

软件工程基础题库

1. Which question no longer concerns the modern software engineer?
 - A. Why does computer hardware cost so much?
 - B. Why does software take a long time to finish?
 - C. Why does it cost so much to develop a piece of software?
 - D. Why can't software errors be removed from products prior to delivery?
 2. Software is a product and can be manufactured using the same technologies used for other engineering artifacts
 - A. True
 - B. False
 3. Software deteriorates rather than wears out because
 - A. Software suffers from exposure to hostile environments
 - B. Defects are more likely to arise after software has been used often
 - C. Multiple change requests introduce errors in component interactions
 - D. Software spare parts become harder to order
 4. WebApps are a mixture of print publishing and software development, making their development outside the realm of software engineering practice.
 - A. True
 - B. False
 5. There are no real differences between creating WebApps and MobileApps.
 - A. True
 - B. False
 6. In its simplest form an external computing device may access cloud data services using a web browser.
 - A. True
 - B. False
 7. Product line software development depends the reuse of existing software components to provide software engineering leverage.
 - A. True
 - B. False
- Chapter 2
8. Which of the items listed below is not one of the software engineering layers?
 - A. Process
 - B. Manufacturing
 - C. Methods
 - D. Tools
 9. Software engineering umbrella activities are only applied during the initial phases of software development projects.
 - A. True
 - B. False
 10. Which of these are the 5 generic software engineering framework activities?
 - A. communication, planning, modeling, construction, deployment
 - B. communication, risk management, measurement, production, reviewing
 - C. analysis, designing, programming, debugging, maintenance
 - D. analysis, planning, designing, programming, testing
 11. Planning ahead for software reuse reduces the cost and increases the value of the systems into which they are incorporated.
 - A. True
 - B. False
 12. The essence of software engineering practice might be described as understand the problem, plan a solution, carry out the plan, and examine the result for accuracy.

- A. True
 - B. False
13. In agile process models the only deliverable work product is the working program.
- A. True
 - B. False
14. A most software development projects are initiated to try to meet some business need.
- A. True
 - B. False
15. In general software only succeeds if its behavior is consistent with the objectives of its designers.
- A. True
 - B. False
- Chapter 3
16. Which of the following are recognized process flow types?
- A. Concurrent process flow
 - B. Iterative process flow
 - C. Linear process flow
 - D. Spiral process flow
 - E. both a and c
17. The communication activity is best handled for small projects using six distinct actions (inception, elicitation, elaboration, negotiation, specification, validation).
- A. True
 - B. False
18. A good software development team always uses the same task set for every project to insure high quality work products
- A. True
 - B. False
19. Software processes can be constructed out of pre-existing software patterns to best meet the needs of a software project.
- A. True
 - B. False
20. Which of these are standards for assessing software processes?
- A. SEI
 - B. SPICE
 - C. ISO 9000
 - D. ISO 9001
 - E. both b and d

Chapter 4

21. The waterfall model of software development is
- A. A reasonable approach when requirements are well defined.
 - B. A good approach when a working program is required quickly.
 - C. The best approach to use for projects with large development teams.
 - D. An old fashioned model that is rarely used any more.
22. The incremental model of software development is
- A. A reasonable approach when requirements are well defined.
 - B. A good approach when a working core product is required quickly.
 - C. The best approach to use for projects with large development teams.
 - D. A revolutionary model that is not used for commercial products.
23. 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.
24. The prototyping model of software development is
- A. A reasonable approach when requirements are well defined.

- B. A useful approach when a customer cannot define requirements clearly.
 - C. The best approach to use for projects with large development teams.
 - D. A risky model that rarely produces a meaningful product.
25. 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.
26. The concurrent development model is
- A. Another name for concurrent engineering.
 - B. Defines events that trigger engineering activity state transitions.
 - C. Only used for development of parallel or distributed systems.
 - D. Used whenever a large number of change requests are anticipated.
 - E. Both a and b
27. The component-based development model is
- A. Only appropriate for computer hardware design.
 - B. Not able to support the development of reusable components.
 - C. Dependent on object technologies for support.
 - D. Not cost effective by known quantifiable software metrics.
28. The formal methods model of software development makes use of mathematical methods to
- A. Define the specification for computer-based systems.
 - B. Develop defect free computer-based systems.
 - C. Verify the correctness of computer-based systems.
 - D. All of the above.
29. Which of these is not one of the phase names defined by the Unified Process model for software development?
- A. Inception phase
 - B. Elaboration phase
 - C. Construction phase
 - D. Validation phase
30. Which of these is not a characteristic of Personal Software Process?
- A. Emphasizes personal measurement of work product.
 - B. Practitioner requires careful supervision by the project manager.
 - C. Individual practitioner is responsible for estimating and scheduling.
 - D. Practitioner is empowered to control quality of software work products.
31. Which of these are objectives of Team Software Process?
- A. Accelerate software process improvement
 - B. Allow better time management by highly trained professionals
 - C. Build self-directed software teams
 - D. Show managers how to reduce costs and sustain quality
 - E. Both b and c
32. Process technology tools allow software organizations to compress schedules by skipping unimportant activities.
- A. True
 - B. False
33. It is generally accepted that one cannot have weak software processes and create high quality end products.
- A. True
 - B. False
- Chapter 8
34. Requirements engineering is a generic process that does not vary from one software project to another.
- A. True
 - B. False

35. During project inception the intent of the of the tasks are to determine
- A. basic problem understanding
 - B. nature of the solution needed
 - C. people who want a solution
 - D. none of the above
 - E. a, b, c
36. Three things that make requirements elicitation difficult are problems of
- A. budgeting
 - B. scope
 - C. understanding
 - D. volatility
 - E. b, c, d
37. A stakeholder is anyone who will purchase the completed software system under development.
- A. True
 - B. False
38. It is relatively common for different customers to propose conflicting requirements, each arguing that his or her version is the right one.
- A. True
 - B. False
39. Which of the following is not one of the context-free questions that would be used during project inception?
- A. What will be the economic benefit from a good solution?
 - B. Who is behind the request for work?
 - C. Who will pay for the work?
 - D. Who will use the solution?
40. Non-functional requirements can be safely ignored in modern software development projects.
- A. True
 - B. False
41. In collaborative requirements gathering the facilitator
- A. arranges the meeting place
 - B. can not be a customer
 - C. controls the meeting
 - D. must be an outsider
42. Which of the following is not one of the requirement classifications used in Quality Function Deployment (QFD)?
- A. exciting
 - B. expected
 - C. mandatory
 - D. normal
43. The work products produced during requirement elicitation will vary depending on the
- A. size of the budget.
 - B. size of the product being built.
 - C. software process being used.
 - D. stakeholders needs.
 - E. both a and b
44. User stories are complete descriptions the user needs and include the non-functional requirements for a software increment.
- A. True
 - B. False
45. Developers and customers create use-cases to help the software team understand how different classes of end-users will use functions.
- A. True
 - B. False

46. Use-case actors are always people, never system devices.
- A. True
 - B. False
47. The result of the requirements engineering task is an analysis model that defines which of the following problem domain(s)?
- A. information
 - B. functional
 - C. behavioral
 - D. all of the above
48. Analysis patterns facilitate the transformation of the analysis model into a design model by suggesting reliable solutions to common problems.
- A. True
 - B. False
49. In agile process models requirements engineering and design activities are interleaved.
- A. True
 - B. False
50. In win-win negotiation, the customer's needs are met even though the developer's need may not be.
- A. True
 - B. False
51. In requirements validation the requirements model is reviewed to ensure its technical feasibility.
- A. True
 - B. False
52. The most common reason for software project failure is lack of functionality.
- A. True
 - B. False
- Chapter 9
53. Which of these is not an element of a requirements model?
- A. Behavioral elements
 - B. Class-based elements
 - C. Data elements
 - D. Scenario-based elements
54. Which of the following is not an objective for building a requirements model?
- A. define set of software requirements that can be validated
 - B. describe customer requirements
 - C. develop an abbreviated solution for the problem
 - D. establish basis for software design
55. Object-oriented domain analysis is concerned with the identification and specification of reusable capabilities within an application domain.
- A. True
 - B. False
56. In structured analysis models focus on the structure of the classes defined for a system along with their interactions.
- A. True
 - B. False
57. Creation and refinement of use cases is an important part of scenario-based modeling.
- A. True
 - B. False
58. It is important to consider alternative actor interactions when creating a preliminary use case.
- A. True
 - B. False
59. Brainstorming is one technique that may be used to derive a complete set of use case exceptions.

- A. True
 - B. False
60. In many cases there is no need to create a graphical representation of a usage scenario.
- A. True
 - B. False
61. UML activity diagrams are useful in representing which analysis model elements?
- A. Behavioral elements
 - B. Class-based elements
 - C. Flow-based elements
 - D. Scenario-based elements
62. UML swimlane diagrams allow you to represent the flow of activities by showing the actors having responsibility for creating each data element.
- A. True
 - B. False
- Chapter 10
63. Which of the following should be considered as candidate objects in a problem space?
- A. events
 - B. people
 - C. structures
 - D. all of the above
64. In the grammatical parse of a processing narrative the nouns become object candidates in the analysis model.
- A. True
 - B. False
65. Attributes are chosen for an object by examining the problem statement and identifying the entities that appear to be related.
- A. True
 - B. False
66. Which of the following is not one of the broad categories used to classify operations?
- A. computation
 - B. data manipulation
 - C. event monitors
 - D. transformers
67. Collaborators in CRC modeling are those classes needed to fulfill a responsibility on another card.
- A. True
 - B. False
68. Which of the following items does not appear on a CRC card?
- A. class collaborators
 - B. class name
 - C. class reliability
 - D. class responsibilities
69. Class responsibilities are defined by
- A. its attributes only
 - B. its collaborators
 - C. its operations only
 - D. both its attributes and operations
70. A stereotype is the basis for class reuse in UML modeling.
- A. True
 - B. False
71. An analysis package involves the categorization of analysis model elements into useful groupings.
- A. True
 - B. False
- Chapter 11

72. The behavior modeling is only used in the analysis of real-time systems.
- A. True
 - B. False
73. For purposes of behavior modeling an event occurs whenever
- A. a state and process exchange information.
 - B. the system and actor exchange information.
 - C. two actors exchange information.
 - D. two objects exchange information.
74. For purposes of behavior modeling a state is any
- A. consumer or producer of data.
 - B. data object hierarchy.
 - C. observable mode of behavior.
 - D. well defined process.
75. The state transition 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. indicates system reactions to external events
76. The UML sequence diagram shows the order in which system events are processed.
- A. True
 - B. False
77. Analysis patterns are discovered, they are not explicitly created.
- A. True
 - B. False
78. It is not possible to justify the time required for mobile app requirements analysis.
- A. True
 - B. False
79. Which is not one of the analysis activities that is used to create a complete analysis model?
- A. Configuration analysis
 - B. Content analysis
 - C. Functional analysis
 - D. Market analysis
80. Content objects are extracted from use cases by examining the scenario description for direct or indirect content references.
- A. True
 - B. False
81. What are the elements of a WebApp interaction model?
- A. activity diagrams, sequence diagrams, state diagrams, interface prototype
 - B. activity diagrams, collaboration diagrams, sequence diagrams, state diagrams
 - C. use-cases, sequence diagrams, state diagrams, interface prototype
 - D. use-cases, sequence diagrams, state diagrams, sequence diagrams
82. UML activity diagrams can be used to represent the user observable functionality delivered by the WebApp as well as the operations contained in each analysis class.
- A. True
 - B. False
83. Configuration analysis focuses on the architecture of the user's web browsing environment.
- A. True
 - B. False
- Chapter 12
84. Which of the following are areas of concern in the design model?
- A. architecture
 - B. data
 - C. interfaces
 - D. project scope
 - E. a, b, c

85. The importance of software design can be summarized in a single word
- A. accuracy
 - B. complexity
 - C. efficiency
 - D. quality
86. Which of these are characteristics of a good design?
- A. exhibits strong coupling between its modules
 - B. implements all requirements in the analysis model
 - C. includes test cases for all components
 - D. provides a complete picture of the software
 - E. b and d
87. Which of the following is not a characteristic common to all design methods?
- A. configuration management
 - B. functional component representation
 - C. quality assessment guidelines
 - D. refinement heuristics
88. What types of abstraction are used in software design?
- A. control
 - B. data
 - C. environmental
 - D. procedural
 - E. a, b, d
89. Which of the following can be used to represent the architectural design of a piece of software?
- A. Dynamic models
 - B. Functional models
 - C. Structural models
 - D. All of the above
90. Design patterns are not applicable to the design of object-oriented software?
- A. True
 - B. False
91. Since modularity is an important design goal it is not possible to have too many modules in a proposed design.
- A. True
 - B. False
92. Information hiding makes program maintenance easier by hiding data and procedure from unaffected parts of the program.
- A. True
 - B. False
93. 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.
94. 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.
95. When using structured design methodologies the process of stepwise refinement is unnecessary.
- A. True
 - B. False
96. Software designs are refactored to allow the creation of software that is easier to integrate, easier to test, and easier to maintain.

- A. True
 - B. False
97. Which of the following is not one of the five design class types
- A. Business domain classes
 - B. Entity classes
 - C. Process classes
 - D. User interface classes
98. Which design model elements are used to depict a model of information represented from the user's view?
- A. Architectural design elements
 - B. Component-level design elements
 - C. Data design elements
 - D. Interface design elements
99. Which design is equivalent to the floor plan of a house?
- A. Architectural design
 - B. Component-level design
 - C. Data design
 - D. Interface design
100. Which design model is equivalent to the detailed drawings of the access points and external utilities for a house?
- A. Architectural design
 - B. Component-level design
 - C. Data design
 - D. Interface design
101. Which design model is equivalent to a set of detailed drawings for each room in a house?
- A. Architectural design
 - B. Component-level design
 - C. Data design
 - D. Interface design
102. The deployment design elements specify the build order for the software components.
- A. True
 - B. False
- Chapter 13
103. The best representation of system architecture is an operational software prototype.
- A. True
 - B. False
104. The architectural representations can be an enabler for communication among project stakeholders.
- A. True
 - B. False
105. An architectural description is often documented using an architecture template.
- A. True
 - B. False
106. An architectural decision is often documented using an architecture decision description template.
- A. True
 - B. False
107. An architectural genre will often dictate the architectural approach that may be used for the structure to be built.
- A. True
 - B. False
108. An architectural style encompasses which of the following elements?
- A. constraints
 - B. set of components
 - C. semantic models

- D. syntactic models
 - E. a, b, c
109. To determine the architectural style or combination of styles that best fits the proposed system, requirements engineering is used to uncover
- A. algorithmic complexity
 - B. characteristics and constraints
 - C. control and data
 - D. design patterns
110. Before an architectural pattern can be chosen for use in a specific system it must have a code implementation to facilitate its reuse.
- A. True
 - B. False
111. The criteria used to assess the quality of an architectural design should be based on system
- A. accessibility
 - B. control
 - C. data
 - D. implementation
 - E. b and c
112. Software architectural considerations often interact with each other and moderate each other.
- A. True
 - B. False
113. Developer notes are not a reliable means of documenting architectural decisions
- A. True
 - B. False
114. During process of modeling the system in context, systems that interact with the target system are represented as
- A. Peer-level systems
 - B. Subordinate systems
 - C. Superordinate systems
 - D. Working systems
 - E. a, b, c
115. Once selected, archetypes always need to be refined further as architectural design proceeds.
- A. True
 - B. False
116. Which of the following is not an example of infrastructure components that may need to be integrated into the software architecture?
- A. Communications components
 - B. Database components
 - C. Interface components
 - D. Memory management components
117. In the architecture trade-off analysis method the architectural style should be described using the
- A. data flow view
 - B. module view
 - C. process view
 - D. user view
 - E. a, b, c
118. A useful technique for evaluating the overall complexity of a proposed architecture is to look at the component
- A. cohesion
 - B. flow dependencies
 - C. sharing dependencies

- D. size
- E. b and c
- 119. Software architects need to create consensus among software team members and other stakeholders.
 - A. True
 - B. False
- 120. Pattern-based architectural reviews can be useful for project with short build cycles and volatile requirements.
 - A. True
 - B. False
- 121. Static architectural conformance checking assesses whether or not the source code matches the user visible requirements.
 - A. True
 - B. False
- 122. Architectural design has no role in agile software process models.
 - A. True
 - B. False
- Chapter 14

- 123. In the most general sense a component is a modular building block for computer software.
 - A. True
 - B. False
- 124. In the context of object-oriented software engineering a component contains
 - A. attributes and operations
 - B. instances of each class
 - C. roles for each actor (device or user)
 - D. set of collaborating classes
- 125. In traditional software engineering modules must serve in which of the following roles?
 - A. Control component
 - B. Infrastructure component
 - C. Problem domain component
 - D. All of the above
- 126. Software engineers always need to create components from scratch in order to meet customer expectations fully.
 - A. True
 - B. False
- 127. Which of the following is not one of the four principles used to guide component-level design?
 - A. Dependency Inversion Principle
 - B. Interface Segregation Principle
 - C. Open-Closed Principle
 - D. Parsimonious Complexity Principle
- 128. The use of stereotypes can help identify the nature of components at the detailed design level.
 - A. True
 - B. False
- 129. Classes and components that exhibit functional, layer, or communicational cohesion are relatively easy to implement, test, and maintain.
 - A. True
 - B. False
- 130. Software coupling is a sign of poor architectural design and can always be avoided in every system.
 - A. True
 - B. False
- 131. In component design elaboration requires which of the following elements to be describe in detail?

- A. Algorithms
 - B. Attributes
 - C. Interfaces
 - D. Operations
 - E. b, c, d
132. In component-level design persistent data sources refer to
- A. Component libraries
 - B. Databases
 - C. Files
 - D. All of the above
 - E. b and c
133. WebApp content design at the component level focuses on content objects and the manner in which they interact.
- A. True
 - B. False
134. A WebApp functional architecture describes the key functional components and how they interact with each other.
- A. True
 - B. False
135. Component-level design for mobile apps is not any different from component-based design for Web apps.
- A. True
 - B. False
136. Which of these constructs is used in structured programming?
- A. branching
 - B. condition
 - C. repetition
 - D. sequence
 - E. b, c, d
137. In component-based software engineering, the development team examines the requirements to see which are amenable to composition, rather than construction, before beginning detailed design tasks.
- A. True
 - B. False
138. Which of the following is not one of the major activities of domain engineering?
- A. analysis
 - B. construction
 - C. dissemination
 - D. validation
139. Which of the following factors would not be considered during component qualification?
- A. application programming interface (API)
 - B. development and integration tools required
 - C. exception handling
 - D. testing equipment required
140. Which of the following is a technique used for component wrapping?
- A. black-box wrapping
 - B. clear-box wrapping
 - C. gray-box wrapping
 - D. white-box wrapping
141. Which of the following is not one of the issues that form a basis for design for reuse?
- A. object-oriented programming
 - B. program templates
 - C. standard data
 - D. standard interface protocols

142. In a reuse environment, library queries are often characterized using the element of the 3C Model.
- A. concept
 - B. content
 - C. context
 - D. all of the above

Chapter 15

143. Which of the following interface design principles does not allow the user to remain in control of the interaction with a computer?
- A. allow interaction to be interruptible
 - B. allow interaction to be undoable
 - C. hide technical internals from casual users
 - D. only provide one rigidly defined method for accomplishing a task
144. Which of the following interface design principles reduce the user's memory load?
- A. define intuitive shortcuts
 - B. disclose information in a progressive fashion
 - C. establish meaningful defaults
 - D. provide an on-line tutorial
 - E. a, b, c
145. The reason for reducing the user's memory load is make his or her interaction with the computer quicker to complete.
- A. True
 - B. False
146. Interface consistency implies that
- A. each application should have its own distinctive look and feel
 - B. input mechanisms remain the same throughout the application
 - C. navigational methods are context sensitive
 - D. visual information is organized according to a design standard
 - E. b and d
147. If past interactive models have created certain user expectations it is not generally good to make changes to the model.
- A. True
 - B. False
148. Which model depicts the profile of the end users of a computer system?
- A. design model
 - B. implementation model
 - C. user model
 - D. user's model
149. Which model depicts the image of a system that an end user creates in his or her head?
- A. design model
 - B. user model
 - C. system model
 - D. system perception
150. Which model depicts the look and feel of the user interface along with all supporting information?
- A. implementation model
 - B. user model
 - C. user's model
 - D. system perception
151. Which of these framework activities is not normally associated with the user interface design processes?
- A. cost estimation
 - B. interface construction
 - C. interface validation
 - D. user and task analysis

152. Which approach(es) to user task analysis can be useful in user interface design?
- A. have users indicate their preferences on questionnaires
 - B. rely on the judgement of experienced programmers
 - C. study existing computer-based solutions
 - D. observe users performing tasks manually
 - E. c and d
153. Object-oriented analysis techniques can be used to identify and refine user task objects and actions without any need to refer to the user voice.
- A. True
 - B. False
154. The computer's display capabilities are the primary determinant of the order in which user interface design activities are completed.
- A. True
 - B. False
155. It is sometimes possible that the interface designer is constrained by environmental factors that mitigate against ease of use for many users.
- A. True
 - B. False
156. One means of defining user interface objects and actions is to conduct a grammatical parse of the user scenario.
- A. True
 - B. False
157. Interface design patterns typically include a complete component-level design (design classes, attributes, operations, and interfaces).
- A. True
 - B. False
158. Several common design issues surface for almost every user interface including
- A. adaptive user profiles
 - B. error handling
 - C. resolution of graphics displays
 - D. system response time
 - E. b and d
159. It is more important to capture the user's attention with flashy features than ergonomically sound screen layouts when building a WebApp.
- A. True
 - B. False
160. Several usability measures can be collected while observing users interacting with a computer system including
- A. down time for the application
 - B. number of user errors
 - C. software reliability
 - D. time spent looking at help materials
 - E. b and d

Chapter 17

161. Which of the following characteristics should not be used to assess the quality of a WebApp?
- A. aesthetics
 - B. reliability
 - C. maintainability
 - D. usability
162. Which of the following are design goals for every WebApp?
- A. Simplicity
 - B. Consistency
 - C. Navigability
 - D. Visual appeal
 - E. All of the above.

163. Which of the following not part of the design pyramid for WebE design?
- A. Architectural design
 - B. Business case design
 - C. Content design
 - D. Navigation design
164. With WebApps content is everything, a poorly defined user interface will be quickly overlooked by frequent users.
- A. True
 - B. False
165. Which of these are WebApp interaction mechanisms?
- A. Graphic icons
 - B. Graphic images
 - C. Navigation menus
 - D. All of the above
166. Screen layout design has several widely accepted standards based on human factors research.
- A. True
 - B. False
167. Graphic design considers every aspect of the look and feel of a WebApp.
- A. True
 - B. False
168. Content design is conducted by
- A. Copywriters and graphic designer
 - B. Web engineers
 - C. both a and b
 - D. none of the above
169. Content objects have both information attributes defined during analysis and implementation specific attributes specified during design.
- A. True
 - B. False
170. Content objects are not normally chunked into Web pages until the implementation activities begin.
- A. True
 - B. False
171. Content architecture and WebApp architecture are pretty much the same thing for many WebApps?
- A. True
 - B. False
172. Which of the following is not one of the content architectural structures used by web engineers?
- A. linear
 - B. grid
 - C. hierarchical
 - D. parallel
173. MVC is a three layer architecture that contains a
- A. machine, view, content objects
 - B. model, view, and content objects
 - C. model, view, and controller
 - D. machine, view, controller
174. Web navigational design involves creating a semantic navigational unit for each goal associated with each defined user role.
- A. True
 - B. False
175. To allow the user to feel in control of a WebApp, it is a good idea to mix both horizontal and vertical navigation mechanisms on the same page.

- A. True
- B. False

176. Component level design for WebApps is very similar to component level design for other software delivery environments.

- A. True
- B. False

177. Which of these is not one of the design activities associated with object-oriented hypermedia design?

- A. abstract interface design
- B. conceptual design
- C. content design
- D. navigational design

178. UML does not have any representation schemas that are useful in building WebApp design models.

- A. True
- B. False

Chapter 20

179. The purpose of software reviews is to uncover errors and defects in work products so they can be removed before moving on to the next phase of development.

- A. True
- B. False

180. In general the earlier a software defect is discovered and corrected the less costly to the overall project budget.

- A. True
- B. False

181. Defect amplification models can be used to illustrate the costs associated with using software from its initial deployment to its retirement.

- A. True
- B. False

182. Review metrics can be used to assess the efficacy of each review activity.

- A. True
- B. False

183. Defect density can be estimated for any software engineering work product.

- A. True
- B. False

184. Agile software developers are aware that software reviews always take time without saving any.

- A. True
- B. False

185. The level of review formality is determined by which of the following?

- A. amount of preparation
- B. reviewer follow-up
- C. size of project budget
- D. structure of review
- E. a, b, d

186. An informal review may consist of which of the following?

- A. casual meeting
- B. desk check
- C. inspection
- D. pair programming
- E. a and b

187. Which of the following are objectives for formal technical reviews?

- A. allow senior staff members to correct errors
- B. assess programmer productivity

- C. determining who introduced an error into a program
 - D. uncover errors in software work products
188. At the end of a formal technical review all attendees can decide to
- A. accept the work product without modification
 - B. modify the work product and continue the review
 - C. reject the product due to stylistic discrepancies
 - D. reject the product due to severe errors
 - E. a and d
189. A review summary report answers which three questions?
- A. terminate project, replace producer, request a time extension
 - B. what defects were found, what caused defects, who was responsible
 - C. what was reviewed, who reviewed it, what were the findings
 - D. none of the above
190. In any type of technical review, the focus of the review is on the product and not the producer.
- A. True
 - B. False
191. Sample driven reviews only make sense for very small software development projects.
- A. True
 - B. False
- Chapter 22
192. In software quality assurance work there is no difference between software verification and software validation.
- A. True
 - B. False
193. The best reason for using Independent software test teams is that
- A. software developers do not need to do any testing
 - B. strangers will test the software mercilessly
 - C. testers do not get involved with the project until testing begins
 - D. the conflicts of interest between developers and testers is reduced
194. What is the normal order of activities in which traditional software testing is organized?
- A. integration testing, system testing, unit testing, validation testing.
 - B. unit testing, validation testing, system testing, integration testing
 - C. unit testing, integration testing, validation testing, system testing
 - D. validation testing, system testing, integration testing, unit testing
195. By collecting software metrics and making use of existing software reliability models it is possible to develop meaningful guidelines for determining when software testing is done.
- A. True
 - B. False
196. Which of the following strategic issues needs to be addressed in a successful software testing process?
- A. conduct formal technical reviews prior to testing
 - B. specify requirements in a quantifiable manner
 - C. use independent test teams
 - D. wait till code is written prior to writing the test plan
 - E. a and b
197. Which of the following need to be assessed during unit testing?
- A. algorithmic performance
 - B. code stability
 - C. error handling
 - D. execution paths
 - E. c and d
198. Units and stubs are not needed for unit testing because the modules are tested independently of one another.

- A. True
 - B. False
199. Top-down integration testing has as its major advantage(s) that
- A. low level modules never need testing
 - B. major decision points are tested early
 - C. no drivers need to be written
 - D. no stubs need to be written
 - E. b and c
200. Bottom-up integration testing has as its major advantage(s) that
- A. major decision points are tested early
 - B. no drivers need to be written
 - C. no stubs need to be written
 - D. regression testing is not required
201. Regression testing should be a normal part of integration testing because as a new module is added to the system new
- A. control logic is invoked
 - B. data flow paths are established
 - C. drivers require testing
 - D. all of the above
 - E. a and b
202. Smoke testing might best be described as
- A. bulletproofing shrink-wrapped software
 - B. rolling integration testing
 - C. testing that hides implementation errors
 - D. unit testing for small programs
203. When testing object-oriented software it is important to test each class operation separately as part of the unit testing process.
- A. True
 - B. False
204. The OO testing integration strategy involves testing
- A. groups of classes that collaborate or communicate in some way
 - B. single operations as they are added to the evolving class implementation
 - C. operator programs derived from use-case scenarios
 - D. none of the above
205. Since many WebApps evolve continuously, the testing process must be ongoing as well.
- A. True
 - B. False
206. Testing MobileApps is not different than testing WebApps.
- A. True
 - B. False
207. The focus of validation testing is to uncover places that a user will be able to observe failure of the software to conform to its requirements.
- A. True
 - B. False
208. Software validation is achieved through a series of tests performed by the user once the software is deployed in his or her work environment.
- A. True
 - B. False
209. Configuration reviews are not needed if regression testing has been rigorously applied during software integration.
- A. True
 - B. False
210. Acceptance tests are normally conducted by the
- A. developer
 - B. end users

- C. test team
 - D. systems engineers
211. Recovery testing is a system test that forces the software to fail in a variety of ways and verifies that software is able to continue execution without interruption.
- A. True
 - B. False
212. Security testing attempts to verify that protection mechanisms built into a system protect it from improper penetration.
- A. True
 - B. False
213. Stress testing examines the pressures placed on the user during system use in extreme environments.
- A. True
 - B. False
214. Performance testing is only important for real-time or embedded systems.
- A. True
 - B. False
215. Debugging is not testing, but always occurs as a consequence of testing.
- A. True
 - B. False
216. Which of the following is an approach to debugging?
- A. backtracking
 - B. brute force
 - C. cause elimination
 - D. code restructuring
 - E. a, b, c

Chapter 23

217. With thorough testing it is possible to remove all defects from a program prior to delivery to the customer.
- A. True
 - B. False
218. Which of the following are characteristics of testable software?
- A. observability
 - B. simplicity
 - C. stability
 - D. all of the above
219. The testing technique that requires devising test cases to demonstrate that each program function is operational is called
- A. black-box testing
 - B. glass-box testing
 - C. grey-box testing
 - D. white-box testing
220. The testing technique that requires devising test cases to exercise the internal logic of a software module is called
- A. behavioral testing
 - B. black-box testing
 - C. grey-box testing
 - D. white-box testing
221. What types of errors are missed by black-box testing and can be uncovered by white-box testing?
- A. behavioral errors
 - B. logic errors
 - C. performance errors
 - D. typographical errors
 - E. b and d

222. Program flow graphs are identical to program flowcharts.
- A. True
 - B. False
223. The cyclomatic complexity metric provides the designer with information regarding the number of
- A. cycles in the program
 - B. errors in the program
 - C. independent logic paths in the program
 - D. statements in the program
224. The cyclomatic complexity of a program can be computed directly from a PDL representation of an algorithm without drawing a program flow graph.
- A. True
 - B. False
225. Condition testing is a control structure testing technique where the criteria used to design test cases is that they
- A. rely on basis path testing
 - B. exercise the logical conditions in a program module
 - C. select test paths based on the locations and uses of variables
 - D. focus on testing the validity of loop constructs
226. Data flow testing is a control structure testing technique where the criteria used to design test cases is that they
- A. rely on basis path testing
 - B. exercise the logical conditions in a program module
 - C. select test paths based on the locations and uses of variables
 - D. focus on testing the validity of loop constructs
227. Loop testing is a control structure testing technique where the criteria used to design test cases is that they
- A. rely basis path testing
 - B. exercise the logical conditions in a program module
 - C. select test paths based on the locations and uses of variables
 - D. focus on testing the validity of loop constructs
228. Black-box testing attempts to find errors in which of the following categories
- A. incorrect or missing functions
 - B. interface errors
 - C. performance errors
 - D. none of the above
 - E. a, b, c
229. Graph-based testing methods can only be used for object-oriented systems
- A. True
 - B. False
230. Equivalence testing divides the input domain into classes of data from which test cases can be derived to reduce the total number of test cases that must be developed.
- A. True
 - B. False
231. Boundary value analysis can only be used to do white-box testing.
- A. True
 - B. False
232. Orthogonal array testing enables the test designer to maximize the coverage of the test cases devised for relatively small input domains.
- A. True
 - B. False
233. Test derived from behavioral class models should be based on the
- A. data flow diagram
 - B. object-relation diagram

- C. state transition diagram
- D. use-case diagram

234. Documentation does not need to be tested.

- A. True
- B. False

235. Real-time applications add a new and potentially difficult element to the testing mix

- A. performance
- B. reliability
- C. security
- D. time

Chapter 24

236. It is not possible to test object-oriented software without including error discovery techniques applied to the system OOA and OOD models.

- A. True
- B. False

237. The correctness of the OOA and OOD model is accomplished using formal technical reviews by the software quality assurance team.

- A. True
- B. False

238. The consistency of object-oriented models may be judged by reviewing the CRC card model.

- A. True
- B. False

239. Test case design for OO software is driven by the algorithmic detail of the individual operations.

- A. True
- B. False

240. Integration testing of object-oriented software can be accomplished by which of the following testing strategies?

- A. Cluster testing
- B. Glass-box testing
- C. Thread-based testing
- D. Use-based testing
- E. a, c, d

241. Validation of object-oriented software focuses on user visible actions and outputs from the system.

- A. True
- B. False

242. Encapsulation of attributes and operations inside objects makes it easy to obtain object state information during testing.

- A. True
- B. False

243. Use-cases can provide useful input into the design of black-box and state-based tests of OO software.

- A. True
- B. False

244. Fault-based testing is best reserved for

- A. conventional software testing
- B. operations and classes that are critical or suspect
- C. use-case validation
- D. white-box testing of operator algorithms

245. Scenario-based testing

- A. concentrates on actor and software interaction
- B. misses errors in specifications
- C. misses errors in subsystem interactions
- D. both a and b

246. Random order tests are conducted to exercise different class instance life histories.
- A. True
 - B. False
247. Which of these techniques is not useful for partition testing at the class level
- A. attribute-based partitioning
 - B. category-based partitioning
 - C. equivalence class partitioning
 - D. state-based partitioning
248. Multiple class testing is too complex to be tested using random test cases.
- A. True
 - B. False
249. The state model can be used to derive test cases based on the dynamic behavior of an object-oriented system.
- A. True
 - B. False
- Chapter 25
250. Which of the following is not one of the dimensions of quality used to assess a WebApp?
- A. Content
 - B. Maintainability
 - C. Navigability
 - D. Usability
251. WebApps require special testing methodologies because WebApp errors have several unique characteristics.
- A. True
 - B. False
252. Since WebnApps evolve continuously, the testing process is an on-going activity, conducted by the Web support staff using regression tests.
- A. True
 - B. False
253. Test planning is not used in WebApp testing.
- A. True
 - B. False
254. As the WebApp architecture is constructed which types of testing are used as integration tests?
- A. Component testing
 - B. Content testing
 - C. Navigation testing
 - D. Usability testing
 - E. both a and c
255. Which of the following is not one of the objectives of WebApp content testing?
- A. Find organizational or structure errors
 - B. Identify linking errors
 - C. Uncover semantic errors
 - D. Uncover syntactic errors
256. Database testing is very rarely a part of WebApp content testing.
- A. True
 - B. False
257. The overall strategy for interface testing is to uncover errors
- A. in navigation semantics
 - B. in overall usability
 - C. related to specific interface mechanisms
 - D. both a and c
258. Which of the following is not a WebApp interface mechanism?
- A. Browser
 - B. Cookies

- C. Forms
 - D. Links
259. When testing WebApp interface semantics, each use-case is used as input for the design of a testing sequence.
- A. True
 - B. False
260. Usability tests should be designed and executed by intended users for a given WebApp.
- A. True
 - B. False
261. WebApp compatibility testing is conducted to be sure that the user model for usage scenario matched the user category assigned to a given user.
- A. True
 - B. False
262. Which test case design technique(s) are appropriate for WebApp component-level testing?
- A. Boundary value analysis
 - B. Equivalence partitioning
 - C. Path testing
 - D. All of the above
263. The purpose of WebApp navigation syntactic testing is to ensure the correct appearance of each navigation mechanism.
- A. True
 - B. False
264. Both Web engineers and non-technical users conduct navigation semantics testing for WebApps.
- A. True
 - B. False
265. Which of following is not one of the elements that need to be considered when constructing WebApp server-side configuration tests?
- A. Browser compatibility
 - B. Database software integration
 - C. Operating system compatibility
 - D. System security measures
266. To design client-side configuration tests each user category is assessed to reduce the number of configuration variables to a manageable number.
- A. True
 - B. False
267. Which of the following is not a testable WebApp security element?
- A. Authentication
 - B. Encryption
 - C. Firewalls
 - D. Penetration
268. WebApp performance tests are designed to
- A. asses WebApp usability
 - B. evaluate page loading times
 - C. simulate real-world loading situations
 - D. test network connectivity
269. Load testing involves determining the input of which 3 variables?
- A. N, T, D
 - B. N, T, P
 - C. T, D, P
 - D. N, D, P
270. WebApp stress testing is a continuation load testing.
- A. True
 - B. False
- Chapter 29

271. Which of these are valid software configuration items?
- A. case tools
 - B. documentation
 - C. executable programs
 - D. test data
 - E. All of the above.
272. Which of the following is not considered one of the four important elements that should exist when a configuration management system is developed?
- A. component elements
 - B. human elements
 - C. process elements
 - D. validation elements
273. Once a software engineering work product becomes a baseline it cannot be changed again.
- A. True
 - B. False
274. Which configuration objects would not typically be found in the project database?
- A. design specification
 - B. marketing data
 - C. organizational structure description
 - D. test plans
 - E. b and c
275. Modern software engineering practices usually attempt to maintain SCI's in a project database or repository.
- A. True
 - B. False
276. A data repository meta model is used to determine how
- A. information is stored in the repository
 - B. well data integrity can be maintained
 - C. easily the existing model can be extended
 - D. all of the above
277. Many data repository requirements are the same as those for a typical database application.
- A. True
 - B. False
278. The ability to track relationships and changes to configuration objects is one of the most important features of the SCM repository.
- A. True
 - B. False
279. Which of the following tasks is not part of software configuration management?
- A. change control
 - B. reporting
 - C. statistical quality control
 - D. version control
280. A basic configuration object is a __ created by a software engineer during some phase of the software development process.
- A. program data structure
 - B. hardware driver
 - C. unit of information
 - D. all of the above
281. Version control systems establish a change set as part of their primary functionality.
- A. True
 - B. False
282. Change control is not necessary if a development group is making use of an automated project database tool.
- A. True
 - B. False

283. When software configuration management is a formal activity the software configuration audit is conducted by the
- A. development team
 - B. quality assurance group
 - C. senior managers
 - D. testing specialists
284. The primary purpose of configuration status reporting is to
- A. allow revision of project schedule and cost estimates by project managers
 - B. evaluate the performance of software developers and organizations
 - C. make sure that change information is communicated to all affected parties
 - D. none of the above
285. Configuration issues that need to be considered when developing Web and Mobile Apps include:
- A. content
 - B. cost
 - C. people
 - D. politics
 - E. a, b, c
286. Web and Mobile App configuration objects can be managed in much the same way as conventional software configuration objects except for:
- A. content items
 - B. functional items
 - C. graphic items
 - D. user items
287. Content management establishes a process by which Web content is rendered on the user's display screen.
- A. True
 - B. False
288. Change management for Web and Mobile Apps is best handled in agile manner.
- A. True
 - B. False
289. One reason that version control is difficult for WebApps is that in an uncontrolled environment, you can have multiple authors making changes to the same files from multiple locations without any realizing it.
- A. True
 - B. False
290. Requiring developers to check Web configuration items in and out and sending affected stakeholders e-mail messages automatically are good ways to deal with configuration auditing and reporting for WebApps.
- A. True
 - B. False
- Chapter 31
291. Effective software project management focuses on
- A. people, performance, payoff, product
 - B. people, product, performance, process
 - C. people, product, process, project
 - D. people, process, payoff, product
292. Organizations that achieve high levels of maturity in people management have a higher likelihood of implementing effective software engineering processes.
- A. True
 - B. False
293. The first step in project planning is to
- A. determine the budget.
 - B. select a team organizational model.

- C. determine the project constraints.
 - D. establish the objectives and scope.
294. Process framework activities are populated with
- A. milestones
 - B. work products
 - C. QA points
 - D. all of the above
295. Project management is less important for modern software development since most projects are successful and completed on time.
- A. True
 - B. False
296. Which of the following is not considered a stakeholder in the software process?
- A. customers
 - B. end-users
 - C. project managers
 - D. sales people
297. The best person to hire as a project team leader is the most competent software engineering practitioner available.
- A. True
 - B. False
298. The best project team organizational model to use when tackling extremely complex problems is the
- A. closed paradigm
 - B. open paradigm
 - C. random paradigm
 - D. synchronous paradigm
299. Which factors should be considered in choosing the organizational structure for a software team?
- A. degree of communication desired
 - B. predicted size of the resulting program
 - C. rigidity of the delivery date
 - D. size of the project budget
 - E. a, b, c
300. One of the best ways to avoid frustration during the software development process is to
- A. give team members more control over process and technical decisions.
 - B. give team members less control over process and technical decisions.
 - C. hide bad news from the project team members until things improve.
 - D. reward programmers based on their productivity.
301. Small agile teams have no place in modern software development.
- A. True
 - B. False
302. Which of these software characteristics is not a factor contributing to project coordination difficulties?
- A. interoperability
 - B. performance
 - C. scale
 - D. uncertainty
303. Which of these software characteristics are used to determine the scope of a software project?
- A. context, lines of code, function
 - B. context, function, communication requirements
 - C. information objectives, function, performance
 - D. communications requirements, performance, information objectives
304. The major areas of problem decomposition during the project scoping activity are the
- A. customer workflow

- B. functionality to be delivered
 - C. process used to deliver functionality
 - D. software process model
 - E. b and c
305. Product and process decomposition occurs simultaneously as the project plan evolves.
- A. True
 - B. False
306. When can selected common process framework activities be omitted during process decomposition?
- A. when the project is extremely small in size
 - B. any time the software is mission critical
 - C. rapid prototyping does not require their use
 - D. never the activities are invariant
307. How does a software project manager need to act to minimize the risk of software failure?
- A. double the project team size
 - B. request a large budget
 - C. start on the right foot
 - D. track progress
 - E. c and d
308. The W5HH principle contains which of the following questions?
- A. Why is the system being developed?
 - B. What will be done by whom?
 - C. Where are they organizationally located?
 - D. How much of each resource is required?
 - E. a, c d
309. Which of these are critical practices for performance-based project management?
- A. assessing product usability
 - B. defect tracking against quality targets
 - C. empirical cost estimation
 - D. formal risk management
 - E. b, c, d
- Chapter 34
310. Software projects are inevitably late and there is nothing that can explain why.
- A. True
 - B. False
311. It is unethical to undertake a project that you know in advance cannot be completed by the customer's deadline, unless you inform the customer of the risk and establish a project plan that can deliver the needed system incrementally.
- A. True
 - B. False
312. Which of the following is not one of the guiding principles of software project scheduling:
- A. compartmentalization
 - B. market assessment
 - C. time allocation
 - D. effort validation
313. Doubling the size of your software project team is guaranteed to cut project completion time in half.
- A. True
 - B. False
314. The software equation can be used to show that by extending the project deadline slightly
- A. fewer people are required
 - B. you are guaranteed to meet the deadline
 - C. more lines of code can be produced
 - D. none of the above

315. The 40-20-40 rule suggests that the least of amount of development effort be spent on
- A. estimation and planning
 - B. analysis and design
 - C. coding
 - D. testing
316. A task set is a collection of
- A. engineering work tasks, milestones, deliverables
 - B. task assignments, cost estimates, metrics
 - C. milestones, deliverables, metrics
 - D. responsibilities, milestones, documents
317. The task (activity) network is a useful mechanism for
- A. computing the overall effort estimate
 - B. detecting intertask dependencies
 - C. determining the critical path
 - D. specifying the task set to the customer
 - E. b and c
318. Tasks that lie on the critical path in a task network may be completed in any order as long as the project is on schedule.
- A. True
 - B. False
319. Two tools for computing critical path and project completion times from activity networks are
- A. CPM
 - B. DRE
 - C. FP
 - D. PERT
 - E. a and d
320. Timeline charts assist project managers in determining what tasks will be conducted at a given point in time.
- A. True
 - B. False
321. The best indicator of progress on a software project is the completion
- A. of a defined engineering activity task
 - B. of a successful budget review meeting on time
 - C. and successful review of a defined software work product
 - D. and successful acceptance of project prototype by the customer
322. Since iterative process model work best for object-oriented projects it is impossible to determine whether an increment will be completed on time or not.
- A. True
 - B. False
323. WebApp projects only require the creation of a macro schedule.
- A. True
 - B. False
324. The purpose of earned value analysis is to
- A. determine how to compensate developers based on their productivity
 - B. provide a quantitative means of assessing software project progress
 - C. provide a qualitative means of assessing software project progress
 - D. set the price point for a software product based on development effort
325. Earned value analysis is a technique that allows managers to take corrective action before a project crisis develops.
- A. True
 - B. False
- Chapter 35
326. Proactive risk management is sometimes described as fire fighting.
- A. True

- B. False
327. Software risk always involves two characteristics
- A. fire fighting and crisis management
 - B. known and unknown risks
 - C. uncertainty and loss
 - D. staffing and budget
328. Three categories of risks are
- A. business risks, personnel risks, budget risks
 - B. project risks, technical risks, business risks
 - C. planning risks, technical risks, personnel risks
 - D. management risks, technical risks, design risks
329. Generic risks require far more attention than product-specific risks.
- A. True
 - B. False
330. A risk item checklist would contain known and predictable risks from which of these categories?
- A. product size
 - B. development environment
 - C. staff size
 - D. process definition
 - E. all of the above
331. Questions that should be asked to assess the overall project risk include:
- A. Have top managers formally committed to support the project?
 - B. Are end-users committed to the project and proposed system being built?
 - C. Are requirement fully understood by development team and customers?
 - D. Does the proposed budget have time allocated for marketing?
 - E. a, b, c
332. Software risk impact assessment should focus on consequences affecting
- A. planning, resources, cost, schedule
 - B. marketability, cost, personnel
 - C. business, technology, process
 - D. performance, support, cost, schedule
333. 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
334. Risk tables are sorted by
- A. probability and cost
 - B. probability and impact
 - C. probability and consequences
 - D. probability and exposure
335. Individual team members can make their own estimate for a risk probability and then develop a consensus value.
- A. True
 - B. False
336. Which factors affect the probable consequences likely if a risk does occur?
- A. risk cost
 - B. risk timing
 - C. risk scope
 - D. risk resources
 - E. b and c
337. The reason for refining risks is to break them into smaller units having different consequences.

- A. True
 - B. False
338. 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
339. Risk monitoring involves watching the risk indicators defined for the project and not determining the effectiveness of the risk mitigation steps themselves.
- A. True
 - B. False
340. Hazard analysis focuses on the identification and assessment of potential hazards that can cause
- A. project termination
 - B. schedule slippage
 - C. cost overruns
 - D. an entire system to fail
341. Risk information sheets (RIS) are never an acceptable substitute for a full risk mitigation, monitoring, and management (RMMM) plan.
- A. True
 - B. False