Chapter 2: Object-Oriented Development and the Unified Process

Student: _____

1. All system development projects should be completed within a month or two.

   True False

2. Several different projects may be required during the life of a system to develop the original system and upgrade it.

   True False

3. A predictive SDLC has a high technical risk.

   True False

4. A project cannot have both predictive and adaptive elements.

   True False

5. The support phase of a traditional SDLC is not normally considered to be part of the initial development project.

   True False

6. A pure waterfall approach does not work very well.

   True False

7. It is efficient to write program code before having an overall design structure.

   True False

8. A modified waterfall approach is appropriate for projects that build well-understood applications.

   True False

9. The spiral model approach can be adapted for any number of prototypes.

   True False

10. Iteration assumes that no one gets the right result the first time.

    True False

11. The amount of iteration in a project depends on the complexity of the project.

    True False

12. The object-oriented approach is not highly iterative.

    True False

13. In the UP life cycle, some working software is tested and reviewed with system users at the end of each iteration.

    True False

14. The elaboration phase of the UP is similar to the traditional SDLC analysis phase.

    True False

15. The elaboration phase of the UP is usually completed in one iteration.

    True False

16. Most people want a methodology to be flexible.

    True False

17. Prior to UML, there was no standard for system models.

    True False

18. CASE tools cannot generate program code.

    True False

19. The UP is now the most influential system development methodology for object-oriented development.

    True False

20. The UP should not be tailored to the needs of a specific organization or system project.

    True False

21. Usually, each iteration in a project addresses one use case.

    True False

22. The UP defines disciplines primarily in the inception phase.

    True False

23. Most iterations in the UP involve work in all disciplines.

    True False

24. In a UP project, each iteration ends with a stable executable.

    True False

25. Not every discipline has activities that produce artifacts.

    True False

26. When programming, developers must have access to the source code for a class that is being reused.

    True False

27. Problem domain objects are the easiest to understand because users and developers can see them and interact with them directly.

    True False

28. Objects cannot maintain association relationships among themselves.

    True False

29. Every object has a unique identity.

    True False

30. Rational Rose is referred to as a visual modeling tool rather than a CASE tool.

    True False

31. A(n) adaptive SDLC has a low technical risk.

    True False

32. Predictive SDLC approaches are more traditional.

    True False

33. The design phase of a traditional SDLC involves programming, testing, and installing the system for the business users.

    True False

34. The SDLC approach that is most adaptive is called a waterfall approach.

    True False

35. The spiral model is generally considered to be the first adaptive approach to system development.

    True False

36. Many of the more popular adaptive approaches today use iteration as a fundamental element of the approach.

    True False

37. The project manager makes the business case for a new system during the elaboration phase of the UP.

    True False

38. A(n) prototype is a representation of an important aspect of the real world.

    True False

39. The term process is a synonym for methodology.

    True False

40. The development of OOP and UP is credited to Grady Booch, James Rumbaugh, and Ivar Jacobson of Rational Software, now part of IBM.

    True False

41. UML was accepted as a standard by the Object Management Group.

    True False

42. A(n) model is software that helps create models or other components required in a project.

    True False

43. The most comprehensive tool available for system developers is called a(n) IDE tool.

    True False

44. Techniques are generally accepted approaches for completing a system development task that have been proven over time to be effective.

    True False

45. Use cases have become a de facto standard in both predictive and adaptive approaches to development.

    True False

46. By the time a project progresses to the construction phase, most of the use cases have been designed and implemented in their initial form.

    True False

47. Specific UP work products are called objects.

    True False

48. The primary purpose of the requirements discipline is to understand and communicate the nature of the business environment where the system will be deployed.

    True False

49. In a technique called storyboarding, sketches of screens are drawn and arranged in a sequence to illustrate how the user will actually use the computer for each use case.

    True False

50. Object-oriented analysis defines all of the types of objects that the user needs to work with and shows what user interactions are required to complete tasks.

    True False

51. A button is an example of a(n) attribute.

    True False

52. Methods are behaviors or operations that describe what an object is capable of doing.

    True False

53. The term instance and object are often used interchangeably.

    True False

54. Persistent objects are those that are available for use over time.

    True False

55. Encapsulation is a characteristic of objects that allows them to respond differently to the same message.

    True False

56. The term _____ describes a planned undertaking that produces a new information system.

A. unified process
B. system development project
C. prototype
D. repository

57. A(n) _____ approach to the SDLC is used when the exact requirements of a system or needs of users are not well understood.

A. predictive
B. persistent
C. incremental
D. adaptive

58. In a traditional SDLC, the _____ phase uses the requirements that have been defined and develops the program structure and algorithms for the new system.

A. implementation
B. planning
C. analysis
D. design

59. In a traditional SDLC, the _____ phase focuses on understanding the business problem that needs to be solved and defining the business requirements.

A. implementation
B. planning
C. analysis
D. design

60. The _____ approach is an SDLC approach that assumes the various phases of a project can be completed entirely sequentially.

A. waterfall
B. artifact
C. prototype
D. spiral model

61. The _____ approach is an adaptive SDLC approach that cycles over and over again through development activities until a project is complete.

A. waterfall
B. artifact
C. prototype
D. spiral model

62. _____ is a system development process in which work activities - analysis, design, implementation - are repeated until the system is closer to what is ultimately needed.

A. Decomposition
B. Iteration
C. Multiplicity
D. Reuse

63. Which of the following is completed in the inception phase of the UP?

A. prepare the deployment
B. resolve high risks
C. design and implement the core architecture and functions
D. produce rough estimates for cost and schedule

64. Which of the following is completed in the transition phase of the UP?

A. complete the beta test
B. resolve high risks
C. design and implement the core architecture and functions
D. prepare for deployment

65. A(n) _____ provides guidelines to follow for completing every activity in systems development, including specific models, tools, and techniques.

A. generalization hierarchy
B. object-oriented analysis
C. system development methodology
D. systems development life cycle

66. _____ is a standard set of model constructs and notations developed specifically for object-oriented development.

A. OOD
B. UML
C. OOA
D. UP

67. Which of the following models uses UML to draw system components?

A. Use case diagram
B. PERT chart
C. Gantt chart
D. Spiral model

68. A(n) _____ can be used to manage the development process.

A. use case diagram
B. activity diagram
C. Gantt chart
D. spiral model

69. A(n) _____ tool creates a model of the project tasks and task dependencies.

A. database management
B. project management
C. CASE
D. IDE

70. A methodology includes a collection of _____ that are used to complete activities of the system development project.

A. methods
B. objects
C. techniques
D. tools

71. A _____ is an activity the system carries out, usually in response to a request by a user.

A. technique
B. use case
C. message
D. method

72. UP disciplines are involved in each iteration, which is typically planned to span _____.

A. one week
B. two weeks
C. four weeks
D. three months

73. In a 7 iteration project, iteration 5 involves minimal focus on _____

A. configuration and change management
B. testing
C. implementation
D. requirements

74. A class contained in a model is an example of a _____ UP artifact.

A. source code
B. document
C. model
D. model element

75. _____ testing verifies that components work together.

A. Integration
B. Acceptance
C. Usability
D. Unit

76. The _____ discipline develops change control procedures and manages models and software components.

A. project management
B. configuration and change management
C. deployment
D. environment

77. _____ consists of writing statements in a programming language to define what each type of object does.

A. OOP
B. OOA
C. OOD
D. OOS

78. The _____ of the object-oriented approach refers to the fact that people usually think about their world in terms of objects.

A. discipline
B. multiplicity
C. naturalness
D. reuse

79. A(n) _____ is a type to which all similar objects belong.

A. class
B. method
C. attribute
D. instance

80. _____ combines attributes and methods into one unit and hides its internal structure of objects.

A. Encapsulation
B. Information hiding
C. Inheritance
D. Polymorphism

81. The _____ is the entire process of building, deploying, using, and updating an information system.

_____

82. A(n) _____ SDLC approach assumes the development project can be planned and organized in advance and that the new information system can be developed according to the plan.

_____

83. In a traditional SDLC, the _____ phase include includes the activities that plan, organize, and schedule the project.

_____

84. In a traditional SDLC, the _____ phase includes the activities needed to upgrade and maintain the system after it has been deployed.

_____

85. A(n) _____ is a preliminary working model of a larger system.

_____

86. In an iterative approach, address the aspects of the project that pose the greatest _____ in early project iterations.

_____

87. _____ is a developmental approach that completes parts of a system in several iterations and then puts them into operation for users.

_____

88. The _____ life cycle includes phases through which the project moves in time, but each life cycle phase includes one or more iterations involving analysis, design, and implementation for part of the system.

_____

89. During the _____ phase of the UP, the lower-risk, predictable, and easier elements of the system are iteratively implemented.

_____

90. Sometimes the term _____ is used to refer to a model because an aspect of particular importance is separated out.

_____

91. Graphical models, which are drawn representations that employ agreed-upon symbols and conventions, are generally called _____.

_____

92. CASE stands for _____.

_____

93. Lighter UP variations are often referred to as _____.

_____

94. A(n) _____ is a set of functionally related activities that together contribute to one aspect of a UP development project.

_____

95. The _____ refers to the area of the user's business that needs an information system solution.

_____

96. The design of the software that implements each use case is referred to as _____.

_____

97. The _____ to system development views an information system as a collection of interacting objects that work together to accomplish tasks.

_____

98. A(n) _____ is a thing in the computer system that can respond to messages.

_____

99. _____ is a benefit of the object-oriented approach that allows classes and objects to be invented once and used many times.

_____

100. An object has _____, which are characteristics that have values, such as the name, address, and phone number of a customer.

_____

101. _____ are communications between objects in which one object asks another object to invoke, or carry out, one of its methods.

_____

102._____ is a concept in which one class of objects shares some characteristics of another class.

_____

103.A(n) _____ is a classification system that structures or ranks classes from the more general superclass to the more specialized subclasses.

_____

104.A CASE tool contains a database of information about a project, called a(n) _____.

_____

105._____ automates the process of synchronizing graphical models with program code so changes to code automatically update the models and changes to models automatically update the code.

_____

106.Why is it necessary for some SDLC phases to overlap?

107.Describe how the spiral model approach to system development might address risk factors.

108. Describe three examples of best practices in system development that are common to many system development methodologies.

Chapter 2: Object-Oriented Development and the Unified Process Key

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67. A

68. C

69. B

70. C

71. B

72. C

73. D

74. D

75. A

76. B

77. A

78. C

79. A

80. A

81. systems development life cycle *or* SDLC *or* systems development life cycle (SDLC) *or* (SDLC) systems development life cycle

82. predictive

83. planning *or* project planning

84. support

85. prototype

86. risk

87. Incremental development

88. Unified Process *or* UP

89. construction

90. abstraction

91. diagrams *or* charts *or* diagrams or charts

92. computer-aided system engineering

93. agile development

94. discipline

95. problem domain

96. use case realization

97. object-oriented approach

98. object

99. Reuse

100. attributes

101. Messages

102. Inheritance

103. generalization/specialization hierarchy

104. repository

105. Round-trip engineering

106. Some phases of projects must overlap because they influence and depend on each other. Some analysis must be done before the design can start, but during the design, we might discover that we need more detail in the requirements, or even that some of the requirements cannot be met in the manner originally requested. Another reason for overlap is efficiency. While the team members are analyzing needs, they may be thinking about and designing various forms or reports. To help them understand the needs of the users, they may want to design some of the final system. But when they do early design, they will frequently throw away some components away and save others for later inclusion in the final system. In addition, many components of a computer system are interdependent, which requires analysts to do both analysis and some design at the same time.

107. The spiral model recommends identifying risk factors that must be studied and mitigated. The part of the system that appears to have the greatest risk should be addressed in the first iteration. Sometimes the greatest risk is not one subsystem or one set of system functions; rather, the greatest risk might be the technological feasibility of new technology. If so, the first iteration might focus on a prototype that proves the technology will work as planned. Then the second iteration might begin work on a prototype that addresses risk associated with the system requirements or other issues. Another time, the greatest risk might be user acceptance of change. So the first iteration might focus on producing a prototype to show the users that their working lives will be enriched by the new system.

108. Six best practices in system development are described here. Develop iteratively by dividing the project into a series of miniprojects that are completed by an iteration that builds part of the working software. Define system requirements overall early in the project, and then finalize and refine the details of the requirements as the project progresses through each iteration. Define a software architecture that allows the system to be built using well-defined components, and design and implement the system to achieve a component architecture. Use UML diagrams to complete visual models of requirements and designs of system components. Verify quality by testing the system early and continually, first by defining test cases and then completing unit tests, integration tests, usability tests and user acceptance tests in each iteration. Finally, document the request for any change and the decision to make any change, and make sure the correct version of any model or component is identified and used as the project moves forward.