Date: July 31, 2010

## Software Engineering (60 Minutes)

1.  Which software development model incorporates risk management?
    1.    Waterfall model
    2.    Spiral model
    3.    Incremental model
    4.    None of the above
2.  Which is the most commonly used debugging approach?
    1.    Brute force
    2.    Back tracking
    3.    Cause elimination
    4.    None of the above
3.  A data flow diagram is not a _____
    1.    logical model of a system
    2.    good guide to a system
    3.    representation of a physical system
    4.    None of the above
4.  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
5.  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
6.  Pick up the odd one out of the following:
    1.    data flow diagram
    2.    object identification
    3.    top-down design
    4.    None of the above
7.  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 path testing
    4.    None of the above
8.  Who should perform the validation test?
    1.    software developer
    2.    software user
    3.    a group of developers and users
    4.    None of the above
9.  Find the activity, which is not part of version management
    1.    controlled change
    2.    storage management
    3.    coding standard
    4.    None of the above
10. Testing
    1.    instills guilt
    2.    is punishment
    3.    is to find errors
    4.    None of the above
11. Which is more important?
    1.    product
    2.    process
    3.    quality
    4.    None of the above
12. The sooner you begin _____, the longer it will take to get done.
    1.    coding
    2.    testing
    3.    design
    4.    None of the above
13. Verification is to check
    1.    whether we are building the right product
    2.    whether we are building the product right
    3.    neither of the above
    4.    None of the above
14. Adaptive maintenance is
    1.    the maintenance due to the changes in the environment.
    2.    to improve the system in some way without changing its functionality.
    3.    the correction of undiscovered system errors.
    4.    None of the above
15. Doing what is said one would do, is the definition for
    1.    reliability
    2.    quality
    3.    software plan
    4.    None of the above
16. 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
17. A software quality assurance activity that is performed by software engineers
    1.    coding
    2.    formal technical reviews
    3.    design
    4.    None of the above
18. In what maanner, coding and testing are done
    1.    top-down
    2.    bottom-up
    3.    cross-sectional
    4.    adhoc
19. 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
20. The initiation of a systems investigation may result from
    1.    an analysis investigation
    2.    a manager's formal request
    3.    scheduled systems review
    4.    All of the above
21. 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

22. "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
23. 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
24. 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
25. All of the following tools are used for process description except
    1. Structured English
    2. Decision tables
    3. Pseudocode
    4. Data dictionaries
26. 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
27. 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
28. Benchmarking is used
    1. to select computer systems
    2. to maintain files is up-to-date condition
    3. for application proto-typing
    4. for system acceptance
29. Which is the first phase of the Waterfall software process model?
    1. design
    2. prototype
    3. testing
    4. requirement
30. What is the purpose of use cases in UML?
    5. Requirements capture
    6. Define how the software system will be used
    7. Describe what the user expects to do with the system
    8. Make clear what the stakeholders needs are
31. 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 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
32. 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
33. 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)
34. 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"
35. A system version
    1. is an instance of system deployed at the client site
    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
36. 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

37. 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 + 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)
38. SRS is maintained in configuration environment as
    1. Software design baseline
    2. Software development baseline
    3. Software artifacts
    4. Software product baseline
39. Following is the SCM audit tool
    1. Requirement metrics
    2. PERT charts
    3. Source code
    4. Design document
40. 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
41. What is 'cleanroom'?
    1. Cleanroom is an area in the software source code, where there are no bugs
    2. Cleanroom is the room requirement for server storage and backup facility, a place where temperature is maintained and cleaning is ensured
    3. Cleanroom is a software process based on mathematical verification of components and statistical system-level testing
    4. None of the above
42. What is CSCI (recognized through baseline)?
    1. Commission for Social Care Inspection
    2. Computer Software Configuration Item
    3. Common Sense Climate Index
    4. Commercial software cost index
43. _____ is a failure if a program doesn't work correctly.
    1. Programming
    2. Testing
    3. Both 1 and 2
    4. None of the above
44. Cyclomatic Complexity methods comes under_____ testing method.
    1. White box
    2. Black box
    3. Green box
    4. Yellow box
45. A_____is a sequence of statements from one place in the program to another.
    1. Route
    2. Path
    3. Sub path
    4. Gateway
46. Loop Testing comes under which testing method?
    1. White Box
    2. Black Box
    3. Green Box
    4. Yellow Box
47. Which of these can be successfully tested using Loop Testing methodology?
    1. Simple Loops
    2. Nested Loops
    3. Concatenated Loops
    4. All of the above
48. Graph based testing comes under which testing methods?
    1. White Box
    2. Black Box
    3. Green Box
    4. Yellow Box
49. Which testing methods are used by end-users who actually test software before they use it?
    1. Alpha and Beta Testing
    2. White Box Testing
    3. Black Box Testing
    4. Trial and Error Testing
50. To test a function, the programmer has to write a_____, which calls the function and passes it test data.
    1. Stub
    2. Driver
    3. Proxy
    4. None of the above