Answer: c

Explanation: None.

---

5. Choose the suitable options with respect to regression testing.

- a) It helps in development of software
- b) It helps in maintenance of software
- c) It helps in development & maintenance of software
- d) none of the mentioned

[View Answer](#)

Answer: c

Explanation: Regression testing preserves the quality and reliability of software and ensures the software's continued operation.

---

6. What are legacy systems?

- a) new systems
- b) old systems

- c) under-developed systems
- d) none of the mentioned

[View Answer](#)

Answer: b

Explanation: Legacy systems are the existing systems which may require some modification or maintenance.

---

7. Which of the following manuals is not a user documentation?

- a) Beginner's Guide
- b) Installation guide
- c) Reference Guide
- d) SRS

[View Answer](#)

Answer: d

Explanation: SRS provides information on exact requirements of system as agreed between user and developers.

---

8. Which of the following manuals is a user documentation?

- a) SRS -Software Requirement Specification
- b) SDD -Software Design Document
- c) System Overview
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: System overview provides general description of the system's functions.

---

9. The process of transforming a model into source code is known as

- a) Forward engineering
- b) Reverse engineering
- c) Re-engineering
- d) Reconstructing

[View Answer](#)

Answer: a

Explanation: None.

---

10. How many stages are there in Iterative-enhancement model used during software maintenance?

- a) two
- b) three
- c) four
- d) five

[View Answer](#)

Answer: b

Explanation: The stages include: analysis of existing system, characterize proposed modifications, redesign and implement current version.

## Software Engineering Questions and Answers – Software Certification

---

1. Which of the following is a field related to certification ?

- a) Person
- b) Process
- c) Product
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: During software certification all given options are targeted.

---

2. Which of the following is a software process certification ?

- a) JAVA Certified
- b) IBM Certified
- c) ISO-9000
- d) Microsoft Certified

[View Answer](#)

Answer: c

Explanation: None.

---

3. Which standard is followed in aviation industry ?

- a) CTRADO-172B
- b) RTCADO-178B
- c) RTRADO-178B
- d) CTCADO-178B

[View Answer](#)

Answer: b

Explanation: RTCADO-178B is a popular aviation standard that has become a defacto standard.

---

4. How many levels, does the DO-178B certification targeted by RTCADO-178B has ?

- a) two
- b) three
- c) four
- d) five

[View Answer](#)

Answer: d

Explanation: The levels are A, B, C, D, E.

---

5. Third Party Certification for software standards is based on

- a) UI 1998, Second Edition
- b) UT 1998, Second Edition
- c) UI 1992, Second Edition
- d) UI 1996, Second Edition

[View Answer](#)

Answer: a

Explanation: None.

---

6. What are the goals to gain Laboratory Accreditation ?

- a) Increase availability of testing services through third-party laboratories
- b) Increase availability of testing market to encourage development of software testing industry

- c) Reduce cost by increasing supply of testing services
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: The goal is to promote development of competitive market, hence option d.

---

7. National Voluntary Laboratory Accreditation Program approve accreditation in

- a) Environmental standards
- b) Computers and electronics
- c) Product testing
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: National Voluntary Laboratory Accreditation Program Works with other national metrology institutes to establish criteria for mutual recognition of test results.

---

8. CSTE stands for

- a) Certified Software Technology
- b) Certified Software Tester
- c) Certified Software Trainee
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

---

9. CSQA stands for

- a) Certified Software Quality Analyst
- b) Certified Software Quality Approved
- c) Certified Software Quality Acclaimed
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

---

10. Which of the following companies provide certifications for their own products?

- a) CISCO
- b) ORACLE
- c) Microsoft
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: None.

## Software Engineering Questions and Answers – Process Improvement

---

1. “Robustness” answers which of the following description?

- a) CASE tools be used to support the process activities
- b) Process errors are avoided or trapped before they result in product errors
- c) Defined process is acceptable and usable by the engineers responsible for producing the software
- d) Process continues in spite of unexpected problems

[View Answer](#)

Answer: d

Explanation: None.

---

2. Process improvement is the set of activities, methods, and transformations that developers use to develop and maintain information systems.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: The definition is of a system development process.

---

3. “Understandability” answers which of the following description?

- a) The extent to which the process is explicitly defined
- b) Process errors are avoided or trapped before they result in product errors
- c) Defined process is acceptable and usable by the engineers responsible for producing the software product
- d) Process continues in spite of unexpected problems

[View Answer](#)

Answer: a

Explanation: None.

---

4. How many stages are there in process improvement?

- a) three
- b) four
- c) five
- d) six

[View Answer](#)

Answer: a

Explanation: Process measurement, analysis and change are the three stages.

---

5. In which stage of process improvement bottlenecks and weaknesses are identified?

- a) Process measurement
- b) Process analysis
- c) Process change
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: In Process analysis the current process is assessed and bottlenecks and weaknesses are identified.

---

6. Prototypes and 4GL business systems are categorized under which process?

- a) Informal
- b) Managed
- c) Methodical
- d) Supported

[View Answer](#)

Answer: a

Explanation: Here the development team chose their own way of working.

---

7. The documentation of a process which records the tasks, the roles and the entities used is called

- a) Process metric
- b) Process analysis
- c) Process modelling
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: Process models may be presented from different perspectives.

---

8. It is always best to start process analysis with a new test model.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: It is always best to start process analysis with an existing model. People then may extend and change this.

---

9. What is a tangible output of an activity that is predicted in a project plan?

- a) Deliverable
- b) Activity
- c) Condition
- d) Process

[View Answer](#)

Answer: a

Explanation: None.

---

10. What is often undefined and is left to the ingenuity of the project managers and engineers?

- a) Role
- b) Exception
- c) Activity
- d) Process

[View Answer](#)

Answer: b

Explanation: Exceptions are often undefined and it is left to the ingenuity of the project managers and engineers to handle the exception.

---

11. Which of the following is not a part of process change?

- a) Introducing new practices, methods or processes
- b) Introducing new team members to existing project
- c) Introducing or removing deliverable
- d) Introducing new roles or responsibilities

[View Answer](#)

Answer: b

Explanation: Adding more developers aid to process completion rather than changing it.

---

12. The Capability Maturity Model (CMM) is a continuous model.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: The CMM is discrete rather than continuous.

---

13. The CMMI assessment is based on a x-point scale. What is the value of x?

- a) 0
- b) 2
- c) 4
- d) 6

[View Answer](#)

Answer: d

Explanation: Not performed, performed, managed, defined, quantitatively managed, and optimizing are the six points.

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## Software Engineering Questions and Answers – Software Quality Assurance

---

1. Which of the following is not included in failure costs?

- a) rework
- b) repair
- c) failure mode analysis
- d) none of the mentioned

[View Answer](#)

Answer: d

Explanation: Failure costs are those that would disappear if no defects appeared before shipping a product to customers.

---

2. Which requirements are the foundation from which quality is measured?

- a) Hardware
- b) Software
- c) Programmers
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: Lack of conformance to requirements is lack of quality.

---

3. Which of the following is not a SQA plan for a project?

- a) evaluations to be performed
- b) amount of technical work
- c) audits and reviews to be performed
- d) documents to be produced by the SQA group

[View Answer](#)

Answer: b

Explanation: All other options support a SQA plan.

---

4. Degree to which design specifications are followed in manufacturing the product is called

- a) Quality Control
- b) Quality of conformance
- c) Quality Assurance
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

---

5. Which of the following is not included in External failure costs?

- a) testing
- b) help line support
- c) warranty work
- d) complaint resolution

[View Answer](#)

Answer: a

Explanation: External failure costs are associated with defects found after the product has been shipped to the customer.

---

6. Which of the following is not an appraisal cost in SQA?

- a) inter-process inspection
- b) maintenance

- c) quality planning
- d) testing

[View Answer](#)

Answer: c

Explanation: It is associated prevention cost.

---

7. Who identifies, documents, and verifies that corrections have been made to the software?

- a) Project manager
- b) Project team
- c) SQA group
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: None.

---

8. The primary objective of formal technical reviews is to find \_\_\_\_\_ during the process so that they do not become defects after release of the software.

- a) errors
- b) equivalent faults
- c) failure cause
- d) none of the mentioned

[View Answer](#)

Answer: a

Explanation: Errors lead to faults

---

9. What is not included in prevention costs?

- a) quality planning
- b) formal technical reviews
- c) test equipment
- d) equipment calibration and maintenance

[View Answer](#)

Answer: d

Explanation: The cost of quality includes all costs incurred in the pursuit of quality or in performing quality-related activities.

---

10. Software quality assurance consists of the auditing and reporting functions of management.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: None.

## Software Engineering Questions and Answers – ISO 9001 and CMM

1. CMM stands for

- a) Capability Management Module
- b) Conservative Maturity Model
- c) Capability Maturity Module
- d) Capability Maturity Model

[View Answer](#)

Answer: d

Explanation: The Capability Maturity Model for Software describes the principles and practices underlying software process maturity and is intended to help software organizations improve the maturity of their software processes in terms of an evolutionary path from ad hoc, chaotic processes to mature, disciplined software processes.

2. The ISO 9000 series of standards is a program that can be used for external quality assurance purposes.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: The ISO 9000 series of standards is a set of documents.

3. According to ISO 9001, the causes of nonconforming product should be

- a) deleted
- b) eliminated
- c) identified
- d) eliminated and identified

[View Answer](#)

Answer: d

Explanation: ISO 9001 requires that the causes of nonconforming product to be identified. Potential causes of nonconforming product are eliminated.

4. .CO policy in CMM means

- a) The leadership practices in Commitment to Perform
- b) The organizational structure (groups) practices in Ability to Perform
- c) The policy practices in Commitment to Perform
- d) The planning practices in Commitment to Perform

[View Answer](#)

Answer: c

Explanation: CMM have certain policy practices covered under .CO policy.

5. ISO 9001 is not concerned with \_\_\_\_\_ of quality records.

- a) collection
- b) maintenance
- c) verification
- d) dis-positioning

[View Answer](#)

Answer: c

Explanation: The practices defining the quality records to be maintained in the CMM are distributed throughout the key process areas in the various Activities Performed practices.

6. Which of the following is not a maturity level in CMM?

- a) Design
- b) Repeatable
- c) Managed
- d) Optimizing

[View Answer](#)

Answer: c

Explanation: The CMM is organized into five maturity levels as namely: Initial, Repeatable, Defined, Managed and Optimizing.

---

7. In CMM, the life cycle activities of requirements analysis, design, code, and test are described in

- a) Software Product Engineering
- b) Software Quality Assurance
- c) Software Subcontract Management
- d) Software Quality Management

[View Answer](#)

Answer: a

Explanation: In CMM planning these activities is described in Software Project Planning, however the life cycle activities of requirements analysis, design, code, and test are described in Software Product Engineering.

---

8. Which of the following requires design control measures, such as holding and recording design reviews and qualification tests?

- a) CMM
- b) ISO 9001
- c) ISO 9000-3
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: ISO 9000-3 states that the supplier should carry out reviews to ensure the requirements are met and design methods are correctly carried out.

---

9. The CMM emphasizes

- a) continuous process improvement
- b) the need to record information
- c) the need to accept quality system
- d) none of the mentioned

[View Answer](#)

Answer: b

Explanation: CMM emphasizes the need to record information for later use in the process and for improvement of the process.

---

10. \_\_\_\_\_ states that, where appropriate, adequate statistical techniques are identified and used to verify the acceptability of process capability and product characteristics.

- a) ISO 9001
- b) ISO 9000-4
- c) CMM
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: ISO 9001 states that, where, appropriate adequate statistical techniques are identified and used to verify the acceptability of process capability and product characteristics.

## Software Engineering Questions and Answers – Architectural Design

1. Architectural design is a creative process satisfying only functional-requirements of a system.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: In architectural design you design a system organization satisfying the functional and non-functional requirements of a system.

2. A \_\_\_\_\_ view shows the system hardware and how software components are distributed across the processors in the system.

- a) physical
- b) logical
- c) process
- d) all of the mentioned

[View Answer](#)

Answer: a

Explanation: A physical view is implemented by system engineers implementing the system hardware.

3. The UML was designed for describing \_\_\_\_\_

- a) object-oriented systems
- b) architectural design
- c) SRS
- d) Both object-oriented systems and Architectural design

[View Answer](#)

Answer: d

Explanation: The UML was designed for describing object-oriented systems and, at the architectural design stage, you often want to describe systems at a higher level of abstraction.

4. Which of the following view shows that the system is composed of interacting processes at run time?

- a) physical
- b) development
- c) logical
- d) process

[View Answer](#)

Answer: d

Explanation: This view is useful for making judgments about non-functional system characteristics such as performance and availability.

5. Which of the following is an architectural conflict?

- a) Using large-grain components improves performance but reduces maintainability
- b) Introducing redundant data improves availability but makes security more difficult
- c) Localizing safety-related features usually means more communication so degraded performance
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: High availability architecture can be affected by several design factors that are required to be maintained to ensure that no single points of failure exist in such design.

6. Which of the following is not included in Architectural design decisions?

- a) type of application
- b) distribution of the system

- c) architectural styles
- d) testing the system

[View Answer](#)

Answer: d

Explanation: Architectural design decisions include decisions on the type of application, the distribution of the system, the architectural styles to be used, and the ways in which the architecture should be documented and evaluated.

7. Architecture once established can be applied to other products as well.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Systems in the same domain often have similar architectures that reflect domain concepts.

8. Which of the following pattern is the basis of interaction management in many web-based systems?

- a) architecture
- b) repository pattern
- c) model-view-controller
- d) different operating system

[View Answer](#)

Answer: c

Explanation: Model-View-Controller pattern is the basis of interaction management in many web-based systems.

9. What describes how a set of interacting components can share data?

- a) model-view-controller
- b) architecture pattern
- c) repository pattern
- d) none of the mentioned

[View Answer](#)

Answer: c

Explanation: The majority of systems that use large amounts of data are organized around a shared database or repository.

10. Which view in architectural design shows the key abstractions in the system as objects or object classes?

- a) physical
- b) development
- c) logical
- d) process

[View Answer](#)

Answer: c

Explanation: It is possible to relate the system requirements to entities in a logical view.

11. 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

[View Answer](#)

Answer: d

Explanation: All these models reflects the basic strategy that is used to structure a system.

## Software Engineering Questions and Answers – Architectural Patterns

1. Which of these following sensor is a useful as part of a burglar alarm system for commercial buildings?

- a) Movement detector
- b) Door sensor
- c) Window sensor
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: A burglar alarm system for commercial buildings include movement detectors in individual rooms, door sensors that detect corridor doors opening, and window sensors on ground-floor windows that can detect when a window has been opened.

2. Which of the following is not real-time architectural patterns that are commonly used?

- a) Asynchronous communication
- b) Observe and React
- c) Environmental Control
- d) Process Pipeline

[View Answer](#)

Answer: a

Explanation: These patterns can be combined and you will often see more than one of them in a single system.

3. A monitoring system examines its environment through

- a) operating system
- b) communication
- c) set of sensors
- d) none of the mentioned

[View Answer](#)

Answer: c

Explanation: If some exceptional event or sensor state is detected by the system, the monitoring system takes some action. Often, this involves raising an alarm to draw an operator's attention to the event.

4. Which of the following is applicable on software radio?

- a) Environmental Control
- b) Process Pipeline
- c) Distributed system
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: A software radio accepts incoming packets of digital data representing the radio transmission and transforms these into a sound signal that people can listen to.

5. An example of a system that may use a process pipeline is a high-speed

- a) data distributing system
- b) data acquisition system
- c) data collector system
- d) none of the mentioned

[View Answer](#)

Answer: b

Explanation: Data acquisition systems collect data from sensors for subsequent processing and analysis.

6. Monitoring systems are an important class of embedded real-time systems.

a) True

b) False

[View Answer](#)

Answer: a

Explanation: A monitoring system examines its environment through a set of sensors and, usually, displays the state of the environment in some way.

7. Which of the following is an example of a controller for a car braking system?

a) Observe and React

b) Process Pipeline

c) Environmental Control

d) None of the mentioned

[View Answer](#)

Answer: d

Explanation: An anti-skid braking system in a car monitors the car's wheels and brake system .

8. ETL stands for

a) Data Extraction Transformation & Loading

b) Data Execution Transformation & Loading

c) Extraction Transformation & Loading

d) Execution Transformation & Loading

[View Answer](#)

Answer: a

Explanation: None.

9. Control systems may make use of the Environmental Control pattern, which is a general control pattern that includes \_\_\_\_\_ processes.

a) sensor

b) actuator

c) pipeline

d) both sensor and actuator

[View Answer](#)

Answer: d

Explanation: Such patterns are quite common in Environmental Control Systems.

10. \_\_\_\_\_ can be associated with a separate processor or core, so that the processing steps can be carried out in parallel.

a) Process Pipeline

b) Environmental Control

c) Observe and React

d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: The Process Pipeline pattern makes this rapid processing possible by breaking down the required data processing into a sequence of separate transformations, with each transformation carried out by an independent process.

## Software Engineering Questions and Answers – Application Architectures

---

1. Which of the following examples is/are models of application architectures?

- a) a means of assessing components for reuse
- b) a design checklist
- c) a vocabulary for talking about types of applications
- d) all of the mentioned

[View Answer](#)

Answer: d

Explanation: Application architectures encapsulate the principal characteristics of a class of systems.

---

2. ERP stands for

- a) Enterprise Research Planning
- b) Enterprise Resource Planning
- c) Enterprise Resource Package
- d) Enterprise Research Package

[View Answer](#)

Answer: b

Explanation: None.

---

3. Which of the following type describes application architectures?

- a) Transaction processing applications
- b) Language processing systems
- c) Client management systems
- d) Transaction processing applications and Language processing systems

[View Answer](#)

Answer: d

Explanation: Transaction processing applications are database-centered applications that process user requests for information and update the information in a database, while language processing systems are systems in which the user's intentions are expressed in a formal language.

---

4. All the operations in a transaction need to be completed before the database changes are made \_\_\_\_\_

- a) functional
- b) available to the users
- c) permanent
- d) none of the mentioned

[View Answer](#)

Answer: b

Explanation: This ensures that failure of operations within the transaction does not lead to inconsistencies in the database.

---

5. Systems that involve interaction with a shared database can be considered as.

- a) software-based
- b) transaction-based
- c) server-based
- d) client-based

[View Answer](#)

Answer: b

Explanation: Such systems with a shared database are also referred to as transaction based information systems.

---

6. What translates a natural or an artificial language into another representation of that language and, for programming languages also execute the resulting code?

- a) ERP systems
- b) Transaction-based information systems
- c) Language processing systems
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: In software engineering, compilers translate an artificial programming language into machine code.

---

7. Properties of a system such as performance and security are independent of the architecture used.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Properties such as performance, security, and availability are influenced by the architecture used.

---

8. Which of the following is/are commonly used architectural pattern(s)?

- a) Model-View-Controller
- b) Layered Architecture
- c) Client-server
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Commonly used architectural patterns include Model-View-Controller, Layered Architecture, Repository, Client-server, and Pipe and Filter.

---

9. A language-processing systems may translate an XML data description into

- a) a machine code
- b) an alternative XML representation
- c) machine code and alternative XML representation
- d) a software module

[View Answer](#)

Answer: c

Explanation: Such is the property and function of language processing system.

---

10. Transaction processing systems may be organized as a \_\_\_\_\_ architecture with system components responsible for input, processing, and output.

- a) Repository
- b) Client-server
- c) Model-View-Controller
- d) Pipe and Filter

[View Answer](#)

Answer: d

Explanation: None.

## Software Engineering Questions and Answers – Unified Modelling Language

1. Object oriented analysis and design can be handled by the one who knows UML.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: The Unified Modeling Language includes a set of graphic notation techniques to create visual models of object-oriented software-intensive systems.

2. At Conceptual level Class diagrams should include

- a) operations only
- b) attributes only
- c) both operations and attributes
- d) none of the mentioned

[View Answer](#)

Answer: b

Explanation: In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations, and the relationships among objects.

3. Select the statement true for activity diagrams.

- a) They can be used to discover parallel activities
- b) They are used to depict workflow for a particular business activity
- c) Activity diagram do not tell who does what and are difficult to trace back to object models
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Activity diagrams are graphical representations of workflows of step wise activities and actions with support for choice, iteration and concurrency.

4. Constraints can be represented in UML by

- a) {text}
- b) [text].
- c) Constraint
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: Constraints are represented by {text string}.

5. What is an object?

- a) An object is an instance of a class
- b) An object includes encapsulation of data
- c) An object is not an instance of a class
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: An object is an instance of a class.

6. What is an abstract class?

- a) A class that has direct instances, but whose descendants may have direct instances

- b) A class that has direct instances, but whose descendants may not have direct instances
- c) A class that has no direct instances, but whose descendants may have direct instances
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: An abstract type is a type in a nominative type system which cannot be instantiated directly.

7. Which of the following are the valid relationships in Use Case Diagrams

- a) Generalization
- b) Include
- c) Extend
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Generalization, include, extend all of these are valid relationships in use case diagrams.

8. Which of the following statement(s) is true about interaction diagrams?

- a) Interaction diagrams are at their best when they deal with one main design flow and not multiple variants that can happen
- b) Interaction diagrams are good at designing part or all of one use case's functionality across multiple objects
- c) Interaction diagrams allow the analyst to show iteration and conditional execution for messaging between objects
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Interaction diagram is used to describe some type of interactions among the different elements in the model. So this interaction is a part of dynamic behaviour of the system.

9. UML interfaces are used to:

- a) specify required services for types of objects
- b) program in Java, but not in C++ or Smalltalk
- c) define executable logic to reuse across classes
- d) define an API for all classes

[View Answer](#)

Answer: a

Explanation: An interface is like a template design for a class that contains no data or implementation; only definitions for methods, properties etc.

10. Referring to the attached diagram, the arrow indicates:

- a) Navigability
- b) Dependency
- c) Association
- d) Refers to

[View Answer](#)

Answer: a

Explanation: The arrows describe the ways you can navigate.

## Software Engineering Questions and Answers – Diagrams in UML – 1

1. Which of the following UML diagrams has a static view?

- a) Collaboration
- b) Use case
- c) State chart
- d) Activity

[View Answer](#)

Answer: b

Explanation: A use case diagrams captures only the functionality of the system whereas a dynamic model/view captures the functions as well as the action.

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



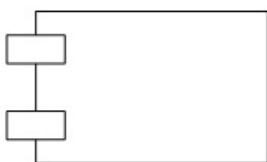
- a) Aggregation
- b) Dependency
- c) Generalization
- d) Association

[View Answer](#)

Answer: a

Explanation: None.

3. Which core element of UML is being shown in the figure?



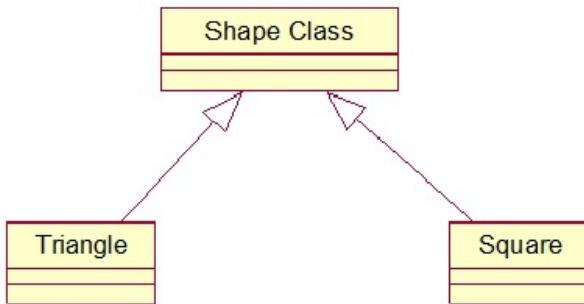
- a) Node
- b) Interface
- c) Class
- d) Component

[View Answer](#)

Answer: d

Explanation: The figure is self explanatory. A component is a modular, significant and replaceable part of the system that packages implementation and exposes a set of interfaces.

4. What type of relationship is represented by Shape class and Square ?



- a) Realization
  - b) Generalization
  - c) Aggregation
  - d) Dependency
- [View Answer](#)

Answer: b

Explanation: The generalization relationship is also known as the inheritance relationship. In the figure Square is the subclass of superclass shape.

5. Which diagram in UML shows a complete or partial view of the structure of a modeled system at a specific time?

- a) Sequence Diagram
- b) Collaboration Diagram
- c) Class Diagram
- d) Object Diagram

[View Answer](#)

Answer: d

Explanation: An object diagram focuses on some particular set of object instances and attributes, and the links between the instances. It is a static snapshot of a dynamic view of the system.

6. Interaction Diagram is a combined term for

- a) Sequence Diagram + Collaboration Diagram
- b) Activity Diagram + State Chart Diagram
- c) Deployment Diagram + Collaboration Diagram
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: Interaction diagram are used to formalize the dynamic behavior of the system.

7. Structure diagrams emphasize the things that must be present in the system being modeled.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Since structure diagrams represent the structure they are used extensively in documenting the architecture of software systems

8. Which of the following diagram is time oriented?

- a) Collaboration
- b) Sequence
- c) Activity
- d) None of the mentioned

[View Answer](#)

Answer: b

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Explanation: A sequence diagrams timeline along which tasks are completed.

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## Software Engineering Questions and Answers – Diagrams in UML – 2

1. How many diagrams are here in Unified Modelling Language?

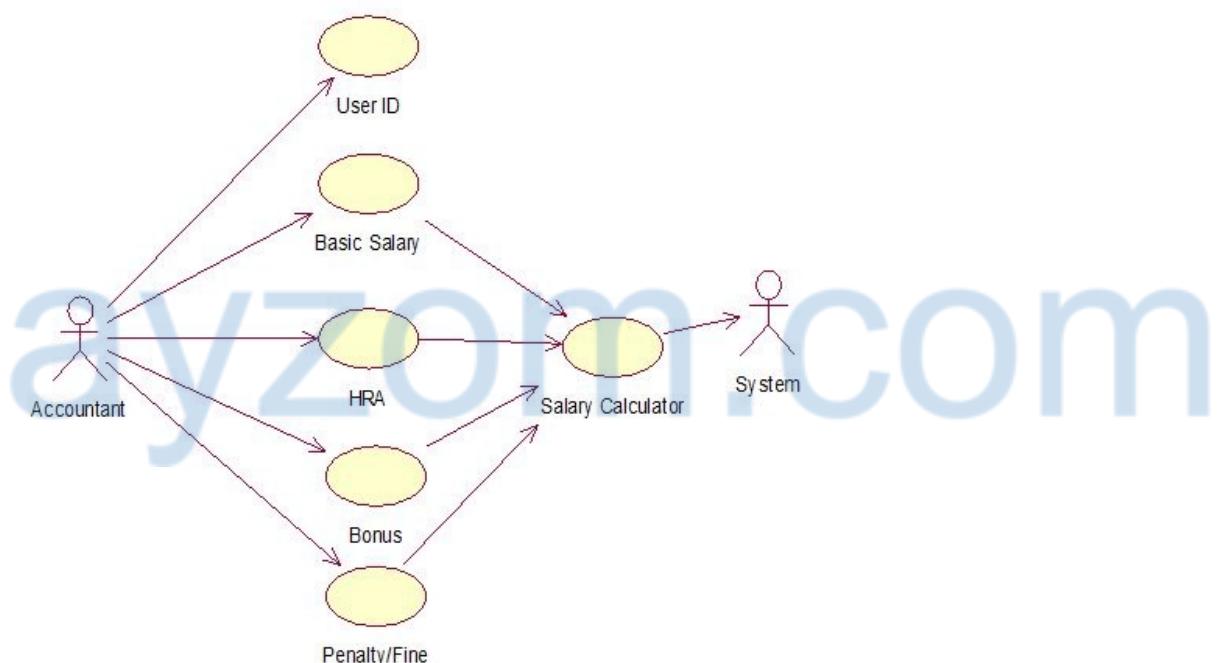
- a) six
- b) seven
- c) eight
- d) nine

[View Answer](#)

Answer: d

Explanation: The nine UML diagrams include use-case, sequence, collaboration, activity, state-chart, deployment, class, object and component.

2. Which UML diagram is shown below?



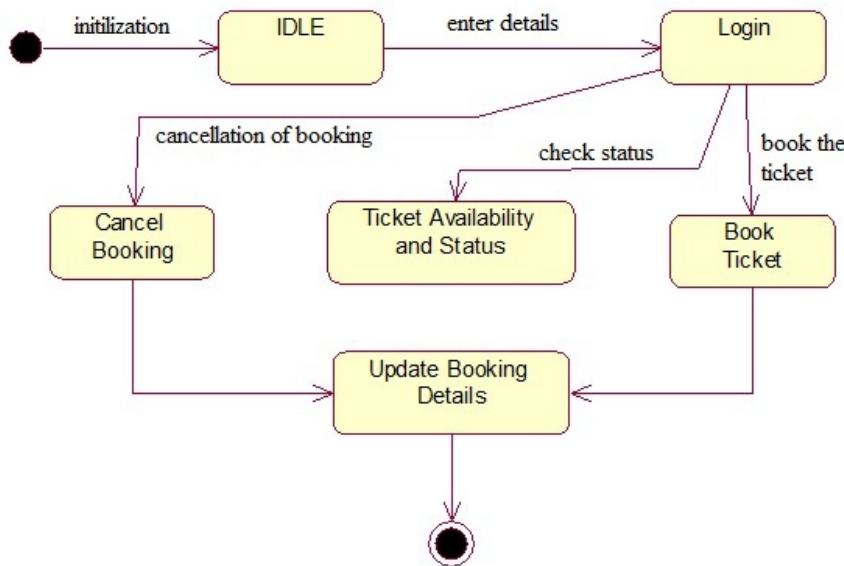
- a) Use Case
- b) Collaboration Diagram
- c) Class Diagram
- d) Object Diagram

[View Answer](#)

Answer: a

Explanation: None.

3. Which UML diagram is shown below?



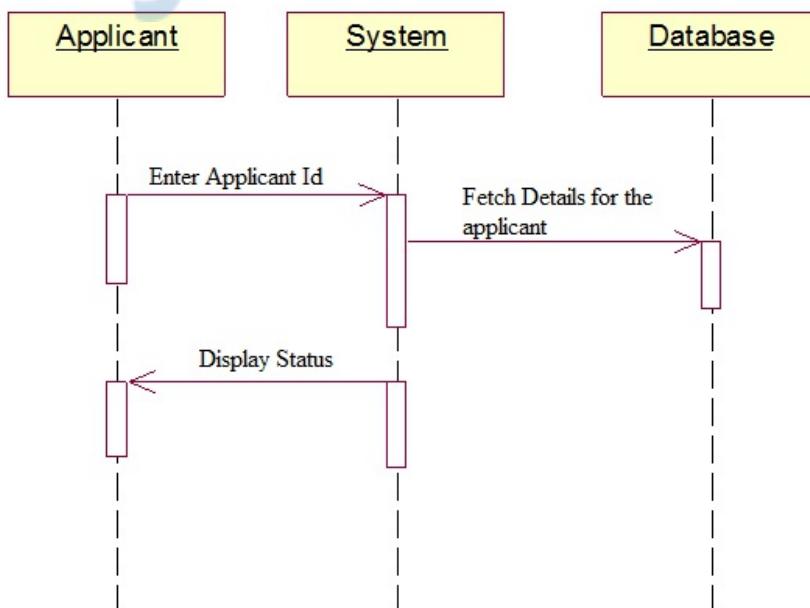
- a) Use Case
- b) State Chart
- c) Activity
- d) Object Diagram

[View Answer](#)

Answer: b

Explanation: None.

4. Which UML diagram is shown below?



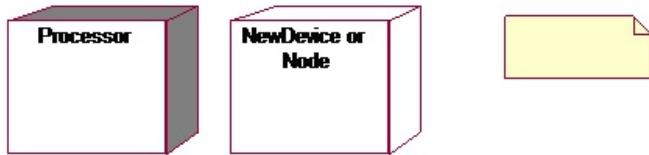
- a) Use Case
- b) Collaboration Diagram
- c) Sequence Diagram
- d) Object Diagram

[View Answer](#)

Answer: c

Explanation: None.

5. Which UML diagram's symbols are shown below?



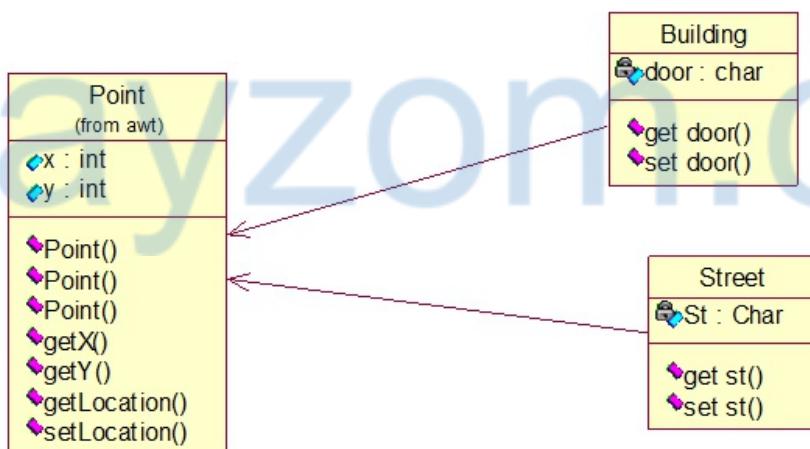
- a) Deployment diagram
- b) Collaboration Diagram
- c) Component Diagram
- d) Object Diagram

[View Answer](#)

Answer: a

Explanation: None.

6. Which UML diagram is shown below?



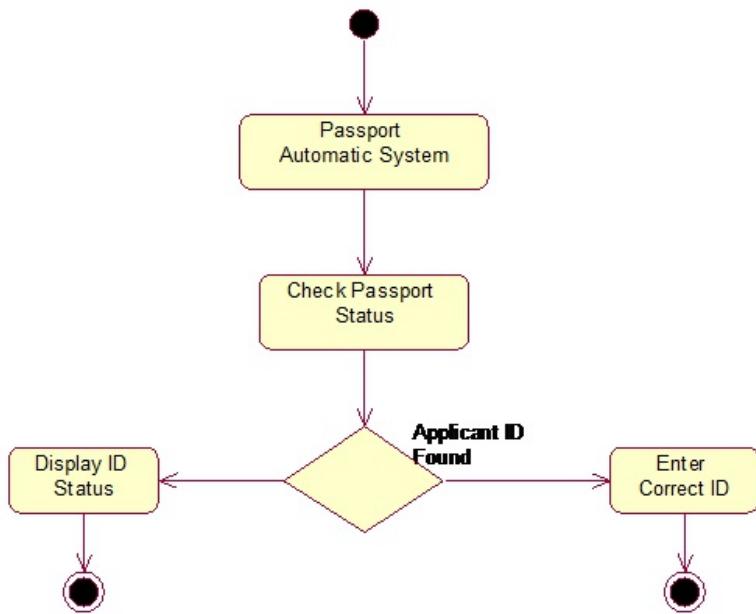
- a) Deployment diagram
- b) Collaboration Diagram
- c) Object Diagram
- d) Class Diagram

[View Answer](#)

Answer: d

Explanation: None.

7. Which UML diagram is shown below?

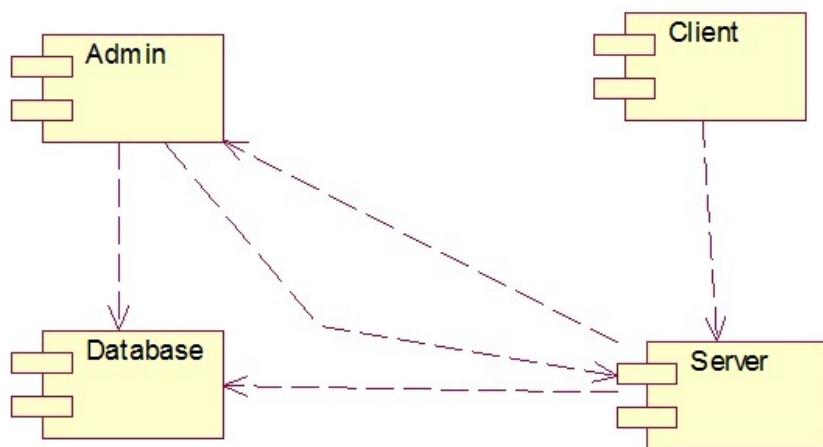


- a) Activity
  - b) State chart
  - c) Sequence
  - d) Collaboration
- [View Answer](#)

Answer: a

Explanation: None.

8. Which UML diagram is shown below?



- a) Component
  - b) Deployment
  - c) Use Case
  - d) DFD
- [View Answer](#)

Answer: a

Explanation: None.

## Software Engineering Questions and Answers – Object Oriented Design using UML

---

1. Which of the following is not needed to develop a system design from concept to detailed object-oriented design?  
a) Designing system architecture  
b) Developing design models  
c) Specifying interfaces  
d) Developing a debugging system

[View Answer](#)

Answer: d

Explanation: The debugging system is a part of testing phase.

---

2. Which of the following is a dynamic model that shows how the system interacts with its environment as it is used?  
a) system context model  
b) interaction model  
c) environmental model  
d) both system context and interaction

[View Answer](#)

Answer: b

Explanation: None.

---

3. Which of the following is a structural model that demonstrates the other systems in the environment of the system being developed?  
a) system context model  
b) interaction model  
c) environmental model  
d) both system context and interaction

[View Answer](#)

Answer: a

Explanation: The context model of a system may be represented using associations. Associations simply show that there are some relationships between the entities involved in the association.

---

4. Which of the following come under system control?

- a) Reconfigure
- b) Shutdown
- c) Powersave
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Functionalities are governed by the system.

---

5. We use \_\_\_\_\_ where various parts of system use are identified and analyzed in turn.

- a) tangible entities
- b) scenario-based analysis
- c) design-based analysis
- d) none of the mentioned

[View Answer](#)

Answer: b

Explanation: Use a scenario-based analysis where various scenarios of system use are identified and analyzed in turn.

---

6. Which model describes the static structure of the system using object classes and their relationships?  
a) Sequence model

- b) Subsystem model
- c) Dynamic model
- d) Structural model

[View Answer](#)

Answer: d

Explanation: Important relationships that may be documented at this stage are generalization (inheritance) relationships, uses/used-by relationships, and composition relationships.

---

7. Which model shows the flow of object interactions?

- a) Sequence model
- b) Subsystem model
- c) Dynamic model
- d) Both Sequence and Dynamic model

[View Answer](#)

Answer: a

Explanation: Sequence model are represented using a UML sequence or a collaboration diagram and are dynamic models.

---

8. If the system state is Shutdown then it can respond to which of the following message?

- a) restart()
- b) reconfigure()
- c) powerSave()
- d) all of the mentioned

[View Answer](#)

Answer: d

Explanation: A restart() message causes a transition to normal operation. Both the powerSave() and reconfigure() messages cause a transition to a state in which the system reconfigures itself.

---

9. Which message is received so that the system moves to the Testing state, then the Transmitting state, before returning to the Running state?

- a) signalStatus()
- b) remoteControl()
- c) reconfigure()
- d) reportStatus()

[View Answer](#)

Answer: d

Explanation: None.

---

10. Open source development involves making the source code of a system publicly available.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: This means that many people can propose changes and improvements to the software.

## Software Engineering Questions and Answers – Analysis Modelling

---

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](#)

Answer: d

Explanation: All the options are covered in analysis model.

---

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](#)

Answer: a

Explanation: The modality is 1 if an occurrence of the relationship is mandatory, else 0 for optional relationship.

---

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](#)

Answer: b

Explanation: The basic form of a data flow diagram, also known as a data flow graph or a bubble chart.

---

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](#)

Answer: a

Explanation: Standard flow of condition check.

---

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](#)

Answer: a

Explanation: As the DFD is refined into greater levels of detail, the analyst performs an implicit functional decomposition of the system, thereby accomplishing the fourth operational analysis principle for function.

---

10. The \_\_\_\_\_ contains a state transition diagram that is a sequential specification of behavior.

- a) data flow diagram
- b) state transition diagram
- c) control specification
- d) workflow diagram

[View Answer](#)

Answer: c

Explanation: The control specification(CSPEC) describes the behavior of the system, but it gives us no information about the inner working of the processes that are activated as a result of this behavior .

## Software Engineering Questions and Answers – Component Level Design

---

1. Which of the following is not a construct?

- a) sequence
- b) condition
- c) repetition
- d) selection

[View Answer](#)

Answer: d

Explanation: Sequence implements processing steps that are essential in the specification of any algorithm. Condition provides the facility for selected processing based on some logical occurrence, and repetition allows for looping.

---

2. 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

[View Answer](#)

Answer: d

Explanation: A decision table includes action stub and a condition stub with a set of rules.

---

3. \_\_\_\_\_ 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

[View Answer](#)

Answer: d

Explanation: The difference between PDL and a real programming language lies in the use of narrative text embedded directly within PDL statements.

---

4. 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

[View Answer](#)

Answer: a

Explanation: None.

---

5. 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

[View Answer](#)

Answer: d

Explanation: All the options identify with features of a software component.

---

6. 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

[View Answer](#)

Answer: b

Explanation: None.

---

7. 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

[View Answer](#)

Answer: a

Explanation: None.

---

8. Which of the following is not a characteristics 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

[View Answer](#)

Answer: d

Explanation: This functionality is covered by UML diagrams.

---

9. The \_\_\_\_\_ is represented as two processing boxes connected by an line (arrow) of control.

- a) Repetition
- b) Sequence
- c) Condition
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

---

10. 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

[View Answer](#)

Answer: a

Explanation: Readability is processing input.

## Software Engineering Questions and Answers – User Interface Design

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

[View Answer](#)

Answer: d

Explanation: These golden rules actually form the basis for a set of user interface design principles that guide this important software design activity.

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

[View Answer](#)

Answer: c

Explanation: The user interface should move the user into the virtual world of the application.

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

[View Answer](#)

Answer: c

Explanation: These are the end user for whom the product is being built.

4. When users are involved in complex tasks, the demand on \_\_\_\_\_ can be significant.

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

[View Answer](#)

Answer: a

Explanation: The interface should be designed to reduce the requirement to remember past actions and results.

5. 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

[View Answer](#)

Answer: c

Explanation: None

6. A software might allow a user to interact via

- a) keyboard commands

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

[View Answer](#)

Answer: d

Explanation: All the mentioned input mediums are available today.

---

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

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: The statement is true.

---

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

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

[View Answer](#)

Answer: a

Explanation: The requirements specification may establish certain constraints that help to define the user of the system, but the interface design is often only incidental to the design model.

---

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

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

[View Answer](#)

Answer: b

Explanation: To build an effective user interface, all design should begin with an understanding of the intended users, including their profiles of their age, physical abilities, education, etc.

---

10. 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

[View Answer](#)

Answer: c

Explanation: When the system image and the system perception are coincident, users generally feel comfortable with the software and use it effectively.

## Software Engineering Questions and Answers – Test Case Design

1. What do you understand by V&V in software testing?

- a) Verified Version
- b) Version Validation
- c) Verification and Validation
- d) Version Verification

[View Answer](#)

Answer: c

Explanation: V&V generally refers to any activity that attempts to ensure that the software will function as required.

2. In static test techniques, behavioral and performance properties of the program are observed.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Static Analysis Techniques are based solely on the (manual or automated) examination of project documentation of software models and code.

3. Which granularity level of testing checks the behavior of module cooperation?

- a) Unit Testing
- b) Integration Testing
- c) Acceptance Testing
- d) Regression Testing

[View Answer](#)

Answer: b

Explanation: Integration testing is the phase in software testing in which individual software modules are combined and tested as a group.

4. Which test refers to the retesting of a unit, integration and system after modification, in order to ascertain that the change has not introduced new faults?

- a) Regression Test
- b) Smoke Test
- c) Alpha Test
- d) Beta Test

[View Answer](#)

Answer: a

Explanation: Regression test seeks to uncover new software bugs in existing functional and non-functional areas of a system after changes have been made to them.

5. Which of the following is a black box testing strategy?

- a) All Statements Coverage
- b) Control Structure Coverage
- c) Cause-Effect Graphs
- d) All Paths Coverage

[View Answer](#)

Answer: c

Explanation: Rest are test strategies of white box testing.

6. A set of inputs, execution preconditions and expected outcomes is known as a

- a) Test plan

- b) Test case
- c) Test document
- d) Test Suite

[View Answer](#)

Answer: b

Explanation: None.

---

7. In which test design each input is tested at both ends of its valid range and just outside its valid range?

- a) Boundary value testing
- b) Equivalence class partitioning
- c) Boundary value testing AND Equivalence class partitioning
- d) Decision tables

[View Answer](#)

Answer: a

Explanation: Boundary value analysis is a software testing technique in which tests are designed to include representatives of boundary values.

---

8. A white box test scales up well at different granularity levels of testing.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: A white box test is mostly applicable at unit and integration testing level.

---

9. When does the testing process stops?

- a) When resources (time and budget) are over
- b) When some coverage is reached
- c) When quality criterion is reached
- d) Testing never ends

[View Answer](#)

Answer: c

Explanation: As software testing is an exhaustive process, when the quality assurance is established and the product is ready to be delivered, testing is stopped.

---

10. Which of the following is not a part of a test design document?

- a) Test Plan
- b) Test Design Specification
- c) Test Case Specification
- d) Test Log

[View Answer](#)

Answer: d

Explanation: Test log is a part of testing result document.

---

11. Specifying a set of test cases or test paths for each item to be tested at that level is known as

- a) Test case generation
- b) Test case design
- c) ALL of the mentioned
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: None.

---

12. Acceptance & system test planning are a part of architectural design.

a) True

b) False

[View Answer](#)

Answer: b

Explanation: They are a part of requirements engineering, while integration & unit test planning come under architectural design.

---

13. PRD stands for

- a) Product Requirement Document
- b) Project Requirement Document
- c) Product Restrictions Document
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: A product requirements document (PRD) is a document written by a company that defines a product they are making, or the requirements for one or more new features for an existing product.

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## Software Engineering Questions and Answers – Software Design Pattern

---

1. Which mechanism is applied to use a design pattern in an OO system?

- a) Inheritance
- b) Composition
- c) All of the mentioned
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: Using inheritance, an existing design pattern becomes a template for a new subclass. Composition is a concept that leads to aggregate objects.

---

2. Design patterns does not follow the concept of software reuse.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Design patterns allow the designer to create the system architecture by integrating reusable components.

---

3. The use of design patterns for the development of object-oriented software has important implications for

- a) Component-based software engineering
- b) Reusability in general
- c) All of the mentioned
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: None.

---

4. Which of the following is a design pattern?

- a) Behavioral
- b) Structural
- c) Abstract Factory
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: All the options are design patterns so option d.

---

5. You want to minimize development cost by reusing methods? Which design pattern would you choose?

- a) Adapter Pattern
- b) Singleton Pattern
- c) Delegation pattern
- d) Immutable Pattern

[View Answer](#)

Answer: c

Explanation: The delegation pattern is a design pattern in OOP where an object, instead of performing one of its stated tasks, delegates that task to an associated helper object.

---

6. You want to avoid multiple inheritance. Which design pattern would you choose?

- a) Abstraction-Occurrence Pattern
- b) Player-Role Pattern

c) General Hierarchy Pattern

d) Singleton Pattern

[View Answer](#)

Answer: b

Explanation: The answer is self-explanatory.

---

7. The recurring aspects of designs are called design

a) patterns

b) documents

c) structures

d) methods

[View Answer](#)

Answer: a

Explanation: A pattern is the outline of a reusable solution to a general problem encountered in a particular context.

---

8. Design pattern is a solution to a problem that occurs repeatedly in a variety of contexts.

a) True

b) False

[View Answer](#)

Answer: a

Explanation: Each design pattern has a name and use of each pattern has consequences.

---

9. Which pattern prevents one from creating more than one instance of a variable?

a) Factory Method

b) Singleton

c) Observer

d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: In singleton pattern, the class itself is made responsible for keeping track of its instance. Thus it ensures that no more than one instance is created.

---

10. Facade pattern promotes weak coupling between subsystem and its clients.

a) True

b) False

[View Answer](#)

Answer: a

Explanation: It is one of the patterns benefit. The facade pattern shields clients from subsystem classes and reduces the number of objects that clients deal with.

---

11. Which design pattern defines one-to-many dependency among objects?

a) Singleton pattern

b) Facade Pattern

c) Observer pattern

d) Factory method pattern

[View Answer](#)

Answer: c

Explanation: Observer pattern defines one-to-many dependency among objects so that when one object changes its state, all its dependents are notified.

---

12. Facade pattern couples a subsystem from its clients.

a) True

b) False

[View Answer](#)

Answer: b

Explanation: A facade can be a single entry point to each subsystem level. It decouples the subsystem.

---

13. In factory method pattern, the framework must instantiate classes but it only knows about the abstract classes, which it cannot initiate. How would one solve this problem?

a) encapsulating the knowledge of which document subclass to is to be created and

b) moving this knowledge out of the framework

c) instantiating the application specific documents without knowing their class

d) all of the mentioned

[View Answer](#)

Answer: d

Explanation: Following all the options in order will solve the factory method problem.

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## Software Engineering Questions and Answers – Application Frameworks in Software Reuse

1. Which of the following is not a benefit of software reuse?

- a) Standards compliance
- b) Increased Reliability
- c) Reduced Process risk
- d) Maintaining a component library

[View Answer](#)

Answer: c

Explanation: There can be thousands of components in a frameworks whose maintenance is quite difficult.

2. In which of the following language the frameworks will not work?

- a) C#
- b) Ruby
- c) PHP
- d) Java

[View Answer](#)

Answer: c

Explanation: Frameworks available in all of the commonly used object-oriented programming languages.

3. Which frameworks support the development of system infrastructures such as communications, user interfaces, and compilers?

- a) Middleware integration frameworks
- b) System infrastructure framework
- c) Enterprise application frameworks
- d) Web application frameworks

[View Answer](#)

Answer: b

Explanation: None.

4. The MVC pattern was originally proposed in the 1980s as an approach to

- a) Web application frameworks
- b) Middleware integration frameworks
- c) Web application frameworks
- d) GUI design

[View Answer](#)

Answer: d

Explanation: The MVC pattern was originally proposed in the 1980s as an approach to GUI design that allowed for multiple presentations of an object and separate styles of interaction with each of these presentations.

5. MVC framework includes

- a) Observer pattern
- b) Strategy pattern
- c) Composite pattern
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: MVC framework includes the Observer pattern, the Strategy pattern, the Composite pattern, and a number of others .

6. Which category the following statement belongs, "Classes to create and manage sessions are usually part of a WAF"?

- a) Session management

- b) Security
- c) User interaction
- d) Database support

[View Answer](#)

Answer: a

Explanation: None.

---

7. Which framework's applications are difficult to deal with?

- a) MVC pattern
- b) Web application frameworks
- c) Debugging framework
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: Debugging framework based applications is difficult because you may not understand how the framework methods interact. This is a general problem with reusable software .

---

8. Which category the following statement belongs, "Frameworks don't usually include a database but rather assume that a separate database such as MySQL"?

- a) Session management
- b) Security
- c) User interaction
- d) Database support

[View Answer](#)

Answer: d

Explanation: None.

---

9. Which option supports the statement:"Most web frameworks now provide AJAX support"?

- a) Session Management
- b) Security
- c) User interaction
- d) Database support

[View Answer](#)

Answer: c

Explanation: None.

---

10. Frameworks are an effective approach to reuse, but are \_\_\_\_\_ to introduce into software development processes.

- a) difficult
- b) expensive
- c) unreliable
- d) difficult and expensive

[View Answer](#)

Answer: d

Explanation: Frameworks can be difficult and expensive to evaluate available frameworks to choose the most appropriate one.

## Software Engineering Questions and Answers – Formal Methods of Software Engineering

---

1. Which of the following option is not provided by formal methods?

- a) providing frameworks
- b) verifying systems
- c) provide investors
- d) both providing frameworks and verifying systems

[View Answer](#)

Answer: d

Explanation: A method is formal if it has a sound mathematical basis, typically given by a formal specification language.

---

2. \_\_\_\_\_ are statements that can be interpreted in a number of ways.

- a) Contradictions
- b) Ambiguities
- c) Vagueness
- d) Comments

[View Answer](#)

Answer: a

Explanation: As the name indicates, these statements may be interpreted differently as per user.

---

3. What defines the circumstances in which a particular operation is valid?

- a) Contradictions
- b) Post-condition
- c) Vagueness
- d) None of the mentioned

[View Answer](#)

Answer: d

Explanation: A precondition defines the circumstances in which a particular operation is valid.

---

4. Which of the following is a way of making a statement about the elements of a set that is true for every member of the set?

- a) Set
- b) Sequence
- c) Universal quantification
- d) Both Set and Sequence

[View Answer](#)

Answer: c

Explanation: None.

---

5. Which of the following occurs often due to the bulkiness of a system specification document?

- a) Contradictions
- b) Ambiguities
- c) Vagueness
- d) Incompleteness

[View Answer](#)

Answer: c

Explanation: Achieving a high level of precision consistently is an almost impossible task.

---

6. The \_\_\_\_\_ of a formal specification language is often based on a syntax that is derived from standard set theory notation and predicate calculus.

- a) semantic domain

- b) syntactic domain
- c) sequence
- d) set

[View Answer](#)

Answer: b

Explanation: None

---

7. Which of the following provides a concise, unambiguous, and consistent method for documenting system requirements?

- a) CMM
- b) ISO-9001
- c) CASE tools
- d) Formal methods

[View Answer](#)

Answer: d

Explanation: Formal methods provide a concise, unambiguous, and consistent method for documenting system requirements.

---

8. The \_\_\_\_\_ of a specification language indicates how the language represents system requirements.

- a) semantic domain
- b) syntactic domain
- c) sequence
- d) set

[View Answer](#)

Answer: a

Explanation: For example, a programming language has a set of formal semantics that enables the software developer to specify algorithms that transform input to output.

---

9. Which of the following is essential for success, when formal methods are used for the first time?

- a) Expert training
- b) Consulting
- c) Prerequisite knowledge
- d) Both Expert training and Consulting

[View Answer](#)

Answer: d

Explanation: The answer is self-explanatory.

---

10. It is generally not necessary to apply formal methods to every aspect of a major system.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Those components that are safety critical are first choices, followed by components whose failure cannot be tolerated.

## Software Engineering Questions and Answers – Cleanroom Software Engineering

---

1. Who was first to proposed the Cleanroom philosophy in software engineering ?

- a) Mills
- b) Dyer
- c) Linger
- d) All of the Mentioned

[View Answer](#)

Answer: d

Explanation: The Cleanroom philosophy was first proposed for software engineering by Mills, Dyer, and Linger during the 1980s.

---

2. How does Cleanroom software engineering differs from the conventional and object-oriented views ?

- a) It makes explicit use of statistical quality control
- b) It verifies design specification using a mathematically based proof of correctness
- c) It relies heavily on statistical use testing to uncover high-impact errors
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: None.

---

3. Cleanroom software engineering complies with the operational analysis principles by using a method called known as

- a) box structure specification
- b) referential transparency
- c) degenerative error correction
- d) none of the mentioned

[View Answer](#)

Answer: a

Explanation: Box structures are descriptions of functions that exhibit properties essential for effective system specification and design.

---

4. What encapsulates state data and services in a manner that is analogous to objects?

- a) State box
- b) Clean box
- c) White box
- d) Black box

[View Answer](#)

Answer: a

Explanation: In this specification view, inputs to the state box (stimuli) and outputs (responses) are represented.

---

5. MTTF stands for

- a) mean-time-to-function
- b) mean-time-to-failure
- c) manufacture-time-to-function
- d) none of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

---

6. The transition functions that are implied by the state box are defined in

- a) Yellow box
- b) Clear box

- c) White box
- d) Black box

[View Answer](#)

Answer: b

Explanation: Stated simply, a clear box contains the procedural design for the state box.

---

7. Which of the following is not included in the certification approach?

- a) Creation of usage scenarios
- b) Specific usage file
- c) Generation of test cases from the servers end.
- d) Reliability

[View Answer](#)

Answer: c

Explanation: This is a part of testing phase and can be as exhaustive as possible.

---

8. The \_\_\_\_\_ specifies the behavior of a system or a part of a system.

- a) Yellow box
- b) Clear box
- c) White box
- d) Black box

[View Answer](#)

Answer: d

Explanation: The system (or part) responds to specific stimuli (events) by applying a set of transition rules that map the stimulus into a response.

---

9. Which of the following is required for Certification for cleanroom software engineering?

- a) Sampling model
- b) Component model
- c) Certification model
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: None.

---

10. The philosophy of Cleanroom SE focuses on defect removal rather than defect avoidance.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: The philosophy focuses on defect avoidance rather than defect removal.

---

11. Which of the following Cleanroom process teams develops set of statistical test to exercise software after development?

- a) Specification team
- b) Development team
- c) Certification team
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

## Software Engineering Questions and Answers – Component Based Software Engineering

---

1. A software element conforms to a standard component model and can be independently deployed and composed without modification according to a composition standard.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: This definition is essentially based on standards so that a software unit that conforms to these standards is a component.

---

2. Which of the following is a feature of CBSE?

- a) It increases quality
- b) CBSE shortens delivery time
- c) CBSE increases productivity
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: CBSE increases quality, especially evolvability and maintainability. Other options are also favor CBSE.

---

3. Which of the following term is best defined by the statement."For a component to be composable, all external interactions must take place through publicly defined interfaces"?

- a) Standardized
- b) Independent
- c) Composable
- d) Documented

[View Answer](#)

Answer: c

Explanation: The answer is self explanatory.

---

4. A component model defines standards for

- a) properties
- b) methods
- c) mechanisms
- d) all of the mentioned

[View Answer](#)

Answer: d

Explanation: A component model defines standards for properties individual components must satisfy and methods and mechanisms for composing components.

---

5. Which of the following is not an example of component technology?

- a) EJB
- b) COM+
- c) .NET
- d) None of the mentioned

[View Answer](#)

Answer: d

Explanation: All the options supports the implementation, assembly, deployment, execution of components.

---

6. Which of the following term is best defined by the statement."The operations on each side of the interface have the same name but their parameter types or the number of parameters are different."?

- a) Parameter incompatibility
- b) Operation incompleteness
- c) Operation incompatibility
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

---

7. Which of the following term is best defined by the statement: "The names of the operations in the 'provides' and 'requires' interfaces are different."?

- a) Parameter incompatibility
- b) Operation incompleteness
- c) Operation incompatibility
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: None.

---

8. A \_\_\_\_\_ defines a set of standards for components, including interface standards, usage standards, and deployment standards.

- a) Component-based software engineering
- b) Component composition
- c) Component model
- d) Component interfaces

[View Answer](#)

Answer: c

Explanation: The implementation of the component model provides a set of common services that may be used by all components.

---

9. When composing reusable components that have not been written for your application, you may need to write adaptors or 'glue code' to reconcile the different \_\_\_\_\_

- a) Component modules
- b) Component composition
- c) Component model
- d) Component interfaces

[View Answer](#)

Answer: c

Explanation: None.

---

10. \_\_\_\_\_ is a reuse-based approach to defining, implementing, and composing loosely coupled independent components into systems.

- a) Component-based software engineering
- b) Component composition
- c) Component model
- d) Component interfaces

[View Answer](#)

Answer: d

Explanation: Component Interfaces are PeopleSoft's way of exposing the business logic developed into Components for consumption by other areas of the system.

## Software Engineering Questions and Answers – Distributed Software Engineering

---

1. Which of the following term is best defined by the statement “In a distributed system, several processes may operate at the same time on separate computers on the network.”?

- a) Concurrency
- b) Openness
- c) Resource sharing
- d) Fault tolerance

[View Answer](#)

Answer: a

Explanation: None.

---

2. Which of the following is not a dimension of scalability?

- a) Size
- b) Distribution
- c) Manageability
- d) Interception

[View Answer](#)

Answer: d

Explanation: Interception is a communication conception.

---

3. A distributed system must defend itself against

- a) Modification
- b) Interruption
- c) Fabrication
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: None.

---

4. QoS stands for

- a) Quality of security
- b) Quality of system
- c) Quality of service
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: QoS is particularly critical when the system is dealing with time-critical data such as sound or video streams.

---

5. In Java, \_\_\_\_\_ are comparable with, though not identical to, RPCs.

- a) Remote Method Invocations
- b) Operating System
- c) Client–server computing
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: The RMI framework handles the invocation of remote methods in a Java program.

---

6. \_\_\_\_\_ depend on there being a clear separation between the presentation of information and the computations that create and process that information.

- a) Master-slave architectures
- b) Client-server systems
- c) Two-tier client-server architecture
- d) Both Master-slave architectures AND Client-server systems

[View Answer](#)

Answer: b

Explanation: One should design the architecture of distributed client-server systems so that they are structured into several logical layers, with clear interfaces between these layers.

---

7. Which architecture is used when there is a high volume of transactions to be processed by the server?

- a) Multi-tier client-server architecture
- b) Master-slave architecture
- c) Distributed component architecture
- d) Peer-to-peer architecture

[View Answer](#)

Answer: a

Explanation: Multi-tier systems may be used when applications need to access and use data from different databases.

---

8. Which architecture are reliant on middle-ware?

- a) Multi-tier client-server architecture
- b) Master-slave architecture
- c) Distributed component architecture
- d) Peer-to-peer architecture

[View Answer](#)

Answer: c

Explanation: It allows the system designer to delay decisions on where and how services should be provided.

---

9. \_\_\_\_\_ is a way of providing functionality on a remote server with client access through a web browser.

- a) SaaS
- b) SOA
- c) Configurability
- d) Both SaaS and Configurability

[View Answer](#)

Answer: a

Explanation: The server maintains the user's data and state during an interaction session.

---

10. Which architecture decentralized architectures in which there are no distinguished clients and servers?

- a) Multi-tier client-server architecture
- b) Master-slave architecture
- c) Distributed component architecture
- d) Peer-to-peer architecture

[View Answer](#)

Answer: d

Explanation: Peer-to-peer (p2p) systems are decentralized systems in which computations may be carried out by any node on the network.

## Software Engineering Questions and Answers – Service Oriented Architecture

---

1. Service Oriented Architecture (SOA) is

- a) Strongly Coupled
- b) Loosely Coupled
- c) Strongly Cohesive
- d) Loosely Cohesive

[View Answer](#)

Answer: b

Explanation: SOA is the architectural style that supports loosely coupled services to enable business flexibility.

---

2. Which of the following is an essential principle of an architecture?

- a) Consistency
- b) Reliability
- c) Scalability
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Architecture implies a consistent and coherent design approach.

---

3. Arrange the following activities in order to build a SOA.

- i. Virtualization through mediation.
- ii. Track services with registries.
- iii. Govern, secure and manage the services.
- iv. Design for interoperability through the adoption of standards.

- a) i, ii, iii, iv
- b) iii, ii, i, iv
- c) ii, iii, i, iv
- d) ii, iii, iv, i

[View Answer](#)

Answer: c

Explanation: The order mentioned is appropriate to build a SOA

---

4. How is SOA different from OO Architecture ?

- a) Strong coupling among objects
- b) Communications are prescriptive rather than being descriptive
- c) Data is separated from a service or behavior
- d) Data and methods are integrated into a single object

[View Answer](#)

Answer: c

Explanation: A service-oriented architecture is essentially a collection of services which communicate with each other.

---

5. Which architecture will be built on top of a SOA ?

- a) The Application Architecture
- b) The Service Architecture
- c) The Component Architecture
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

---

6. Which of the following utilities is not a part of Application Service Layer ?

- a) Policy implementation
- b) QoS
- c) Security
- d) Verify invoice

[View Answer](#)

Answer: d

Explanation: It is a part of Business service layer.

---

7. Which of the following utilities is not a part of Business Service Layer ?

- a) Task centric service
- b) Wrapper Services
- c) Get account info
- d) Entity centric service

[View Answer](#)

Answer: b

Explanation: It is a part of Application service layer.

---

8. We can build Service Oriented Architecture (SOA) using Object Oriented (OO) language

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: In SOA, the design methodology is associated, not an OO programming language. In fact we can do OO based architecture using non OO languages. Likewise we can build SOA using OO language.

---

9. Which architecture describes the various elements that support the implementation of services.

- a) The Application Architecture
- b) The Service Architecture
- c) The Component Architecture
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: None.

---

10. Web Services is not a realization of SOA ?

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Web services is one realization of the SOA.

## Software Engineering Questions and Answers – Embedded Software

1. Which of the following is a category of a stimuli?

- a) Periodic stimuli
- b) Software stimuli
- c) Hardware stimuli
- d) Management stimuli

[View Answer](#)

Answer: a

Explanation: Periodic stimuli occur at predictable time intervals. For example, the system may examine a sensor every 50 milliseconds and take action depending on that sensor value.

2. Which of the following activities may be included in a real-time software design process?

- a) Platform selection
- b) Timing analysis
- c) Process design
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: All these can be implemented.

3. Which of the following is not a real-time architectural pattern

- a) Observe and React
- b) Environmental Control
- c) Embedded System
- d) Process Pipeline

[View Answer](#)

Answer: c

Explanation: Embedded systems' patterns are process-oriented rather than object- or component-oriented .

4. RTOS stands for

- a) real-life operating system
- b) real-time operating system
- c) real-time operating software
- d) real-life operating software

[View Answer](#)

Answer: b

Explanation: Embedded applications are built on top of a real-time operating system (RTOS).

5. The times by which stimuli must be processed and some response produced by the system is known as

- a) Compile time
- b) Frequency
- c) Deadlines
- d) Execution time

[View Answer](#)

Answer: c

Explanation: If the system does not meet a deadline then, it results in a system failure; in a soft real-time system, it results in degraded system service .

6. The switch to backup power must be completed within a deadline of

- a) 50 ms
- b) 55 ms
- c) 70 ms
- d) 100 ms

[View Answer](#)

Answer: a

Explanation: The time required to power failure stimuli is 50 millisecond.

7. An example of a system that may use a process pipeline is a \_\_\_\_\_

- a) High-speed data acquisition system
- b) Failure of a power supply in an embedded system
- c) Both High-speed data acquisition system AND Failure of a power supply in an embedded system
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: Data acquisition systems collect data from sensors for subsequent processing and analysis. These systems are used in situations where the sensors are collecting a lot of data from the system's environment and it isn't possible or necessary to process that data in real time.

8. Periodic occur irregularly and unpredictably and are usually signaled using the computer's interrupt mechanism.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: This is the case for Aperiodic stimuli

9. If you detect power failure by monitoring a voltage level, you have to make more than one observation to detect that the voltage is dropping.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: If you run the process 250 times per second, this means that it runs every 4 ms and you may require up to two periods to detect the voltage drop.

10. The average execution time of the power monitor process should be less than

- a) 1ms
- b) 10ms
- c) 100ms
- d) none of the mentioned

[View Answer](#)

Answer: a

Explanation: General embedded software property.

## Software Engineering Questions and Answers – Aspect Oriented Software Engineering

---

1. Which of the following diagrams can help spot points cuts?

- a) Class diagram
- b) Object diagram
- c) Sequence diagram
- d) ER diagram

[View Answer](#)

Answer: b

Explanation: In AOSE, sequence diagrams can help spot where pointcuts need to be set.

---

2. Which of the following is represented as an aspect that requests a login name and password?

- a) Class
- b) Object
- c) User authentication
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: User authentication may be represented as an aspect that requests a login name and password. This can be automatically woven into the program wherever authentication is required.

---

3. Research and development in aspect-orientation has primarily focused on

- a) software re-engineering
- b) artificial programming
- c) aspect-oriented programming
- d) all of the mentioned

[View Answer](#)

Answer: c

Explanation: Aspect-oriented programming languages such as AspectJ have been developed that extend object-oriented programming to include aspects.

---

4. Which of the following is a key principle of software design and implementation?

- a) Separation of concerns
- b) Writing aspects
- c) Finding code complexity
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: The separation of concerns is a key principle of software design and implementation. It means that you should organize your software so that each element in the program (class, method, procedure, etc.) does one thing and one thing only.

---

5. Which of the following is not a type of stakeholder concern?

- a) Functional concerns
- b) Quality of service concerns
- c) Policy concern
- d) Non-functional concern

[View Answer](#)

Answer: a

Explanation: The core concerns of a system are those functional concerns that relate to its primary purpose.

---

6. Which of the following concerns best suits the following statement: "Internet banking system includes new customer requirements, account Requirements, customer management requirements, security requirements, recovery requirements etc." ?

- a) Functional concerns
- b) Quality of service concerns
- c) System concerns
- d) Cross-cutting concerns

[View Answer](#)

Answer: d

Explanation: Cross-cutting concerns, which is based on an example of an Internet banking system. This system has requirements relating to new customers such as credit checking and address verification.

7. Which of the following is core concern in medical record management system?

- a) maintaining records of patients
- b) diagnose and treatments
- c) consultations
- d) all of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

8. An event in an executing program where the advice associated with an aspect may be executed is known as

- a) aspect
- b) join point
- c) join point model
- d) pointcut

[View Answer](#)

Answer: b

Explanation: None.

9. The incorporation of advice code at the specified join points by an aspect weaver is called".

- a) aspect
- b) join point
- c) join point model
- d) weaving

[View Answer](#)

Answer: d

Explanation: None.

10. Which of the following is needed by Maintenance staff?

- a) A specific type of equipment
- b) Maintenance record for each and every equipment item
- c) Check in/check out equipment for maintenance
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: All the options are essential for effective maintenance.

11. An aspect is only static.

- a) True
- b) False

[View Answer](#)

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Answer: d

Explanation: An aspect is a class-like structure to encapsulate cross-cut concerns that can be static or dynamic.

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## Software Engineering Questions and Answers – Client Server Software Engineering

---

1. The \_\_\_\_\_ is connected to servers (typically powerful workstations or PCs) that play a dual role.
- a) Database
  - b) Software
  - c) Hardware
  - d) None of the mentioned

[View Answer](#)

Answer: d

Explanation: A root system, sometimes a mainframe, serves as the repository for corporate data plays a dual role.

---

2. Which of the following term is best defined by the statement: "The client sends structured query language (SQL) requests to the server which are transmitted as messages across the net"?
- a) File servers
  - b) Database servers
  - c) Client servers
  - d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: SQL is a database language.

---

3. Which subsystem implements the requirements defined by the application?
- a) UI
  - b) DBMS
  - c) Application subsystem
  - d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: This subsystem implements the requirements defined by the application within the context of the domain in which the application operates.

---

4. Which test do you infer from the following statement: "The coordination and data management functions of the server are tested."?
- a) Server tests
  - b) Application function tests
  - c) Transaction tests
  - d) Network communication tests

[View Answer](#)

Answer: a

Explanation: None

---

5. Which of the following presentation is explained in the following statement: "An extension of the distributed presentation approach, primary database and application logic remain on the server, and data sent by the server is used by the client to prepare the user presentation."?
- a) Local Presentation
  - b) Distributed presentation
  - c) Remote presentation
  - d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: None

---

6. "A client is assigned all user presentation tasks and the processes associated with data entry". Which option supports the client's situation?

- a) Distributed logic
- b) Distributed presentation
- c) Remote presentation
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: The server is assigned database management tasks, the processes for client queries, and enterprise-wide applications.

7. What is used to pass SQL requests and associated data from one component to another?

- a) Client/server SQL interaction
- b) Remote procedure calls
- c) SQL Injection
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: This mechanism is limited to relational database management system (RDBMS) applications.

8. When a client application invokes a method contained within an object elsewhere in the system, CORBA uses dynamic invocation to

- a) obtain pertinent information about the desired method from the interface repository
- b) create a data structure with parameters to be passed to the object
- c) create a request for the object
- d) all of the mentioned

[View Answer](#)

Answer: d

Explanation: The request is then passed to the ORB core—an implementation-specific part of the network operating system that manages requests, and the request is fulfilled.

9. Which of the following services is not provided by an object?

- a) Activating & Deactivating Objects
- b) Security features
- c) Files implementing the entities identified within the ERD
- d) Registering object implementation

[View Answer](#)

Answer: c

Explanation: An ERD is not a part of UML.

10. Which of the following term is best defined by the statement "When one object invokes another independent object, a message is passed between the two objects."?

- a) Control couple
- b) Application object
- c) Data couple
- d) Database object

[View Answer](#)

Answer: c

Explanation: None.

11. CORBA stands for

- a) Common Object Request Build Architecture
- b) Common Object Request Broker Architecture
- c) Common Object Request Break Architecture
- d) All of the mentioned

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[View Answer](#)

Answer: b

Explanation: None.

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## Software Engineering Questions and Answers – Web Engineering

1. Which web app attribute is defined by the statement:"A large number of users may access the WebApp at one time"?

- a) Unpredictable load
- b) Performance
- c) Concurrency
- d) Network intensiveness

[View Answer](#)

Answer: c

Explanation: None.

2. Which web app attribute is defined by the statement:"The quality and aesthetic nature of content remains an important determinant of the quality of a WebApp"?

- a) Availability
- b) Data driven
- c) Content sensitive
- d) Continuous evolution

[View Answer](#)

Answer: c

Explanation: None.

3. If the user queries a collection of large databases and extracts information from the webapp, the webapp is categorized under

- a) Service oriented app
- b) Database access app
- c) Portal app
- d) Data warehousing app

[View Answer](#)

Answer: d

Explanation: The Data Warehouse is a stable, read-only database that combines information from separate systems into one, easy-to-access location.

4. Which process model should be used in virtually all situations of web engineering?

- a) Incremental Model
- b) Waterfall Model
- c) Spiral Model
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: The web engineering process must accommodate incremental delivery, frequent changes and short timeline.

5. Which analysis is a part of Analysis model of the web engineering process framework?

- a) Content Analysis
- b) Interaction Analysis
- c) Functional Analysis
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Analysis model establishes a basis for design which requires all the mentioned options.

6. Web development and software development are one and the same thing.

a) True

b) False

[View Answer](#)

Answer: b

Explanation: They are different due to the nature and distinct requirements of Web-based systems.

---

7. Web-based systems are often document-oriented containing static or dynamic content.

a) True

b) False

[View Answer](#)

Answer: a

Explanation: In web-based systems, more emphasis is on “look and feel” of the product.

---

8. Web-based systems apply the same levels of formal planning and testing used in software development.

a) True

b) False

[View Answer](#)

Answer: b

Explanation: Web-based systems are typically constrained to a short development time making it difficult to apply the same levels of formal planning and testing used in software development.

---

9. Which of the following statements are incorrect with reference to web-based systems? Web-based systems

a) should be unscalable

b) must be able to cope with uncertain, random heavy demands on services

c) must be secure

d) are subject to assorted legal, social, and ethical scrutiny

[View Answer](#)

Answer: a

Explanation: Web-based systems should be scalable.

---

10. What category of web-based system would you assign to electronic shopping?

a) Informational

b) Interactive

c) Transaction-oriented

d) Workflow-oriented

[View Answer](#)

Answer: c

Explanation: It involves usage of transaction management of database systems.

---

11. What category of web-based system would you assign to discussion groups?

a) Collaborative work

b) Online communities

c) Web portals

d) Workflow-oriented

[View Answer](#)

Answer: b

Explanation: None.

---

12. W3C stands for

a) World Wide Web Consortium

- b) World Wide Web Collaboration
- c) World Wide Web Community
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: W3C is an international consortium where member organizations, a full-time staff, and the public work together to develop web standards.

---

13. Which of the following is a risk associated with using hypertext in web applications?

- a) Loss of sense of locality and direction
- b) Cognitive overload for users
- c) All of the mentioned
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: Hypertexts and links may divert the users attention from the main content.

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## Software Engineering Questions and Answers – Software Re-engineering

---

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

[View Answer](#)

Answer: b

Explanation: Restructuring doesn't help with poor modularisation where related components are dispersed throughout the code.

---

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

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

[View Answer](#)

Answer: a

Explanation: Except option a all other are module types.

---

3. Reverse engineering of data focuses on

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

[View Answer](#)

Answer: c

Explanation: None.

---

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

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Forward engineering refers to taking a high-level model and using it to build a more complex lower-level implementation.

---

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

[View Answer](#)

Answer: d

Explanation: It is a part of development phase.

---

6. Which of the following is a data problem?

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

[View Answer](#)

Answer: b

Explanation: Records representing the same entity may be organised differently in different programs.

---

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

[View Answer](#)

Answer: c

Explanation: Re-engineering involves putting in the effort to make the system easier to maintain.

---

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

[View Answer](#)

Answer: d

Explanation: No such goal is mentioned which is not a business goal, so option d is correct here.

---

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

[View Answer](#)

Answer: d

Explanation: The answer is self explanatory.

---

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

[View Answer](#)

Answer: a

Explanation: Data re-engineering involves analyzing and reorganizing the data structures in a program.

---

11. BPR stands for

- a) Business process re-engineering
- b) Business product re-engineering
- c) Business process requirements
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: The answer is self explanatory.

---

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

[View Answer](#)

Answer: c

Explanation: Restructuring involves automatic conversion from unstructured to structured code.

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## Software Engineering Questions and Answers – Reverse Engineering

---

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

[View Answer](#)

Answer: c

Explanation: None.

---

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

[View Answer](#)

Answer: b

Explanation: None.

---

3. The core of reverse engineering is an activity called

- a) restructure code
- b) directionality
- c) extract abstractions
- d) interactivity

[View Answer](#)

Answer: c

Explanation: The engineer must evaluate the old program and extract a meaningful specification of the processing that is performed, the user interface that is applied, and the program data structures or database that is used.

---

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

[View Answer](#)

Answer: a

Explanation: Therefore, the redevelopment of user interfaces has become one of the most common types of re-engineering activity. But before a user interface can be rebuilt, reverse engineering should occur.

---

5. Forward engineering is also known as

- a) extract abstractions
- b) renovation
- c) reclamation
- d) both renovation and reclamation

[View Answer](#)

Answer: d

Explanation: Forward engineering, also called renovation or reclamation , not only recovers design information from existing software, but uses this information to alter or reconstitute the existing system in an effort to improve its overall quality.

---

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

[View Answer](#)

Answer: c

Explanation: None

---

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

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: This is accomplished by examining the program code with the intent of grouping related program variables.

---

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

[View Answer](#)

Answer: d

Explanation: Once information defined in the preceding steps is known, a series of transformations can be applied to map the old database structure into a new database structure.

---

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

[View Answer](#)

Answer: b

Explanation: The GUI or the interface provides the base for the behavioral model.

---

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

[View Answer](#)

Answer: a

Explanation: None.

---

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

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Re engineering is a process of analysis and change whereby a system is modified by first reverse engineering and then forward

engineering.

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

[View Answer](#)

Answer: d

Explanation: None.

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

[View Answer](#)

Answer: d

Explanation: Reverse engineering helps us to detect side effects rather than avoiding them.

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## Software Engineering Questions and Answers – Computer Aided Software Engineering

---

1. Which of the following is software engineer's primary characteristics?  
a) A collection of useful tools that will help in every step of building a product  
b) An organized layout that enables tools to be found quickly and used efficiently  
c) A skilled artisan who understands how to use the tools in an effective manner  
d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: None.

---

2. Database management software serves as a foundation for the establishment of a CASE database (repository) that we call  
a) project database  
b) system database  
c) analysis and design tools  
d) prototyping tools

[View Answer](#)

Answer: a

Explanation: Given the emphasis on configuration objects, database management tools for CASE are evolving from relational database management systems to object oriented database management systems.

---

3. What enables a software engineer to define screen layout rapidly for interactive applications?  
a) Analysis and design tools  
b) Tool kit  
c) Screen painters  
d) PRO/SIM tools

[View Answer](#)

Answer: c

Explanation: More sophisticated CASE prototyping tools enable the creation of a data design, coupled with both screen and report layouts.

---

4. \_\_\_\_\_ tools assist in the planning, development, and control in CASE.  
a) Dynamic measurement  
b) Data acquisition  
c) Test management  
d) Cross-functional tools

[View Answer](#)

Answer: c

Explanation: None.

---

5. Which tools cross the bounds of the preceding categories?  
a) Data acquisition  
b) Dynamic measurement  
c) Cross-functional tools  
d) Simulation

[View Answer](#)

Answer: c

Explanation: None.

---

6. Which environment demands specialized testing tools that exercise the graphical user interface and the network communications requirements for client and server?

- a) Dynamic analysis
- b) Client/Server
- c) Re-engineering
- d) Test management

[View Answer](#)

Answer: b

Explanation: A client/server architecture is GUI based.

---

7. Which tools are used to modify online database systems?

- a) Reverse engineering specification tools
- b) Code restructuring and analysis tools
- c) Test management tools
- d) online system re-engineering tools

[View Answer](#)

Answer: d

Explanation: For example these tools convert IDMS or DB2 files into entity-relationship format.

---

8. Which is the definition of objects in the database that leads directly to a standard approach for the creation of software engineering documents.

- a) Document standardization
- b) Data integrity
- c) Information sharing
- d) Data/data integration

[View Answer](#)

Answer: a

Explanation: None.

---

9. Which of the following term is best defined by the statement: "CASE tools and the target applications are isolated from physical storage so they are not affected when the hardware configuration is changed."?

- a) Non-redundant data storage
- b) Data independence
- c) Data dependence
- d) Ad Hoc data queries and reports

[View Answer](#)

Answer: b

Explanation: None.

---

10. Which of the following term is best define by the statement: "Each object is stored only once, but is accessible by all CASE tools that need it."?

- a) Non-redundant data storage
- b) Data independence
- c) Transaction control
- d) Ad Hoc data queries and reports

[View Answer](#)

Answer: a

Explanation: None.

## Software Engineering Questions and Answers – Using CASE Tools

---

1. CASE stands for

- a) Cost Aided Software Engineering
- b) Computer Aided Software Engineering
- c) Control Aided Software Engineering
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: CASE tools purpose is to make the work of software development and maintenance easier and more reliable.

---

2. CASE tools are used only during the software testing phase.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: CASE tools support the developer when performing one or more phases of the software life cycle and/or support software maintenance.

---

3. Which of the following is not a type of CASE tool?

- a) Lower
- b) Classic
- c) Real
- d) Middle

[View Answer](#)

Answer: d

Explanation: Lower and Upper CASE tools support analysis and design.

---

4. What stores all changes and info related to the project from development through maintenance in CASE tools?

- a) Database
- b) Repository
- c) Registers
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: The main component of real CASE tools is the repository which stores all changes.

---

5. What kind of support is provided by the Repository Query CASE tool?

- a) Editing text and diagrams
- b) Display of parts of the design texts
- c) Cross referencing queries and requirements tracing
- d) Display of parts of the design texts AND Cross referencing queries and requirements tracing

[View Answer](#)

Answer: d

Explanation: None.

---

6. What kind of support is provided by the Code Generation CASE tool?

- a) Cross referencing queries and requirements tracing
- b) Transformation of design records into application software
- c) Compiling, interpreting or applying interactive debugging code

- d) Transformation of design records into application software AND Compiling, interpreting or applying interactive debugging code  
[View Answer](#)

Answer: b

Explanation: Code Generation tool aids in transformation of design records into prototypes or application software compatible with a given software development language.

---

7. Logical design errors can be resolved using both classic and real CASE tools.

- a) True  
b) False

[View Answer](#)

Answer: b

Explanation: Classic CASE tools include interactive debuggers and compilers which do not serve the required purpose.

---

8. CASE-generated updated documentation enables easier and more reliable identification of software failure causes.

- a) True  
b) False

[View Answer](#)

Answer: a

Explanation: None.

---

9. What kind of support is provided by the Code Editing CASE tool?

- a) Management of design documents and software code versions  
b) Transformation of design records into application software  
c) Compiling, interpreting or applying interactive debugging code  
d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: Code editing tool serves the purpose of compiling, interpreting or applying interactive debugging code specific coding language or development tool.

---

10. Use of the repository assures automated coding and documentation of corrections.

- a) True  
b) False

[View Answer](#)

Answer: b

Explanation: Use of the repository assures consistency of new applications and improvements with existing software systems.

---

11. Which of the following is a drawback of using CASE tool?

- a) Standardization of notations and diagrams  
b) Communication between development team member  
c) Costs associated with the use of the tool  
d) Reduction of time and effort

[View Answer](#)

Answer: c

Explanation: Using CASE tools is an expensive approach.

---

12. An upper CASE tool is also referred to as a back end CASE.

- a) True  
b) False

[View Answer](#)

Answer: b

Explanation: An upper CASE tool (front end CASE) provides support for the early stages in the systems development life cycle such as requirements analysis and design.

---

13. CASE tools are mainly used while developing which of the following methodologies?

- a) RAD
- b) JAD
- c) OO Approach
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: CASE tools are used in various stages of the Software Development Life Cycle.

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## Software Engineering Questions and Answers – Software Reliability

---

1. Which of the following is not a phase of “bathtub curve” of hardware reliability?

- a) Useful Life
- b) Burn-in
- c) Wear-out
- d) Time

[View Answer](#)

Answer: d

Explanation: Time is the horizontal dimension on which the bathtub curve is built and not the phase.

---

2. How is reliability and failure intensity related to each other?

- a) direct relation
- b) inverse relation
- c) no relation
- d) none of the mentioned

[View Answer](#)

Answer: b

Explanation: As the reliability increases, failure intensity decreases.

---

3. How many product quality factors are proposed in McCall quality model?

- a) 2
- b) 3
- c) 11
- d) 8

[View Answer](#)

Answer: b

Explanation: McCall quality model has three product quality factors namely: Product revision, Product operation, Product Transition .

---

4. Which one of the following is not a software quality model?

- a) ISO 9000
- b) McCall model
- c) Boehm model
- d) ISO 9126

[View Answer](#)

Answer: a

Explanation: ISO-9000 series of standards is a set of document dealing with quality systems that can be used for quality assurance purposes.

---

5. What is MTTF ?

- a) Maximum time to failure
- b) Mean time to failure
- c) Minimum time to failure
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

---

6. How is software reliability defined?

- a) time
- b) efficiency

c) quality

d) speed

[View Answer](#)

Answer: a

Explanation: Software Reliability mainly concerned with the time component. It can be seen in various models like Basic Execution Time Model and Logarithmic Poisson Execution Time Model.

---

7. Suitability, Accuracy, Interoperability, and security are what type quality attribute of ISO 9126 ?

a) Reliability

b) Efficiency

c) Functionality

d) Usability

[View Answer](#)

Answer: c

Explanation: All the Characteristics mentioned in the question are related to achievement of the basic purpose for which the software is being engineered, which is functionality.

---

8. Time Behavior and Resource Behavior fall under which quality attribute of ISO 9126 ?

a) Reliability

b) Efficiency

c) Functionality

d) Usability

[View Answer](#)

Answer: b

Explanation: The Characteristics mentioned in the question are related to the relationship between the level of performance of the software and the amount of resources used, under stated conditions.

---

9. NHPP stands for

a) Non Homogeneous Poisson Product

b) Non-Hetrogeneous Poisson Product

c) Non-Hetrogeneous Poisson Process

d) Non Homogeneous Poisson Process

[View Answer](#)

Answer: d

Explanation: None.

---

10. The CMM model is a technique to

a) automatically maintain the software reliability

b) improve the software process.

c) test the software

d) all of the mentioned

[View Answer](#)

Answer: b

Explanation: Capability Maturity Model (CMM) is a strategy for improving the software process, irrespective of the actual life cycle model used.

## Software Engineering Questions and Answers – Fault Tolerance

---

1. What type of fault remains in the system for some period and then disappears?

- a) Permanent
- b) Transient
- c) Intermittent
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: For example many faults in communication systems are transient in nature.

---

2. Which of the following approaches are used to achieve reliable systems?

- a) Fault prevention
- b) Fault removal
- c) Fault tolerance
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: All the options lead to formation of a reliable system.

---

3. A system maintaining its integrity while accepting a temporary halt in its operation is said to be in a state of

- a) Full Fault Tolerance
- b) Graceful Degradation
- c) Fail Soft
- d) Fail Safe

[View Answer](#)

Answer: d

Explanation: None.

---

4. Which of the following Error Detection checks is not a part of Application detection?

- a) Hardware checks
- b) Timing checks
- c) Reversal checks
- d) Coding checks

[View Answer](#)

Answer: a

Explanation: Hardware is a part of environment detection check.

---

5. Exception handling is a type of

- a) forward error recovery mechanism
- b) backward error recovery mechanism
- c) All of the mentioned
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: Exception handling is a forward error recovery mechanism, as there is no roll back to a previous state; instead control is passed to the handler so that recovery procedures can be initiated.

---

6. Non-occurrence of improper alteration of information is known as

- a) Available Dependability

- b) Confidential Dependability
- c) Maintainable Dependability
- d) Integral Dependability

[View Answer](#)

Answer: d

Explanation: Integrity is to keep the original content safe from alteration.

---

7. In N-version programming which is the independent generation of N, the value of N is

- a) greater than 1
- b) less than 1
- c) greater than 2
- d) less than 2

[View Answer](#)

Answer: c

Explanation: N-version programming (NVP), also known as multiversion programming or multiple-version dissimilar software, is a method or process in software engineering where multiple functionally equivalent programs are independently generated from the same initial specifications.

---

8. In Log-based fault tolerance, logs of undetermined events are saved and replayed on failure.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: None.

---

9. All fault-tolerant techniques rely on

- a) Integrity
- b) Dependability
- c) Redundancy
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: All fault-tolerant techniques rely on extra elements introduced into the system to detect & recover from faults.

---

10. It is imperative for a communicating processes to reach consistent recovery points to avoid the \_\_\_\_\_ effect, with backward error recovery mechanism.

- a) Static
- b) Dynamic
- c) Domino
- d) Whirlpool

[View Answer](#)

Answer: c

Explanation: None.

## Software Engineering Questions and Answers – Software Reliability Models

1. Which one is not a software quality model?

- a) ISO 9000
- b) McCall model
- c) Boehm model
- d) ISO 9126

[View Answer](#)

Answer: a

Explanation: ISO 9000 is software certification.

2. How many levels are present in CMM?

- a) three
- b) four
- c) five
- d) six

[View Answer](#)

Answer: c

Explanation: The five levels are: initial, repeatable, defined, managed, optimizing.

3. Which level of CMM is for process management?

- a) Initial
- b) Repeatable
- c) Defined
- d) Optimizing

[View Answer](#)

Answer: d

Explanation: It is a characteristic of processes at this level that the focus is on continually improving process performance through both incremental and innovative technological changes/improvements.

4. In ISO 9126, time behavior and resource utilization are a part of

- a) maintainability
- b) portability
- c) efficiency
- d) usability

[View Answer](#)

Answer: c

Explanation: A set of attributes that bear on the relationship between the level of performance of the software and the amount of resources used, under stated conditions.

5. Which of the following is not a Probabilistic Model?

- a) Error seeding
- b) NHPP
- c) Input domain
- d) Halstead's software metric

[View Answer](#)

Answer: d

Explanation: Halstead's software metric is a deterministic model.

6. Software reliability is defined with respect to

- a) time
- b) bugs
- c) failures
- d) quality

[View Answer](#)

Answer: a

Explanation: None.

---

7. Failure In Time (FIT) is another way of reporting

- a) MTTR
- b) MTTF
- c) MTSF
- d) MTBF

[View Answer](#)

Answer: d

Explanation: FIT reports the number of expected failures per one billion hours of operation for a device. This term is used particularly by the semiconductor industry but is also used by component manufacturers .

---

8. MTTF stands for

- a) Minimum time to failure
- b) Mean time to failure
- c) Maximum time to failure
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: None.

---

9. Mean Time To Repair (MTTR) is the time needed to repair a failed hardware module.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: In an operational system, repair generally means replacing a failed hardware part. Thus, hardware MTTR could be viewed as mean time to replace a failed hardware module.

---

10. IMC Networks is a leading \_\_\_\_\_ certified manufacturer of optical networking and LAN/WAN connectivity solutions for enterprise, telecommunications and service provider applications.

- a) Telco Systems
- b) D-Link
- c) Arista Networks
- d) ISO 9001

[View Answer](#)

Answer: a

Explanation: Founded in 1988, with over one million products installed worldwide, IMC Networks offers a wide range of fiber media and mode converters for a variety of applications.

## Software Engineering Questions and Answers – Software Testing Techniques – 1

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

[View Answer](#)

Answer: b

Explanation: Software testing is the process of evaluation a software item to detect differences between given input and expected output.

2. What is Cyclomatic complexity?

- a) Black box testing
- b) White box testing
- c) Yellow box testing
- d) Green box testing

[View Answer](#)

Answer: b

Explanation: Cyclomatic complexity measures the amount of decision logic in the program module. Cyclomatic complexity gives the minimum number of paths that can generate all possible paths through the module.

3. Lower and upper limits are present in which chart?

- a) Run chart
- b) Bar chart
- c) Control chart
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: A run chart is used to monitor the behavior of a variable over time for a process or system. Run charts graphically display cycles, trends, shifts, or non-random patterns in behavior over time. It contains lower and upper limits.

4. Maintenance testing is performed using which methodology?

- a) Retesting
- b) Sanity testing
- c) Breadth test and depth test
- d) Confirmation testing

[View Answer](#)

Answer: c

Explanation: Maintenance Testing is done on the already deployed software. The deployed software needs to be enhanced, changed or migrated to other hardware. The Testing done during this enhancement, change and migration cycle is known as maintenance testing.

5. White Box techniques are also classified as

- a) Design based testing
- b) Structural testing
- c) Error guessing technique
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: The structural testing is the testing of the structure of the system or component. Structural testing is often referred to as ‘white box’ or ‘glass box’ or ‘clear-box testing’ because in structural testing we are interested in what is happening ‘inside the system/application’.

6. Exhaustive testing is

- a) always possible
- b) practically possible
- c) impractical but possible
- d) impractical and impossible

[View Answer](#)

Answer: c

Explanation: Exhaustive testing is the testing where we execute single test case for multiple test data. It means if we are using single test case for different product or module under manual testing.

---

7. Which of the following is/are White box technique?

- a) Statement Testing
- b) Decision Testing
- c) Condition Coverage
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Statement testing, decision testing, condition coverage all of them uses white box technique.

---

8. What are the various Testing Levels?

- a) Unit Testing
- b) System Testing
- c) Integration Testing
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: Unit, system, integration testing all of them are levels in testing.

---

9. Boundary value analysis belong to?

- a) White Box Testing
- b) Black Box Testing
- c) White Box & Black Box Testing
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: Boundary value analysis is based on testing at the boundaries between partitions and checks the output with expected output.

---

10. Alpha testing is done at

- a) Developer's end
- b) User's end
- c) Developer's & User's end
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: Alpha testing takes place at the developer's end. Developers observe the users and note problems. Alpha testing is testing of an application when development is about to complete. Minor design changes can still be made as a result of alpha testing.

## Software Engineering Questions and Answers – Software Testing Techniques – 2

---

1. The testing in which code is checked

- a) Black box testing
- b) White box testing
- c) Red box testing
- d) Green box testing

[View Answer](#)

Answer: b

Explanation: White-box testing is a method of testing software that tests internal structures or workings of an application, as opposed to its functionality .

---

2. Testing done without planning and Documentation is called

- a) Unit testing
- b) Regression testing
- c) Adhoc testing
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: Adhoc testing is used term for software testing performed without planning and documentation. The tests are intended to be run only once, unless a defect is discovered.

---

3. Acceptance testing is also known as

- a) Grey box testing
- b) White box testing
- c) Alpha Testing
- d) Beta testing

[View Answer](#)

Answer: d

Explanation: Acceptance testing is a test conducted to determine if the requirements of a specification or contract are met and is done by users.

---

4. Which of the following is non-functional testing?

- a) Black box testing
- b) Performance testing
- c) Unit testing
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: Performance testing is in general testing performed to determine how a system performs in terms of responsiveness and stability under a particular workload.

---

5. Beta testing is done at

- a) User's end
- b) Developer's end
- c) User's & Developer's end
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: In beta testing the user evaluates the product and gives his feedback.

---

6. SPICE stands for

- a) Software Process Improvement and Compatibility Determination
- b) Software Process Improvement and Control Determination
- c) Software Process Improvement and Capability Determination
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: SPICE stands for Software Process Improvement and Control Determination.

---

7. Unit testing is done by

- a) Users
- b) Developers
- c) Customers
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: Unit testing is a method by which individual units of source code, sets of one or more computer program modules together with associated control data, usage procedures, and operating procedures are tested to determine if they are fit for use.

---

8. Behavioral testing is

- a) White box testing
- b) Black box testing
- c) Grey box testing
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: Black-box testing is a method of software testing that examines the functionality of an application without peering into its internal structures or workings.

---

9. Which of the following is black box testing

- a) Basic path testing
- b) Boundary value analysis
- c) Code path analysis
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: Boundary value analysis is a software testing technique in which tests are designed to include representatives of boundary values.

---

10. Which of the following is not used in measuring the size of the software

- a) KLOC
- b) Function Points
- c) Size of module
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: KLOC and function points both can be used as size measurement for measuring the size of the software.

## Software Engineering Questions and Answers – Software Testing Strategies

1. Software Debugging is a set of activities that can be planned in advance and conducted systematically.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Software Testing is a set of such activities.

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

[View Answer](#)

Answer: a

Explanation: None.

3. ITG stands for

- a) instantaneous test group
- b) integration testing group
- c) individual testing group
- d) independent test group

[View Answer](#)

Answer: d

Explanation: The role of an independent test group (ITG) is to remove the inherent problems associated with letting the builder test the thing that has been built.

4. 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

[View Answer](#)

Answer: c

Explanation: It answers questions like: "When are we done with testing?"

5. 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

[View Answer](#)

Answer: d

Explanation: All the mentioned options are carried out for the purpose.

6. 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

[View Answer](#)

Answer: a

Explanation: Test cases should uncover errors such as all the explained options and much more.

---

7. 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

[View Answer](#)

Answer: a

Explanation: Actually, error description does not provide enough information to assist in the location of the cause of the error.

---

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

- a) Integration testing
- b) Unit testing
- c) Completion of Testing
- d) Regression Testing

[View Answer](#)

Answer: b

Explanation: After source level code has been developed, reviewed, and verified for correspondence to component level design, unit test case design begins.

---

9. 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

[View Answer](#)

Answer: d

Explanation: Regression testing may be conducted manually, by re-executing a subset of all test cases or using automated capture or playback tools

---

10. 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

[View Answer](#)

Answer: c

Explanation: Smoke testing is designed as a pacing mechanism for time-critical projects, allowing the software team to assess its project on a frequent basis.

---

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

- a) Alpha Testing
- b) Beta Testing
- c) Validation Testing
- d) Both Alpha and Beta

[View Answer](#)

Answer: d

Explanation: Alpha testing is done at developer's end while beta testing is done at user's end.

---

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

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Its verification, while validation refers to a different set of tasks that ensure that the software that has been built is traceable to customer requirements.

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## Software Engineering Questions and Answers – Object Oriented Testing

---

1. The architecture of object-oriented software results in a series of layered subsystems that encapsulate collaborating classes.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: It is necessary to test an OO system at a variety of different levels in an effort to uncover errors that may occur as classes collaborate with one another and subsystems communicate across architectural layers.

---

2. The construction of object-oriented software begins with the creation of

- a) design model
- b) analysis model
- c) code levels
- d) both design and analysis model

[View Answer](#)

Answer: d

Explanation: It is due to the evolutionary nature of the OO software engineering paradigm, these models begin as relatively informal representations of system requirements and evolve into detailed models of classes, class connections and relationships, system design and allocation, and object design.

---

3. Which testing integrates the set of classes required to respond to one input or event for the system?

- a) cluster testing
- b) thread-based testing
- c) use-based testing
- d) none of the mentioned

[View Answer](#)

Answer: b

Explanation: Each thread is integrated and tested individually. Regression testing is applied to ensure that no side effects occur.

---

4. Which of the following is one of the steps in the integration testing of OO software?

- a) cluster testing
- b) thread-based testing
- c) use-based testing
- d) none of the mentioned

[View Answer](#)

Answer: a

Explanation: Here, a cluster of collaborating classes is exercised by designing test cases that attempt to uncover errors in the collaborations.

---

5. \_\_\_\_\_ methods can be used to drive validations tests

- a) Yellow-box testing
- b) Black-box testing
- c) White-box testing
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: Black-box testing methods are as appropriate for OO systems as they are for systems developed using conventional software engineering methods.

---

6. Which of the following is a part of testing OO code?

- a) Validation tests
- b) Integration tests
- c) Class tests
- d) System tests

[View Answer](#)

Answer: c

Explanation: None.

---

7. The object of \_\_\_\_\_ within an OO system is to design tests that have a high likelihood of uncovering plausible bugs.

- a) Fault-based testing
- b) Integration testing
- c) Use-based testing
- d) Scenario-based testing

[View Answer](#)

Answer: a

Explanation: The object of fault-based testing within an OO system is to design tests that have a high likelihood of uncovering plausible faults.

---

8. What refers to the externally observable structure of an OO program?

- a) Deep structure
- b) Surface structure
- c) Core structure
- d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: Surface structure refers to the externally observable structure of an OO program which is immediately obvious to an end-user.

---

9. \_\_\_\_\_ categorizes class operations based on the generic function that each performs.

- a) Category-based partitioning
- b) Attribute-based partitioning
- c) State-based partitioning
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: For example, operations in the account class can be categorized in initialization operations (open, setup), computational operations (deposit, withdraw) etc.

---

10. Which of the following is black-box oriented and can be accomplished by applying the same black-box methods discussed for conventional software?

- a) Conventional testing
- b) OO system validation testing
- c) Test case design
- d) Both Conventional testing and OO system validation testing

[View Answer](#)

Answer: d

Explanation: None.

---

11. In which of the following testing strategies, a smallest testable unit is the encapsulated class or object?

- a) Unit testing
- b) Integration testing
- c) System testing
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

---

12. Which of the following testing types is not a part of system testing?

- a) Recovery testing
- b) Stress testing
- c) System testing
- d) Random testing

[View Answer](#)

Answer: d

Explanation: It is a testing method at class level.

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## Software Engineering Questions and Answers – Debugging Techniques and Approaches

---

1. What is testing process' first goal?

- a) Bug prevention
- b) Testing
- c) Execution
- d) Analyses

[View Answer](#)

Answer: a

Explanation: Its better to prevent a bug rather than putting time in its testing and removal.

---

2. Software mistakes during coding are known as

- a) errors
- b) failures
- c) bugs
- d) defects

[View Answer](#)

Answer: c

Explanation: A software bug is an error, flaw, failure, or fault in a computer program or system that causes it to produce an incorrect or unexpected result.

---

3. Name an evaluation technique to assess the quality of test cases.

- a) Mutation analysis
- b) Validation
- c) Verification
- d) Performance analysis

[View Answer](#)

Answer: a

Explanation: Mutation analysis is used to design new software tests and evaluate the quality of existing software tests.

---

4. Test should be conducted for every possible

- a) data
- b) case
- c) variable
- d) all of the mentioned

[View Answer](#)

Answer: d

Explanation: It increases the scope for code inspection.

---

5. Which of the following is not a part of bug report?

- a) Test case
- b) Output
- c) Software Version
- d) LOC

[View Answer](#)

Answer: d

Explanation: Line of code(LOC) is immaterial during testing, as it is an exhaustive process.

---

6. Which of the following is not a part of Execution Flow during debugging?

- a) Step Over

- b) Step Into
- c) Step Up
- d) Step Out

[View Answer](#)

Answer: c

Explanation: Step Into executes code, Step Out continues execution until bound value and Step Over is to execute code without stopping.

7. Cyclomatic Complexity method comes under which testing method.

- a) Yellow box
- b) White box
- c) Gray box
- d) Black box

[View Answer](#)

Answer: b

Explanation: Cyclomatic Complexity tells us about the number of independent paths in a program which is covered in white box testing.

8. Which is a black box testing technique appropriate to all levels of testing?

- a) Acceptance testing
- b) Regression testing
- c) Equivalence partitioning
- d) Quality assurance

[View Answer](#)

Answer: c

Explanation: Equivalence partitioning is a software testing technique that divides the input data of a software unit into partitions of equivalent data from which test cases can be derived.

9. Which of the following is the way of ensuring that the tests are actually testing code?

- a) Control structure testing
- b) Complex path testing
- c) Code coverage
- d) Quality assurance of software

[View Answer](#)

Answer: c

Explanation: None.

10. Effective testing will reduce \_\_\_\_\_ cost.

- a) maintenance
- b) design
- c) coding
- d) documentation

[View Answer](#)

Answer: a

Explanation: Remaining options are a part of development process.

11. Which of the following is a common pointer problem?

- a) Data sharing errors
- b) Accessing data elements of the wrong type
- c) Attempting to use memory areas after freeing them
- d) All of the mentioned

[View Answer](#)

Answer: d

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Explanation: These are the common errors programmers make while coding.

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## Software Engineering Questions and Answers – Testing Tools

1. Standard Enforcer is a

- a) Static Testing Tool
- b) Dynamic Testing
- c) Static & Dynamic Testing
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: Static Testing tools are those that perform analysis of the program without executing them at all.

2. Many applications using static analysis find 0.1-0.2% NCSS. NCSS stands for

- a) Non-Code Source Statement
- b) Non Comment Source Sentence
- c) Non-Comment Source Statement
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: None.

3. Which testing tool does a simple job of enforcing standards in a uniform way of many programs?

- a) Static Analyzer
- b) Code Inspector
- c) Standard Enforcer
- d) Both Code Inspector & Standard Enforcer

[View Answer](#)

Answer: d

Explanation: A standard enforcer is just like a code inspector, except that the rules are generally simpler. Standard enforcer looks at only single statements while the static analyzer looks at whole programs.

4. Software Testing with real data in real environment is known as

- a) alpha testing
- b) beta testing
- c) regression testing
- d) none of the mentioned

[View Answer](#)

Answer: b

Explanation: Beta testing is the last stage of testing, and normally can involve sending the product to beta test sites outside the company for real-world exposure or offering the product for a free trial download over the Internet.

5. Which of the following testing tools examine program systematically & automatically ?

- a) Code Inspector
- b) Static Analyzer
- c) Standard Enforcer
- d) Coverage Analyzer

[View Answer](#)

Answer: b

Explanation: A static analyzer operates from a pre-computed database of descriptive information derived from the source text of the program.

6. Which testing tool is responsible for documenting programs ?

- a) Test/File Generator
- b) Test Harness System
- c) Test Archiving Systems
- d) Coverage Analyzer

[View Answer](#)

Answer: c

Explanation: The answer is self-explanatory.

---

7. Beta Testing is done by

- a) Developers
- b) Testers
- c) Users
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: None.

---

8. Standard enforcer tool looks at the whole program.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: This tool looks at only single statements.

---

9. Debugging Program is a program which runs concurrently with the program under test & provide commands to

- a) examine memory & registers
- b) stop execution at a particular point
- c) search for references for particular variables, constant and registers
- d) all of the mentioned

[View Answer](#)

Answer: d

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.

---

10. Execution Verifier is a dynamic tool that is also known as

- a) Test File Generator
- b) Coverage Analyzer
- c) Output Comparator
- d) Test Harness System

[View Answer](#)

Answer: b

Explanation: None.

## Software Engineering Questions and Answers – Software Monitoring

---

1. Why is software difficult to build ?

- a) Controlled changes
- b) Lack of reusability
- c) Lack of monitoring
- d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: Monitoring is a key aspect which requires much attention for a successful build.

---

2. Which of the following is not a conflict in software development team?

- a) Simultaneous updates
- b) Shared and common code
- c) Versions
- d) Graphics issues

[View Answer](#)

Answer: d

Explanation: These are part of design, which can be handled by the design team.

---

3. Which of the following lasts for the duration of the project and covers the development process?

- a) Monitoring all key parameters like cost, schedule, risks
- b) Taking corrective actions when needed
- c) Providing information on the development process in terms of metrics
- d) All of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

---

4. Which of the following is not a typical environment in communication facilitation ?

- a) Multiple teams
- b) Multiple user groups
- c) Multiple fests
- d) Multiple locations

[View Answer](#)

Answer: c

Explanation: The answer is not related to the question.

---

5. Which of the following is a software process ?

- a) Analysis and design
- b) Configuration and management
- c) Business modeling
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: None.

---

6. Which of the following is not included in Issues Meetings?

- a) Issues gathered the day before
- b) Regular schedule of meeting

c) Discussion with business

d) Attendance

[View Answer](#)

Answer: c

Explanation: Discussion with business is planning in QA Meetings.

---

7. Which of the following is not a part of Software Configuration Management Basics?

a) Identification

b) Version

c) Auditing and Reviewing

d) Status Accounting

[View Answer](#)

Answer: b

Explanation: None.

---

8. What is a collection of software elements treated as a unit for the purposes of SCM?

a) Software Configuration Item

b) Baseline

c) Configuration

d) Configuration Control Board

[View Answer](#)

Answer: a

Explanation: Software Configuration Item is a collection of software elements treated as a unit for the purposes of SCM.

---

9. What is one or more software configuration items that have been formally reviewed and agreed upon and serve as a basis for further development?

a) Configuration

b) Baseline

c) Software

d) All of the mentioned

[View Answer](#)

Answer: b

Explanation: Baseline – One or more software configuration items that have been formally reviewed and agreed upon and serve as a basis for further development.

---

10. What is validating the completeness of a product?

a) Identification

b) Software

c) Auditing and Reviewing

d) Status Accounting

[View Answer](#)

Answer: c

Explanation: Auditing and Reviewing is validating the completeness of a product and that SCM procedures are being followed.

---

11. What is group with the responsibility for reviewing and approving changes to baselines?

a) Software Configuration Item

b) Baseline

c) Configuration

d) Configuration Control Board

[View Answer](#)

Answer: d

Explanation: Configuration Control Board (CCB) is the group with the responsibility for reviewing and approving changes to baselines.

---

12. In many settings PM is a center of communication hub

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: None.

---

13. What is a specific instance of a baseline or configuration item?

- a) Software
- b) Configuration
- c) Version
- d) Status Accounting

[View Answer](#)

Answer: c

Explanation: Even the smallest development projects should utilize some sort of version and baseline control tool.

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## Software Engineering Questions and Answers – Software Control

---

1. SCM stands for

- a) Software Control Management
- b) Software Configuration Management
- c) Software Concept Management
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: In software engineering, software configuration management (SCM) is the task of tracking and controlling changes in the software, part of the larger cross-discipline field of configuration management.

---

2. When code is made available to others, it goes in a/an

- a) hard drive
- b) access-controlled library
- c) servers
- d) access control

[View Answer](#)

Answer: b

Explanation: None.

---

3. Which of the following is not a main phase in Configuration Management (CM) Process?

- a) CM Planning
- b) Executing the CM process
- c) CM audits
- d) None of the mentioned

[View Answer](#)

Answer: d

Explanation: All are main phases of CM.

---

4. CM is about managing the different items in the product, and changes in them.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: None.

---

5. What allows different projects to use the same source files at the same time?

- a) Version Control
- b) Access control
- c) CM Process
- d) Version Control and Access control

[View Answer](#)

Answer: a

Explanation: It allows software engineers to continue development along a branch even when a line of development is frozen.

---

6. Which of the following is not a change management process?

- a) Log the changes
- b) Estimate impact on effort and schedule
- c) Review impact with stakeholders

d) None of the mentioned

[View Answer](#)

Answer: d

Explanation: All are required for a change.

---

7. Configuration management (CM) is needed to deliver product to the client

a) True

b) False

[View Answer](#)

Answer: a

Explanation: None.

---

8. What is one or more software configuration items that have been formally reviewed and agreed upon and serve as a basis for further development?

a) Baseline

b) Cumulative changes

c) CM

d) Change Control

[View Answer](#)

Answer: a

Explanation: In configuration management, a “baseline” is an agreed-to description of the attributes of a product, at a point in time, which serves as a basis for defining change.

---

9. How are baselines verified?

a) By reviews

b) By inspections

c) By testing of code

d) All of the mentioned

[View Answer](#)

Answer: c

Explanation: Testing verifies the agreed-to description.

---

10. Which of the following is a example of Configuration Items ?

a) SCM procedures

b) Source code

c) Software design descriptions

d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: All are covered in CM.

---

11. SCM controls only the products of the development process.

a) True

b) False

[View Answer](#)

Answer: a

Explanation: None.

---

12. CCB stands for

a) Change Control Board

- b) Change Control Baseline
- c) Cumulative Changes in Baseline
- d) None of the mentioned

[View Answer](#)

Answer: a

Explanation: None.

---

13. What information is required to process a change to a baseline?

- a) Reasons for making the changes
- b) A description of the proposed changes
- c) List of other items affected by the changes
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: A baseline is an agreed-to description of the product, changes require multiple reasons..

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## Software Engineering Questions and Answers – Quality Management

1. Quality Management in software engineering is also known as

- a) SQA
- b) SQM
- c) SQI
- d) SQA and SQM

[View Answer](#)

Answer: a

Explanation: Quality Management is also called software quality assurance (SQA) which serves as an umbrella activity that is applied throughout the software process.

2. Quality also can be looked at in terms of user satisfaction which includes

- a) A compliant product
- b) Good quality output
- c) Delivery within budget and schedule
- d) All of the mentioned

[View Answer](#)

Answer: d

Explanation: This focuses on how well the implementation follows the design and how well the resulting system meets its requirements .

3. Inspections and testing are what kinds of Quality Costs?

- a) Prevention
- b) Internal Failure
- c) External Failure
- d) Appraisal

[View Answer](#)

Answer: d

Explanation: Inspections, equipment calibration, maintenance and testing appraisal costs is quality management.

4. According to Pareto's principle, x% of defects can be traced to y% of all causes. What are the values of x and y?

- a) 60, 40
- b) 70, 30
- c) 80, 20
- d) No such principle exists

[View Answer](#)

Answer: c

Explanation: The Pareto principle (also known as the 80–20 rule) states that, for many events, roughly 80% of the effects come from 20% of the causes.

5. What is Six Sigma?

- a) It is the most widely used strategy for statistical quality assurance
- b) The “Six Sigma” refers to six standard deviations
- c) It is the most widely used strategy for statistical quality assurance AND The “Six Sigma” refers to six standard deviations
- d) A Formal Technical Review(FTR) guideline for quality walkthrough or inspection

[View Answer](#)

Answer: c

Explanation: The Six Sigma uses data and statistical analysis to measure and improve a company's operational performance .

6. Which of the following is not a core step of Six Sigma?

- a) Define
- b) Control
- c) Measure
- d) Analyse

[View Answer](#)

Answer: b

Explanation: It is an additional step added for existing processes and can be done in parallel.

7. Non-conformance to software requirements is known as

- a) Software availability
- b) Software reliability
- c) Software failure
- d) None of the mentioned

[View Answer](#)

Answer: c

Explanation: Given a set of valid requirements, all software failures can be traced to design or implementation problems.

8. Software safety is equivalent to software reliability.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Software reliability uses statistical analysis to determine the likelihood that a software failure will occur; however, the failure may not necessarily result in a hazard or mishap.

9. Misinterpretation of customer communication is a sample of possible cause defects.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Translation gap between the client and the developer often leads to software defects.

10. What kind of quality cost is incurred when an error is detected in a product prior to shipment?

- a) Prevention
- b) Internal Failure
- c) External Failure
- d) Appraisal

[View Answer](#)

Answer: b

Explanation: This includes rework, repair, and failure mode analysis.

11. The degree to which the design specifications are followed during manufacturing is known as

- a) Quality of design
- b) Quality of conformance
- c) Quality of testing
- d) None of the mentioned

[View Answer](#)

Answer: b

Explanation: This focuses on how well the implementation follows the design and how well the resulting system meets its requirements.

12. Quality of design encompasses requirements and specifications of the system.

a) True

b) False

[View Answer](#)

Answer: a

Explanation: The characteristic that designers specify for an item are cover in quality of design.

---

13. According to ISO 9001, inspection and testing comes under which management responsibility?

a) Process control

b) Document control

c) Control of nonconforming products

d) Servicing

[View Answer](#)

Answer: a

Explanation: None.

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