Design Pattern Objective Type Question and Answer

1. Which of the following is correct about Abstract Factory design pattern.

A. This type of design pattern comes under creational pattern.

B. Abstract Factory patterns work around a super-factory which creates other factories.

C. In Abstract Factory pattern an interface is responsible for creating a factory of related objects without explicitly specifying their classes.

D. All of the above.

Answer: D

Explanation

Abstract Factory patterns work around a super-factory which creates other factories. This factory is also called as factory of factories. This type of design pattern comes under creational pattern as this pattern provides one of the best ways to create an object. In Abstract Factory pattern an interface is responsible for creating a factory of related objects without explicitly specifying their classes. Each generated factory can give the objects as per the Factory pattern.

2. Which of the following describes the Prototype pattern correctly?

A. This pattern builds a complex object using simple objects and using a step by step approach.

B. This pattern refers to creating duplicate object while keeping performance in mind.

C. This pattern works as a bridge between two incompatible interfaces.

D. This pattern is used when we need to decouple an abstraction from its implementation so that the two can vary independently.

Answer: B

Explanation

Prototype pattern refers to creating duplicate object while keeping performance in mind.

3. Which of the following pattern is used where we need to treat a group of objects in similar way as a single object?

A. Composite Pattern

B. Facade Pattern

C. Flyweight Pattern

D. Decorator Pattern

Answer: A

Explanation

Composite Pattern is used where we need to treat a group of objects in similar way as a single object.

4. Which of the following describes the Interpreter pattern correctly?

A. In this pattern a class represents functionality of another class.

B. This pattern creates a chain of receiver objects for a request.

C. This pattern provides a way to evaluate language grammar or expression.

D. In this pattern a request is wrapped under an object as command and passed to invoker object.

Answer: C

Explanation

Interpreter pattern provides a way to evaluate language grammar or expression. This type of pattern comes under behavioral pattern. This pattern involves implementing an expression interface which tells to interpret a particular context.

5. Which of the following describes the Iterator pattern correctly?

A. This pattern is used to get a way to access the elements of a collection object in sequential manner without any need to know its underlying representation.

B. This pattern is used to reduce communication complexity between multiple objects or classes.

C. This pattern is used to restore state of an object to a previous state.

D. This pattern is used when there is one-to-many relationship between objects such as if one object is modified, its dependent objects are to be notified automatically.

Answer: A

Explanation

This pattern is used to get a way to access the elements of a collection object in sequential manner without any need to know its underlying representation.

6 - In which of the following pattern, a null object replaces check of NULL object instance?

A. State Pattern

B. Null Object Pattern

C. Strategy Pattern

D. Template Pattern

Answer: B

Explanation

In Null Object pattern, a null object replaces check of NULL object instance.

7 - Which of the following describes the Service Locator pattern correctly?

A. This pattern is used to separate low level data accessing API or operations from high level business services.

B. This pattern is used to provide a centralized request handling mechanism so that all requests will be handled by a single handler.

C. This pattern is used when we want to do some pre-processing / post-processing with request or response of the application.

D. This pattern is used when we want to locate various services using JNDI lookup.

Answer: D

Explanation

Service Locator pattern, is used when we want to locate various services using JNDI lookup.

8 - Which of the following pattern is used when we want to do some pre-processing / post-processing with request or response of the application?

A. DAO Pattern

B. Front Controller Pattern

C. Intercepting Pattern

D. Service Locator Pattern

Answer: C

Explanation

Intercepting Pattern is used when we want to do some pre-processing / post-processing with request or response of the application.

9 - Which of the following pattern is used when we want to pass data with multiple attributes in one shot from client to server?

A. Factory Pattern

B. Abstract Factory Pattern

C. Singleton Pattern

D. Transfer Object Pattern

Answer: D

Explanation

Transfer Object Pattern is used when we want to pass data with multiple attributes in one shot from client to server.

10 - Which of the following is the correct list of entities of Transfer Object pattern?

A. Business Object, Transfer Object, Client
B. Service, Context, Service Locator, Cache, Client
C. Business Object, Client
D. Service, Service Locator, Client

Answer: A

Explanation

Business Object, Transfer Object, Client are the entities of Transfer Object pattern.

11. Most object-oriented languages and systems provide which of these ways to create new objects?

A. Instantiating a class using one of its constructors.
B. Cloning an existing object.
C. All of the mentioned.
D. None of the mentioned

Answer: C

Explanation: All the mentioned are the two ways to create new objects.

12. Which of the following truly describes the structure of Generator pattern?

A. A generator pattern has a Client that needs an instance of a Product class.
B. A Generator that creates or obtains access to such an instance on behalf of the Client
C. All of the mentioned
D. none of the mentioned

Answer: C

Explanation: All of the mentioned are part of generator pattern structure

13. Which of the following is true about factory method?

A. A factory method is a non-constructor operation that creates and returns class instances.
B. Factory methods are widely used in mid-level design patterns and in object-oriented programming in general
C. Factory methods create new instances using constructors or cloning, so they do not rely on any special technique for class instantiation
D. All of the mentioned

Answer: D

Explanation: All the mentioned are true with respect to factory methods

14. When a generator assumes responsibility for product object creation in a factory method, which of the following capabilities become available?

A. Access to product constructors can be restricted
B. Private data can be provided to new product objects
C. Product objects can be configured after creation
D. All of the mentioned

Answer: D

Explanation: All the mentioned are true for product object creation

15. Which are the several reasons for using generator patterns?

A. Product Creation Control
B. Product Configuration Control
C. Client and Product Decoupling
D. All of the mentioned

Answer: D

Explanation: The several reasons are all mentioned

16. The Factory patterns decouple clients from products by taking advantage of interfaces in two ways?

A. The generator class with the factory methods cannot be changed, disallowing variability in factory method implementations
B. Instances of a variety of classes that implement the product interface can be returned by a factory method, allowing great flexibility in results
C. All of the mentioned
D. None of the mentioned

Answer: B

Explanation: Generator class with the factory method can be changed

17. What are the types of factory pattern?

A. Factory Method
B. Abstract Method
C. All of the mentioned
D. None of the mentioned

Answer: C

Explanation: There are two types of factory pattern- Factory, Abstract

18. Which class that can have only one instance?

A. Adaptor Class
B. Proxy Class
C. Singleton Class
D. Factory class

Answer: C

Explanation: Singleton Class is the class that can have only one instance

19. What are the drawbacks for singleton class?

A. Many languages do not allow classes to be values assignable to variables.
B. Singleton classes can be sub-classed, and the singleton factory method can return a sub-class instance

C. Classes can easily replace only single instances
D. All of the internship

Answer: D

Explanation: All are the drawbacks for the single ton class.

20. Which of the following are true for the singleton class?

A. Singleton classes should be used whenever it is important that only a single instance of a class exist and that that single instance be widely accessible
B. The Singleton pattern can also be used, with slight modifications, when a limited number of instances greater than one are desired
C. Access restrictions are usually easy to add by restricting the visibility of either the class or the factory method
D. All of the mentioned

Answer: D

Explanation: All the mentioned are true for the singleton class.

21. Which of the following are true for prototype pattern?

A. A clone is a copy of an object
B. When values stored in an entity (including references) are reproduced in the copy, the copy operation is said to be shallow
C. In contrast, a copy operation is deep when copies are made of all referenced entities in the original composite, and references to the new entities are placed in the copy
D. All of the mentioned

Answer: D

Explanation: All of the mentioned are true.

22. Any class using the built-in cloning mechanism is supposed to do which of the following?

A. Implement the Clonable interface

B. Define a concrete public or protected clone() operation
C. In the clone() operation, obtain a new object by calling super. Clone()
D. All of the mentioned

Answer: D
Explanation: All of the mentioned are true

23. Which of the following are correct for copy constructor?

A. A copy constructor is a constructor that takes an instance of its class as an argument and creates a clone of its argument
B. A copy constructor must be used when a final field must be set in creating the clone because only a constructor can set a final field
C. All of the mentioned
D. None of the mentioned

Answer: D
Explanation: All of the mentioned are true.

24. Which of the following pattern has Step up phase as its activity?

A. Prototype pattern
B. Reactor Pattern
C. Command pattern
D. None of the mentioned

Answer: B
Explanation: Reactor pattern has two phases-Step up phase and Operational Phase

25. What happen in the operational phase of Reactor pattern?

A. The Client registers the Reactor with the Target
B. The Reactor responds to event notifications from the Target
C. All of the mentioned
D. None of the mentioned

Answer: C
Explanation: The operational phase of Reactor pattern-The Reactor responds to event notifications from the Target

26. The reactor patterns provide a good model for event-driven portions of a program for which of the following reasons?

A. Client and Target Decoupling
B. Client Decomposition
C. Operation Encapsulation
D. All of the mentioned

Answer: D
Explanation: All of the mentioned are correct reasons

27. Which of the following are consequences for command pattern?

A. Reactor patterns provide event-driven design models
B. They decouple clients and targets
C. Encapsulate reactions to event
D. None of the mentioned

Answer: D
Explanation: All are the consequences for Reactor pattern

28. Which among these are advantages for Function Class?

A. Additional features can be added to the function class, enhancing its capabilities
B. The function class can include other data and operations the encapsulated operation needs
C. All of the mentioned
D. None of the mentioned

Answer: C
Explanation: All of the mentioned are advantages

29. Which of the several aspects of the Command pattern may be varied or elaborated to help achieve particular design goals

A. An invoker may accept registration of more than one command
B. The invoker may offer operations for un-registering one or more commands
C. An invoker may offer several kinds of registrations for different kinds of events
D. All of the mentioned

Answer: D
Explanation: All of the mentioned are the goals

30. Which of the following are the consequences for Command pattern?

A. Event-driven design is facilitated
B. Making event-handling code easy to find, change, and reuse
C. The invoker is loosely coupled to both the command and client classes, making them easy to change
D. All of the mentioned

Answer: D
Explanation: All of the mentioned are the consequences

31. Which of the following is true for Adapter pattern?

A. An adapter or wrapper is a component that provides a new interface for an existing component
B. An Adapter or Wrapper pattern is a broker pattern that provides a new interface for existing software so that it can be reused
C. Adaptation for reuse is an old technique that has been used since the beginning of software development
D. All of the mentioned

Answer: D
Explanation: All of the mentioned are true.

32. The Adapter patterns provide object-oriented adapters in which of these varieties?

A. One uses inheritance
B. one uses delegation
C. All of the mentioned
D. None of the mentioned

Answer: C
Explanation: Adapter patterns includes all the mentioned varieties

33. A class (the adaptee class) may be given a new interface by an adapter class in which of the two ways?

A. The adapter may sub-class the adaptee. The adapter can inherit adaptee operations with appropriate semantics and pragmatics, override those with inappropriate semantics or pragmatics, and add operations needed for the new interface. This is the Class Adapter pattern.
B. The adapter may hold a reference to the adaptee and delegate most work to the adaptee object. This approach is the Object Adapter pattern.
C. All of the mentioned.
D. None of the mentioned

Answer: C
Explanation: All of the mentioned are the two ways.

34. A class (the adaptee class) may be given a new interface by an adapter class in which of these ways?

A. Class Adapter pattern
B. Object Adapter pattern
C. All of the mentioned
D. None of the mentioned

Answer: C
Explanation: A class (the adaptee class) may be given a new interface by an adapter class into two ways- Class Adapter pattern and Object Adapter pattern

35. Which of these states about Object Adapter pattern?

A. The adapter can inherit adaptee operations with appropriate semantics and pragmatics, override those with inappropriate semantics or pragmatics, and add operations needed for the new interface.
B. The adapter may hold a reference to the adaptee and delegate most work to the adaptee object
C. All of the mentioned
D. None of the mentioned

Answer: B
Explanation: The adapter may hold a reference to the adaptee and delegate most work to the adaptee object is for object adapter pattern

36. Which of the following is true for proxy pattern?

A. Has exactly the same interface as the real object
B. Handles routine or illegitimate messages without accessing the real object
C. Delegates messages that it cannot handle to the real object
D. All of the mentioned

Answer: D
Explanation: All of the mentioned is true

37. Which of the following is not followed by proxy pattern?

A. Virtual proxies
B. remote proxies
C. access proxies
D. none of the mentioned

Answer: D
Explanation: All are followed by proxy pattern

38. What are stand-ins for objects not yet created are called?

A. virtual proxies
B. remote proxies
C. access proxies
D. none of the mentioned

Answer: A
Explanation: Stand-ins for objects not yet created are called virtual proxies.

39. Which of the following is incorrect with respect to the proxy pattern?

A. The Proxy pattern should be used whenever the services directly provided by some object need to be managed or mediated in some way without changing the object's interface

B. Virtual proxies can be used to delay the creation or loading of large and time-consuming objects to preserve space and ensure rapid responses to requests
C. Remote proxies can hide the fact that an object is not locally present, handling the communication necessary to access the remote real object
D. None of the mentioned

Answer: D
Explanation: All of the mentioned are correct for proxy pattern.

40. Which of the following is consequence for proxy pattern?

A. The Proxy pattern makes it possible to defer expensive operations until they are necessary (virtual proxies)
B. Provides an elegant way to treat remote objects as if they were local (remote proxies)
C. Provides a mechanism for implementing supplier access restrictions (protection or access proxies)
D. All of the mentioned

Answer: D
Explanation: All of the mentioned are correct consequence for proxy pattern

41. Which of the following is true for facade pattern?

A. The Façade pattern is a broker pattern that eases interaction between a client and a sub-system of suppliers by providing a simpler interface to the sub-system
B. Sub-systems may contain many classes with complex interfaces and relationships, but often clients only need basic services that can be supplied through a simple interface
C. The broker class, called a façade, provides basic, simplified services to clients by taking upon itself the job of dealing with a complex sub-system
D. All of the mentioned

Answer: D
Explanation: All of the mentioned is true for facade pattern.

42. Which of the following belongs to iterator pattern?

A. They delegate activities to other portions of the sub-system to which they provide an interface

B. The details of such delegations depend on the sub-system in question
C. The behavior follows the general outline of a broker pattern interaction
D. None of the mentioned

Answer: D
Explanation: All of the statements belongs to facade pattern.

43. Which of the following i correct?

A. The Mediator pattern provides a means of increasing coupling
B. In the Mediator pattern, interacts with one another, collaborating objects and with a special mediator class
C. The objects are coupled only to the mediator, which contains all the code for coordinating the collaboration
D. All of the mentioned

Answer: C
Explanation: Rest other are false-The Mediator pattern provides a means of reducing coupling, In the Mediator pattern, classes interacts only with a special mediator class.

44. Which of the pattern all the classes coupling is reduced?

A. Iterator
B. Façade
C. Mediator
D. Proxy

Answer: C
Explanation: Coupling is reduced as interaction is only to special mediator class.

45. Which of the following is for Facade Pattern?

A. Interaction is begun by one of the collaborators or a client object outside the collaboration
B. The object directs the collaboration, with all communication going between it and the colleagues in the interaction
C. All of the mentioned
D. None of the mentioned

Answer: D
Explanation: All of the mentioned are for mediator pattern.

46. Which of the following is a type of broker pattern?

A. Mediator
B. Façade
C. None of the mentioned
D. All of the mentioned

Answer: D
Explanation: All of the mentioned are types of broker pattern.

47. Which of the following does not follow the sequence of the mediator pattern?

A. As in any broker pattern, the Mediator receives a request for service at last
B. It then controls an interaction with the collaborating colleagues to supply the service
C. If one collaborator needs help from another, it notifies the Mediator object, which obtains the needed service from another collaborator
D. None of the mentioned

Answer: A

Explanation: As in any broker pattern, the Mediator receives a request for service at first.

48. The Mediator pattern has which of the following advantages?

A. It decouples collaborators, making them more changeable and reusable
B. It centralizes control of an interaction in the mediator class, making it easier to change, thus increasing modifiability
C. It simplifies the collaborators, making them easier to understand, and hence to change
D. All of the mentioned

Answer: D
Explanation: All the mentioned are advantages for mediator pattern

49. Which are the drawback for mediator pattern?

A. It may also increase collaborator cohesion
B. Forcing collaborator interaction through the mediator may compromise performance
C. All of the mentioned
D. None of the mentioned

Answer: B
Explanation: Increase in collaborator cohesion is advantage.

50. Which of the following is consequence of mediator class?

A. They makes a sub-system easier for clients to use
B. Lowers the coupling between the client and the sub-system
C. Increase re-usability by adapting a sub-system's interface to client needs
D. It encapsulates an interaction, making the interaction easier to change

Answer: D
Explanation: Rest others are consequence of facade class