



BAHIR DAR INSTITUTE OF TECHNOLOGY

BAHIR DAR UNIVERSITY

Faculty of Computing

Fundamentals of Software Engineering Model Exit Exam

Instruction: Choose the best answer from the given alternatives.

1. Software is defined as _____
 - A. set of programs, documentation & configuration of data
 - B. set of programs
 - C. documentation and configuration of data
 - D. None of the mentioned
2. Which of the following is not a Structural thing?
 - A. Classes interfaces
 - B. collaborations
 - C. activity
 - D. nodes
3. At Conceptual level Class diagrams should include
 - A. operations only
 - B. attributes only
 - C. both operations and attributes
 - D. none of the mentioned
4. Constraints can be represented in UML by
 - A. {text}
 - B. [text].
 - C. Constraint

- D. None of the mentioned
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
6. 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
7. 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
8. What is delegation connector?
- A. a delegation connector ties a component interface to one or more internal classes or components
 - B. delegation connectors are solid arrows stereotyped \triangleleft
 - C. a delegation connector may also extend from an internal class to an external interface
 - D. all of the mentioned
9. Which of these are diagrammatic heuristics?
- A. use notes, constraints, properties and stereotypes to add information to uml models
 - B. use stereotypes to name dependencies
 - C. use packages to group elements in static models

- D. all of the mentioned
10. Which are the ways to represent nodes in a deployment diagram?
- A. nodes instances are underlined identifiers of the form name:type
 - B. the name may be left off, indicating an unnamed instance of the type
 - C. the type may be left off, indicating a named instance with an unspecified type
 - D. all of the mentioned
11. What does a deployment diagram consists of?
- A. computational resource
 - B. communication path between resource
 - C. artifacts that execute resource
 - D. all of the mentioned
12. Which of the following is incorrect in deployment diagram?
- A. communication connections between nodes are shown by communication paths
 - B. communication paths are represented by dotted lines
 - C. artifacts are deployed inside nodes where they reside and execute
 - D. none of the mentioned
13. Which of the following is derived from the analysis model scenario-based elements, flow-oriented elements, and behavioral elements
- A. Component-level design
 - B. Interface design
 - C. Data/Class design
 - D. Architectural design
14. Which of the following is created by transforming the analysis model class-based elements into classes and data structures required to implement the software?
- A. Component-level design
 - B. Interface design
 - C. Data/Class design

D. Architectural design

15. A design document is a complete engineering design specification composed of?
- A. software architecture document(sad)
 - B. detailed design document(ddd)
 - C. all of the mentioned
 - D. none of the mentioned
16. A provided interface can be shown in which of these ways?
- A. to attach the stick of an interface lollipop symbol to a class or component
 - B. to connect a stereotyped class symbol representing the interface to the providing class or component using a special realization connector
 - C. both the ways mentioned above
 - D. none of the mentioned
17. Which of the following is correct?
- A. an attribute is an class variable when each object stores its own value for the attribute
 - B. an attribute can also be a instance variable, which means that there is only one value stored for the attribute that is shared by all class instances
 - C. an instance operation can be called using any object
 - D. a class operation is encapsulated in a class and can be called through the class
18. Which of the following is true?
- A. the aggregation association represents the part whole relation between the instances of the associated classes
 - B. in a composition association, each part can be related to only a single whole at one time

- C. an association class represents a relation on the sets of instances of the classes it connects, and it also holds data and behavior the pertinent to the relation
 - D. all of the mentioned
19. Which of the following are the heuristics for class diagram?
- A. never place a name, role names, or multiplicities on a generalization connector
 - B. use the interface ball and socket symbols to abstract interface details and a stereotyped class symbol to show details.
 - C. don't italicize interface or operation names
 - D. all of the mentioned
20. Every finite automaton specification must contain which of the following?
- A. descriptions of the automaton's states in a way that allows them to be distinguished, such as by naming each one;
 - B. descriptions of transitions indicating each transition's source state, its target state, and the events that trigger it;
 - C. designation of an initial state, the starting place for state transitions
 - D. all of the mentioned
21. Which of the following determines state diagram?
- A. the uml notation for specifying finite automata is the state diagram
 - B. in state diagrams, states are represented by rounded rectangles
 - C. all of the mentioned
 - D. none of the mentioned
22. Which of the following represents State Diagram?
- A. the finite automaton initial state is designated by a special initial pseudo state depicted as a large black dot at the tail of an arrow pointing at the initial state

- B. a finite automaton may execute forever or it may halt in a final state
 - C. transitions are represented by solid arrows labeled with one or more transition strings that describe the circumstances under which the transition is triggered and the actions that may ensue
 - D. all of the mentioned
23. Which of the following are composite states?
- A. a sequential composite state
 - B. a concurrent composite state
 - C. all of the mentioned
 - D. none of the mentioned
24. Which of the following is advantage of inheritance in object oriented programming?
- A. Code re-usability
 - B. Class Extendibility
 - C. Save development time
 - D. all
25. Which of the following is correct about Objects ?
- A. In an OO system, a method or behavior of an object is defined by its class
 - B. Each object is an instance of a class
 - C. A single object is simply an instance of a class
 - D. all are correct
 - E. all except c
26. Which of the following defines a set of operations which specify the responsibility of a class
- A. Classes interfaces
 - B. Use case
 - C. activity
 - D. nodes

27. Which of The following is correct statement about interaction and state machine?

- A. In an interaction, the focus is on the set of objects that interact.
- B. In an interaction,the focus is on the life cycle of one object at a time.
- C. In a state machine, the focus is on the life cycle of one object at a time.
- D. A and c are correct

28. Which of the following is used to specifythe behavior of an individual class or a collaboration of classes?

- A. An activity
- B. state machine
- C. Package
- D. none

29. Which of the following is not the benefit of modeling?

- A. Provide structure for problem solving
- B. Decrease development costs
- C. Furnish abstractions to manage complexity
- D. Models permit us to specify the structure or behavior of a system.
- E. None

30. Which of the following defines interaction between elements?

- A. Interface
- B. Component
- C. Collaboration
- D. Node

31. Which of the following is a general a purpose mechanism for organizing elements into groups ;

- A. component
- B. Node
- C. package
- D. class

32. Which of the following is true about Abstraction?

- A. Being distracted by your thoughts
- B. The classification of objects, grouped according to their significant similarities
- C. The classification of objects, grouped according to their significant differences
- D. The classification of objects, grouped according to their names
- E. Hiding information inside a class so that it can only be known in an abstract manner.

33. Which of the following requirement is Addressed only during analysis

- A. High priority
- B. Low priority
- C. Medium priority
- D. A and B

34. Which of the following requirement is Addressed during analysis, design, and implementation

- A. High priority
- B. Low priority
- C. Medium priority
- D. None

35. Which of the following is Requirements validation criteria ?

- A. Realism
- B. Completeness
- C. Traceability
- D. A and B
- E. All

36. Object diagram captures the behavior of a single use case.

- A.true B.false

37. Which Diagram emphasize what things must be in the system being modeled ?

- A. dynamic
- B. structural
- C. collaboration
- D. activity

38. Which of the following scenario is Usually used in Greenfield engineering and reengineering projects?

- A. As-is scenario
- B. Visionary scenario
- C. Evaluation scenario
- D. Training scenario
- E. A and C

39. Which one of the following scenario is Usually used in re-engineering projects?

- A. As-is scenario
- B. Visionary scenario
- C. Evaluation scenario
- D. Training scenario
- E. A and C

40. Which of the following is invalid relationships in Use Case Diagrams?

- A. use
- B. generalization
- C. subtyping
- D. include
- E. Extend

41. Which diagram in UML shows a complete or partial view of the structure of a modeled system at specific time ?

- A. Sequence Diagram
- B. Collaboration Diagram
- C. Object Diagram
- D. State chart Diagram

42. Activity diagrams is used to illustrate one of the following?

- A. The flow of a complicated use case.
- B. a workflow across use cases.
- C. The logic of an algorithm.
- D. D. all E. none

43. Which of the following are types of usability tests ?

- A. Scenario test.
- B. Prototype test

C. Product test

D. a and b

E. all

44. The following diagram shows the dependencies between different packages in a system.

A. package diagram

B. deployment diagram

C. component diagram

D. a and c

E. none

45. a class diagram is Not so great for?

A. discovering algorithmic (not data-driven) behavior

B. discovering related data and attributes

C. getting a quick picture of the important entities in a system

D. finding the flow of steps for objects to solve a given problem

E. a and d

F. a and c

46. Which of the following is not a structural diagrams?

A. profile diagram

B. object diagram

C. class diagram

D. use case diagram

E. all except a

47. Which core element of UML is being shown in the figure?



A. Node

B. Class

C. Interface

D. Component

48. Which of the following diagram is time oriented?

A. Collaboration

B. Sequence

C. Activity

D. None

49. What refers to the value associated with a specific attribute of an object and to any actions or side?

A. Object

B. State

C. Interface

D. None

50. What is a physical element that exists at runtime in UML ?

A. interface

B. node

C. activity

D. None

51. What does RAD stand for?

A. Rapid Application Document

B. Rapid Application Development

C. Relative Application Development

D. None of the above

52. The major drawback of RAD model is?

A. Incremental Model

B. Concurrent Development Model

C. WINWIN Spiral Model

D. All of the above

53. What is the major drawback of the Spiral Model?

A. Higher amount of risk analysis

B. Doesn't work well for smaller projects

C. Additional functionalities are added later on

D. Strong approval and documentation control

54. Which of the following option is correct?

- A. The prototyping model facilitates the reusability of components.
- B. RAD Model facilitates reusability of components
- C. Both RAD & Prototyping Model facilitates reusability of components
- D. None

55. Which of the following models doesn't necessitate defining requirements at the earliest in the lifecycle?

- A. RAD & Waterfall
- B. Prototyping & Waterfall
- C. Spiral & Prototyping
- D. Spiral & RAD

56. When the user participation isn't involved, which of the following models will not result in the desired output?

- A. Prototyping & Waterfall
- B. Prototyping & RAD
- C. Prototyping & Spiral
- D. RAD & Spiral

57. Which of the following activities of the generic process framework delivers a feedback report?

- A. Deployment
- B. Planning
- C. Modeling
- D. Construction

58. The _____ model helps in representing the system's dynamic behavior.

- A. Deployment

- B. Object Model
- C. Behavioral Model
- D. Data Model

59. Which of the following technique is involved in certifying the sustained development of legacy systems?

- A. Reengineering
- B. Forward engineering
- C. Reverse engineering
- D. Reverse engineering and Reengineering

60. What does the study of an existing system refer to?

- A. Details of DFD
- B. Feasibility Study
- C. System Analysis
- D. System Planning

61. Which of the following does not relate to Evolutionary Process Model?

- A. It requires highly skilled developers/designers.
- B. It necessitates customer feedbacks.
- C. It increases the component reusability.
- D. Both (a) & (c)

62. Which of the following statement is false?

- A. Aggregation is a special kind of Association.
- B. Both Aggregation and Composition are 'part-of' relationship.
- C. When the whole is deleted, parts in aggregation are also removed
- D. All of the above
- E. None of the above

63. What is a Functional Requirement?

- A. specifies the tasks the program must complete
- B. specifies the tasks the program should not complete
- C. specifies the tasks the program must not work
- D. All of the mentioned

64. What does SDLC stands for?

- A. System Design Life Cycle
- B. Software Design Life Cycle
- C. Software Development Life Cycle
- D. System Development Life cycle

65. What are agile manifesto principles?

- A. Customer satisfaction
- B. Face-to-face communication within a development team
- C. Changes in requirements are welcome
- D. All of the mentioned

66. _____ is not suitable for accommodating any change?

- A. RAD Model
- B. Waterfall Model
- C. Build & Fix Model
- D. Prototyping Model

67. . _____ is an indirect measure of software development process.

- A. Cost
- B. Effort Applied
- C. Efficiency
- D. All of the mentioned

68. According to an IBM research, “31% of projects are abandoned before they are completed, 53% exceed their cost projections by an average of 189 percent, and 94 projects are restarted for every 100 projects.” What is the significance of these figures?

- A. Lack of software ethics and understanding
- B. Management issues in the company
- C. Lack of adequate training
- D. All of the mentioned

69. Which of the following document contains the user system requirements?
- A. SRD
 - B. DDD
 - C. SDD
 - D. SRS
70. In which step of SDLC actual programming of software code is done?
- A. Development and Documentation
 - B. Maintenance and Evaluation
 - C. Design
 - D. Analysis
71. Software Debugging is known as _____
- A. identifying the task to be computerized
 - B. creating program code
 - C. creating the algorithm
 - D. finding and correcting errors in the program code
72. 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
73. What type of core-relationship is represented by the symbol in the figure below?

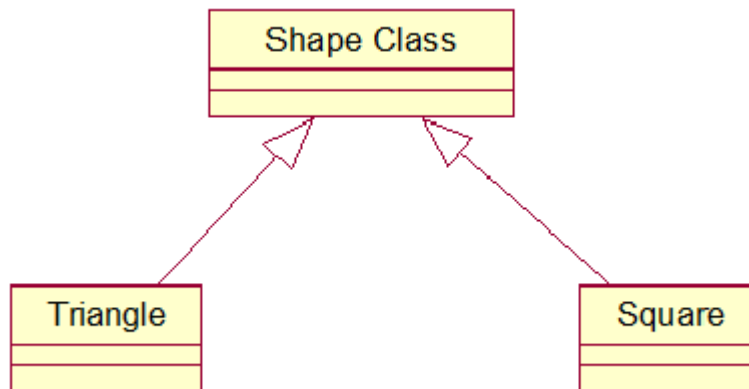


- A. Composition
 - B. Dependency
 - C. Generalization
 - D. Association
74. What type of core-relationship is represented by the symbol in the figure below?



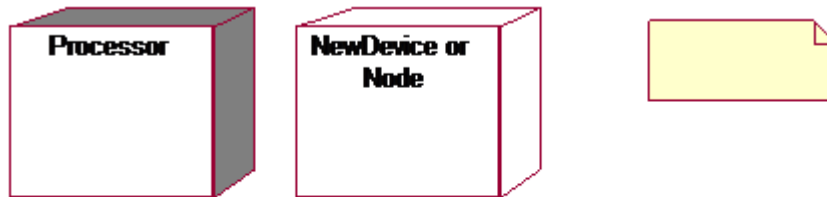
- A. Aggregation
- B. Dependency
- C. Generalization
- D. Association

75. What type of relationship is represented by Shape class and Square ?

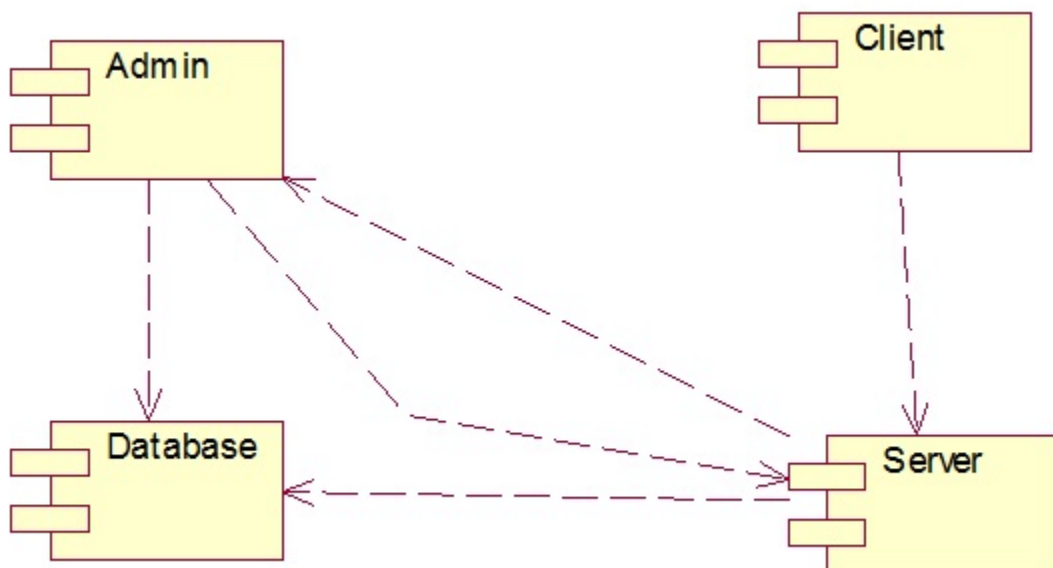


- A. Realization
 - B. Generalization
 - C. Aggregation
 - D. Dependency
76. Which diagram in UML shows a complete or partial view of the structure of a modeled system at a specific time?
- A. Sequence Diagram
 - B. Collaboration Diagram
 - C. Class Diagram
 - D. Object Diagram
77. Interaction Diagram 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
78. 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
79. Which UML diagram's symbols are shown below?



- A. Deployment diagram
 - B. Collaboration Diagram
 - C. Component Diagram
 - D. Object Diagram
80. Which UML diagram is shown below?



- A. Component

- B. Deployment
 - C. Use Case
 - D. DFD
81. 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
82. 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
83. 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
84. Which model shows the flow of object interactions?
- A. Sequence model
 - B. Subsystem model
 - C. Dynamic model
 - D. Both Sequence and Dynamic model
85. 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

86. 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
87. What is the first step of requirement elicitation ?
- A. Identifying Stakeholder
 - B. Listing out Requirements
 - C. Requirements Gathering
 - D. All of the mentioned
88. 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)
89. Reuse-based software engineering is a software engineering strategy where the development process is geared to reusing existing software.
- A. True
 - B. False
90. Which of the following is a generic structure that is extended to create a more specific subsystem or application?
- A. Software reuse
 - B. Object-oriented programming language
 - C. Framework
 - D. None of the mentioned
91. 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
92. What encapsulates both data and data manipulation functions ?
- A. Object
 - B. Class
 - C. Super Class
 - D. Sub Class
93. Which of the following is a mechanism that allows several objects in an class hierarchy to have different methods with the same name?
- A. Aggregation
 - B. Polymorphism
 - C. Inheritance
 - D. All of the mentioned
94. How is generalization implemented in Object Oriented programming languages?
- A. Inheritance
 - B. Polymorphism
 - C. Encapsulation
 - D. Abstract Classes
95. Which of the following describes "Is-a-Relationship" ?
- A. Aggregation
 - B. Inheritance
 - C. Dependency
 - D. All of the mentioned
96. 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

97. Which one of the following is a functional requirement ?
- A. Maintainability
 - B. Portability
 - C. Robustness
 - D. None of the mentioned
98. Software Maintenance includes
- A. Error corrections
 - B. Enhancements of capabilities
 - C. Deletion of obsolete capabilities
 - D. All of the mentioned
99. 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
100. Which of the following manuals is not a user documentation?
- A. Beginner's Guide
 - B. Installation guide
 - C. Reference Guide
 - D. SRS
101. The process of transforming a model into source code is known as
- A. Forward engineering
 - B. Reverse engineering
 - C. Re-engineering
 - D. Reconstructing
102. 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

103. What are the various Testing Levels?
- A. Unit Testing
 - B. System Testing
 - C. Integration Testing
 - D. All of the mentioned
104. Alpha testing is done at
- A. Developer's end
 - B. User's end
 - C. Developer's & User's end
 - D. None of the mentioned
105. Beta testing is done at
- A. Developer's end
 - B. User's end
 - C. Developer's & User's end
 - D. None of the mentioned
106. Testing done without planning and Documentation is called
- A. Unit testing
 - B. Regression testing
 - C. Adhoc testing
 - D. None of the mentioned
107. Acceptance testing is also known as
- A. Grey box testing
 - B. White box testing
 - C. Alpha Testing
 - D. Beta testing
108. Unit testing is done by
- A. Users
 - B. Developers
 - C. Customers
 - D. None of the mentioned
109. What is normally considered as an adjunct to the coding step

- A. Integration testing
 - B. Unit testing
 - C. Completion of Testing
 - D. Regression Testing
110. What is normally considered as an adjunct to the coding step
- A. Integration testing
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