**UML Review Questions from bparanj**

1. Calculate the number of iterations required during the construction phase of an OO project for 10 developers, 4 week iteration length with a load factor = 2, given the total duration of completing all the use cases is 24 weeks. Test

1. 1

2. 2

3. 3

4. 4

5. 5

Answer This question has 1 correct answer.

2. Which of the following is false about System Sequence Diagrams?

1. SSD is a picture that shows for a particular scenario of a use case the events that external actors generate, their order and inter-system events.

2. SSDs are part of the Use-Case Model.

3. SSDs can also be used to illustrate collaborations between systems.

4. System events and their associated system operations can be expressed in terms of the physical input medium or interface widget level.

5. An SSD should be done for the main success scenario of the use case and frequent or complex alternative scenarios.

6. It is sometimes desirable to show at least fragments of the use case text for the scenario to enhance the two views.

Answer This question has 1 correct answer.

3. For showing scenarios, which one of the following OOAD artifacts is the MOST useful?

1. Interaction Diagrams

2. Activity Diagrams

3. Use Cases

4. State Diagrams

5. Class Diagrams

Answer This question has 1 correct answer.

4. For showing detailed design of procedures, which one of the following OOAD artifacts is the MOST useful?

1. Interaction Diagrams

2. Activity Diagrams

3. Package Diagrams

4. State Diagrams

5. Class Diagrams

Answer This question has 1 correct answer.

5. For understanding control mechanisms, such as user interfaces and device controllers, which one of the following OOAD artifacts is the MOST useful?

1. Interaction Diagrams

2. Activity Diagrams

3. Package Diagrams

4. State Diagrams

5. Class Diagrams

Answer This question has 1 correct answer.

6. For business modeling of a human organization or the workflow of a system, which one of the following OOAD artifacts is the MOST userful?

1. Interaction Diagrams

2. Activity Diagrams

3. Package Diagrams

4. State Diagrams

5. Class Diagrams

Answer This question has 1 correct answer.

7. Activity diagrams CANNOT be used in the following situation :

1. Analyzing a use case

2. Understanding workflow

3. Describing a complicated sequential algorithm

4. Dealing with multithreaded applications

5. Procedural flow of control

6. Representing complex conditional logic

Answer This question has 1 correct answer.

8. Which OOAD artifact is the MOST useful in situations where asynchronous events occur?

1. state diagrams

2. activity diagrams

Answer This question has 1 correct answer.

9. Which one of the following highlights the roles each object plays in an interaction model?

1. Sequence Diagrams

2. Collaboration Diagrams

3. Deployment Diagrams

4. Package Diagrams

Answer This question has 1 correct answer.

10. Which one of the following is false? Interaction models help us to do the following :

1. Develop and evaluate various mechanisms for each scenario

2. Find new objects and classes

3. Develop the interface for each class

4. Model computations and workflows

Answer This question has 1 correct answer.

11. Which one of the following is the MOST desirable type of cohesion?

1. Coincidental Cohesion

2. Temporal Cohesion

3. Procedural Cohesion

4. Functional Cohesion

Answer This question has 1 correct answer.

12. Which one of the following is true?

1. In the Dynamic Model, every trigger must map to an operation in the interface of a class.

2. Every arrow incident on an object in an Interaction Model represents an operation that must be in the interface of a class.

3. Both "a" and "b" are true.

4. Both "a" and "b" are false.

Answer This question has 1 correct answer.

13. Which of the following is true about finding operations from the Static Model?

1. Way(s) to create/delete an instance of a class

2. Method to set/access the value of each attribute

3. Method to check the value of any derived attribute

4. Method to create each relationship

5. All of the above

6. "a", "b" and "c" only

7. "a" and "b" only

Answer This question has 1 correct answer.

14. Which of the following is true about finding operations from the Static Model?

1. Method to determine if a relationship exists

2. Method to access the value of each association

3. Method to set an association

4. Method to access all instances of a class with which a contains relationship exists.

5. All of the above

6. "a" and "b" only

7. None of the above

Answer This question has 1 correct answer.

15. Which of the following is false?

1. A Dependency between Packages indicates (a Class(es) in ) one Package in some way relies on (a Class(es) in ) the other Package

2. Dependencies limit reusability

3. A Class (Package) cannot be reused without reusing the Class (Package) on which it depends

4. Cyclic dependencies of packages allows reusability

Answer This question has 1 correct answer.

16. Which of the following sources can be used to find operations for an interface?

1. Domain experts

2. Extended operations

3. Testability operations

4. All of the above

5. "b" and "c" only

6. None of the above

Answer This question has 1 correct answer.

17. Subtyping can be implemented by :

1. Subclassing

2. Delegation

3. Both "a" and "b"

4. "a" only

5. "b" only

6. None of the above

Answer This question has 1 correct answer.

18. For showing how several objects collaborate in single use case, which one of the following OOAD artifacts is the MOST userful?

1. Interaction Diagrams

2. Activity Diagrams

3. Package Diagrams

4. State Diagrams

5. Class Diagrams

Answer This question has 1 correct answer.

19. When you want to look at the behavior of a single object across many use cases, which one of the following OOAD artifacts is the MOST userful?

1. Activity Diagrams

2. Package Diagrams

3. State Diagrams

4. Class Diagrams

5. Sequence Diagrams

Answer This question has 1 correct answer.

20. When you want to look at the behavior across many use cases or many threads, which one of the following OOAD artifacts is the MOST userful?

1. Activity Diagrams

2. Package Diagrams

3. State Diagrams

4. Class Diagrams

5. Sequence Diagrams

Answer This question has 1 correct answer.

21. Which of the following are valuable for concurrent processes?

1. Activity Diagrams

2. Package Diagrams

3. State Diagrams

4. Class Diagrams

5. Sequence Diagrams

Answer This question has 3 correct answers.

22. Asynchrous message can :

1. Create a new thread

2. Create a new object

3. Communicate with a thread that is already running

4. All of the above

5. "a" and "b" only

6. None of the above

Answer This question has 1 correct answer.

23. Which is true about the Activity diagrams?

1. shows behavior with control structure

2. can show many objects over many uses

3. can show many objects in a single use case or implementation of method

4. encourages parallel behavior

5. All of the above

6. "a", "b" and "d" only

Answer This question has 1 correct answer.

24. In a State Diagram, which of the following is true?

1. Actions are associated with transition and are considered to be processes that occur quickly and are not interruptible.

2. Actions are associated with transition and are considered to be processes that occur quickly and are interruptible.

3. Activities are associated with states and can take longer. An activity may be interrupted by some event.

4. Activities are associated with transition that occur quickly and are not interruptible.

5. Activities are associated with states and can take longer. An activity cannot be interrupted by any event.

Answer This question has 2 correct answers.

25. Objects and classes can be found by using which of the following technique?

1. From nouns in a text description

2. Look for units of interaction

3. Look for places where things or objects come to rest

4. Interview Domain Experts.

5. All of the above

6. "a" , "b" and "c" only

7. "a" and "c" only

Answer This question has 1 correct answer.

26. Which of the following objects are not part of the ATM application described below? An Automated Teller Machine (ATM) is offered to bank customers as a convenience . At the ATM, customers can make deposits to or withdrawals from their account(s). They can also transfer funds between their accounts, and can make inquiries as to account balances.In order to access the services of the ATM, customers must have an ATM card and a Personal Identification Number (PIN).The components of the ATM include a User Interface, a card reader, an envelope slot, a cash drawer and a printer. The User Interface has a display and buttons. There are 10 numeric entry buttons, 4 transaction selection buttons, an "Enter" button and a "Cancel" button. Each ATM is connected to the bank computer via a network . Each ATM has a unique network identification number. The ATM validates account balances and account status by communicating with the bank computer . ATM's require periodic servicing. This servicing can include maintenance , restocking cash in the money holder, and removing deposited envelopes from the envelope repository. From the envelope When the rear service panel is open, the ATM suspends interactions with the customers. Each ATM has a particular branch of the bank that is responsible for service and maintenance.

1. Transaction

2. Envelope Slot

3. Printer

4. Funds

5. Services

6. ATM card

Answer This question has 2 correct answers.

27. Which of the following statements are false?

1. If the Data Type of the feature is primitive (i.e.,provided by the language, like int or string), model as an Attribute.

2. If the Data Type of the feature is near primitive (i.e.,something like date or Money), model as an Attribute.

3. If the Data Type of the feature is near primitive (i.e.,something like date or Money), model as an Association.

4. If the Data Type of the feature is user defined (i.e., a Class, or a pointer or a reference to a Class), model as an Attribute.

5. If the Data Type of the feature is user defined (i.e., a Class, or a pointer or a reference to a Class), model as an Association with an external entity.

Answer This question has 2 correct answers.

28. Refer to the diagram to answer the question. Given that having multiple spouses at the same time is prohibited, but it is allowed to have many spouses over time, which of the following are valid models?

1. The diagram shown represents the concepts to be modeled in the domain and no changes are required.

2. Use the history stereotype to show the history over time and snapshot in time constraint in the model.

3. Promote the married to association to an association class called Marriage and break up the Many to Many association between Husband and Wife

4. Create a link attribute called wedding date and attach it to the association, rather than to either Class in the Association.

5. Create a link attribute called wedding date and attach it to either husband or wife class.

Answer This question has 2 correct answers.

View Attachment - Marital Status

29. Given that only full-time employees get vacations, we would like to have a means for determining which objects participate, and which do not. Which of the following models can be used to solve this problem? Assume that there are only minor differences between the FullTime and PartTime employees.

1. Model A

2. Model B

3. Model A or Model B

4. None of the above

Answer This question has 1 correct answer.

View Attachment - Employee Vacation

View Attachment - Model A

View Attachment - Model B

30. Which model will allow the Person to have more than one employment with the same company?

1. Model P1

2. Model P2

3. Model P3

Answer This question has 1 correct answer.

View Attachment - Model P1

View Attachment - Model P2

View Attachment - Model P3

31. Refer to the diagram to answer the question. From the specification perspective, this qualified association would imply an interface along the lines of:

1. class Order { public OrderLine getLineItems() ; public void addLineItem(Number amount);

2. class Order { public OrderLine getLineItems() ; public void addLineItem(OrderLine lineItem);

3. class Order { public OrderLine getLineItems(Product aProduct) ; public void addLineItem(Number amount, Product aProduct);

4. class Order { public Object getLineItems() ; public void addLineItem(OrderLine lineItem);

Answer This question has 1 correct answer.

View Attachment - Order

32. Refer to the diagram to answer the question. Which of the following are ILLEGAL combinations of subtypes in the diagram?

1. Female, Patient, Nurse

2. Male, Physiotherapist

3. Female, Patient

4. Female, Doctor, Surgeon

5. Patient, Doctor

6. Male, Doctor, Nurse

Answer This question has 2 correct answers.

View Attachment - Classification

33. Refer to the diagram to answer the question. Which pattern solves the problem shown in the figure?

1. Strategy Pattern

2. Composite Pattern

3. Adapter Pattern

4. Bridge Pattern

5. Abstract Factory Pattern

Answer This question has 1 correct answer.

View Attachment - Classification

34. When you have the final list of use cases, some of the questions to ask to find out if you have found them all are :

1. Is each functional requirement in at least one use case?

2. Have you considered how each stakeholder will be using the system?

3. Have you missed any technical terms that describes the system?

4. What information will each stakeholder be providing for and receiving from the system?

5. Have you considered the maintenance issues?

6. Have you broken the problem down further and further into pieces that the system will handle?

7. What information will each external system be providing to the system and receiving from the system?

8. Have you identified all of the external systems with which the system will need to interact?

Answer This question has 5 correct answers.

35. Which of the following statements are false about the following Traceability through life cycle diagram? Business Use Case -> System Use Case -> Flow of Events -> Sequence/Collaboration Diagram -> Class Diagram -> Component Diagram -> Code

1. Each of the system use cases should be able to be traced back to a business use case.

2. The mapping between Business Use Cases and System Use Cases is one-to-one.

3. Not all business use cases will be supported by system use cases.

4. Each functional requirement MUST be traced to a system use case.

5. Each non-functional requirement MUST be traced to a system use case.

Answer This question has 2 correct answers.

36. What methods MUST be implemented by the CreditProcessor class in the payment sequence diagram?

1. checkCredit, generateConfirmationCode, displayCofirmation

2. checkCredit, generateConfirmationCode

3. checkCredit, generateConfirmationCode, reserveSeat

4. checkCredit, reserveSeat, displayCofirmation

5. checkCredit, reserveSeat

Answer This question has 1 correct answer.

View Attachment - MakePayment

37. Refer to the diagram to answer the question. What is the maximum concurrent threads that is possible in the activity diagram?

1. 3

2. 2

3. 4

4. 1

5. 5

Answer This question has 1 correct answer.

View Attachment - BoxOfficeProcessOrder

38. Refer to the diagram to answer the question. What is the minimum number of threads that can be running during the execution of the activity diagram?

1. 2

2. 3

3. 1

4. 4

5. 5

Answer This question has 1 correct answer.

View Attachment - BoxOfficeReceiveOrder

39. Refer to the diagram to answer the question. The \* in the search diagram represents:

1. iteration

2. single-thread executing

3. dynamic concurrency

4. static concurrency

5. None of the above

Answer This question has 1 correct answer.

View Attachment - Search

40. Which of the statements are false about derived elements?

1. At the analysis level, a derived element is semantically unneccessary.

2. In the design-level model, a derived element represents an optimization.

3. At the analysis level, a derived element is semantically neccessary.

4. In the design-level model, a derived element represention is unnecessary.

Answer This question has 2 correct answers.

41. A good OO development is :

1. Use case driven

2. Data driven

3. Responsibility driven

4. All of the above

5. "a" and "c" only

6. "b" and "c" only

Answer This question has 1 correct answer.

42. Consider the following statement of requirements for the first iteration of a Library System. Books and Journals : The library contains books and journals. It may have several copies of a given book. Some of the books are for short term loans only. All other books may be borrowed by any library member for three weeks. Members of the library can normally borrow upto six items at a time, but members of staff may borrow upto twelve items at one time. Only members of staff may borrow journals. Borrowing : The system must keep track of when books and journals are borrowed and returned, enforcing the rules described above. Which of the following classes are part of the Library System?

1. book, journal, copy (of book), library member, member of staff

2. item, copy (of book), library member, member of staff

3. item, library member, member of staff

4. system, rule, week, item, member

Answer This question has 1 correct answer.

43. Which of the following statements are true?

1. Abstraction is when a client of a module does NOT need to know more than is in the interface.

2. Abstraction is when a client of a module does need to know more than is in the interface.

3. Encapsulation is when a client of a module is able to know more than is in the interface.

4. Encapsulation is when a client of a module is NOT able to know more than is in the interface.

5. Encapsulation is when a client of a module does NOT need to know more than is in the interface.

Answer This question has 2 correct answers.

44. Refer to the diagram to answer the question. Which design solves the tangled inheritance problem shown in the diagram?

1. Design A

2. Design B

3. Design C

4. Design D

Answer This question has 1 correct answer.

View Attachment - Tangled Inheritance

View Attachment - Design A

View Attachment - Design B

View Attachment - Design C

View Attachment - Design D

45. Consider the mirror hierarchy shown in the diagram. In this case, the type of equipment contained in a laboratory reflects the type of laboratory. According to the Liskov's Substitution Principle, you should be able to substitute instances of a subclass for its superclass, which indicates that you should be able to use nuclear equipment wherever you can use equipment. According to the figure, you can use equipment in a lab, therefore, you can also use nuclear equipment in a lab. Which design imposes the constraint that nuclear equipment can only be used in a nuclear lab?

1. Design N1

2. Design N2

3. Design N3

4. Design N4

Answer This question has 1 correct answer.

View Attachment - Nuclear

View Attachment - Design N1

View Attachment - Design N2

View Attachment - Design N3

View Attachment - Design N4

46. Which of the following statement is false?

1. Identity is is used to compare Reference objects. Equality test operator is used to compare Value objects.

2. Value objects should be immutable.

3. In UML, associations are usually used for value objects and attributes are used for reference objects.

Answer This question has 1 correct answer.

47. Which of the following statements are true?

1. Generalization is transitive; classification is NOT transitive.

2. Generalization is transitive; classification is transitive.

3. We can combine generalization followed by a classification, but not vice-versa.

4. Generalization is NOT transitive; classification is transitive.

5. We can combine classification followed by a generalization, but not vice-versa.

Answer This question has 2 correct answers.

48. Which of the following statement is true? The contents of a Package can be :

1. a list of classes

2. another Package diagram

3. class diagram

4. All of the above

5. "b" and "c" only

6. "a" and "b" only

Answer This question has 1 correct answer.

49. Use case : Purchase Ticket Actors : Customer Preconditions: The customer is logged onto the systeem. The customer profile already exists. Postconditions: The ticket is sold and the seats are assigned to the customer and the system is updated. Primary Flow : 1. The use case begins when the customer selects the option to view flight information. 2. The system prompts for the departure and destination cities and the departure and return dates. 3. The user enters the departure and destination city, departure date, and return date. 4. The system displays a list of available flights, including the fare. 5. The user selects the flight they would like to reserve. 6. The system displays all available fare options for that flight. 7. The user selects the fare option they would like to reserve. 8. The system displays the fare that the user will pay. 9. The user confirms the rate. 10. The system pormpts for a credit card type, number, name and expiration date. 11. The user enters the card type, number,name, and expiration date. 12. The system submits the credit purchase. 13. The system reserves a seat on the plane for the user. 14. The system generates and displays a confirmation code to the user. 15. The user confirms receipt of the code. 16. The use case ends. Which of the following is the BEST list of candidate interaction diagrams to support the use case?

1. select departure and destination cities and departure and return dates, select flight, confirm the rate, enter credit information, seat is reserved, confirmation number is generated and the confirmation is displayed

2. select departure and destination cities and departure and return dates, select flight, confirm the rate, enter credit information, seat is reserved

3. select flight, confirm the rate, enter credit information, seat is reserved, confirmation number is generated and the confirmation is displayed

4. select departure and destination cities and departure and return dates, select flight, confirm the rate, enter credit information, seat is reserved, confirmation number is generated and the confirmation is displayed

Answer This question has 1 correct answer.

50. An Automated Teller Machine (ATM) is offered to bank customers as a convenience . At the ATM , customers can make deposits to or withdrawals from their account(s). They can also transfer funds between their accounts, and can make inquiries as to account balances. In order to access the services of the ATM, customers must have an ATM card and a Personal Identification Number (PIN). The components of the ATM include a User Interface, a card reader, an envelope slot, a cash drawer and a printer. The User Interface has a display and buttons. There are 10 numeric entry buttons, 4 transaction selection buttons, an "Enter" button and a "Cancel" button. Each ATM is connected to the bank computer via a network . Each ATM has a unique network identification number. The ATM validates account balances and account status by communicating with the bank computer . ATM ’s require periodic servicing. This servicing can include maintenance , restocking cash in the money holder, and removing deposited envelopes from the envelope repository. When the rear service panel is open, the ATM suspends interactions with the customers. Each ATM has a particular branch of the bank that is responsible for service and maintenance . Which of the following is the BEST set of candidate use cases for the ATM application described above?

1. Deposit, Withdraw cash, Make Query, Make Transfer, Remove Deposit Envelopes, Add Cash, Do Maintenance, Remove Deposit Envelopes, Add Cash

2. Deposit, Withdraw cash, Make Query, Make Transfer, Insert Card, Remove Deposit Envelopes, Add Cash, Do Maintenance

3. Determine total number of transactions for a given day, Determine total cash withdrawn on a given day, Determine average amount of deposits held in the ATM,

4. Deposit, Withdraw cash, Make Query, Make Transfer, Add Cash, Do Maintenance, Quick Look mini-statement

Answer This question has 1 correct answer.