

1.What is encapsulation in object-oriented programming?

- a) It is a process of hiding the internal state and requiring all interactions to occur through an object's methods.
- b) It is a process of exposing the internal state and allowing direct manipulation by external functions.
- c) It is a process of defining classes and objects in a program.
- d) It is a process of ensuring inheritance among classes.

Answer: a) It is a process of hiding the internal state and requiring all interactions to occur through an object's methods.

Explanation: Encapsulation helps in bundling the data and methods that operate on the data into a single unit. This unit, known as an object, controls the access to its data through methods and hides the internal state from the outside world.

2.What does the state of an object refer to?

- a) The methods of an object.
- b) The identity of an object.
- c) The behavior of an object.
- d) The current values of an object's attributes.

Answer: d) The current values of an object's attributes.

Explanation: The state of an object refers to the current values of its attributes at any given time. These attributes define the object's data.

3.Which term refers to the actions that an object can perform?

- a) State
- b) Identity
- c) Behavior
- d) Encapsulation

Answer: c) Behavior

Explanation: Behavior refers to the actions or operations that an object can perform. These actions are defined by the methods associated with the object.

4.In object-oriented programming, what does the identity of an object represent?

- a) The name assigned to the object.
- b) The memory location of the object.
- c) The behavior of the object.
- d) The class to which the object belongs.

Answer: b) The memory location of the object.

Explanation: The identity of an object is typically represented by its memory address or location in the computer's memory.

5.What is a class in object-oriented programming?

- a) A blueprint for creating objects.
- b) An instance of an object.

- c) A method that defines object behavior.
- d) A variable that holds object data.

Answer: a) A blueprint for creating objects.

Explanation: A class serves as a blueprint for creating objects. It defines the attributes and methods that objects of the class will have.

6.How do access modifiers control access to class members in object-oriented programming?

- a) They determine the order in which class members are accessed.
- b) They specify the visibility of class members to other classes.
- c) They define the data type of class members.
- d) They determine the size of class members in memory.

Answer: b) They specify the visibility of class members to other classes.

Explanation: Access modifiers in object-oriented programming specify the visibility of class members to other classes. They control how class members can be accessed and modified.

7.What are static members of a class in object-oriented programming?

- a) Members that can only be accessed by instance methods.
- b) Members that are shared among all instances of a class.
- c) Members that cannot be modified after instantiation.
- d) Members that are specific to a particular instance of a class.

Answer: b) Members that are shared among all instances of a class.

Explanation: Static members of a class are shared among all instances of the class. They are associated with the class itself rather than with individual instances.

8.What is an instance in object-oriented programming?

- a) A method that operates on class members.
- b) A variable that holds class data.
- c) A specific realization of a class.
- d) A subclass of another class.

Answer: c) A specific realization of a class.

Explanation: An instance, also known as an object, is a specific realization of a class. It represents a unique occurrence of the class with its own set of data and behavior.

9.In object-oriented programming, what does message passing refer to?

- a) The process of creating new objects.
- b) The process of calling methods on objects.
- c) The process of defining class attributes.
- d) The process of inheriting from a superclass.

Answer: b) The process of calling methods on objects.

Explanation: Message passing in object-oriented programming refers to the process of calling methods on objects to perform actions or request information.

10.What is the purpose of a constructor in object-oriented programming?

- a) To destroy objects when they are no longer needed.
- b) To initialize the state of an object when it is created.
- c) To define the behavior of an object.
- d) To hide the internal state of an object.

Answer: b) To initialize the state of an object when it is created.

Explanation: Constructors are special methods used to initialize the state of an object when it is created. They typically set initial values for the object's attributes.

11.What does data abstraction involve in object-oriented programming?

- a) Exposing the internal implementation details of an object.
- b) Hiding the internal implementation details of an object.
- c) Defining the behavior of an object.
- d) Creating new objects based on existing ones.

Answer: b) Hiding the internal implementation details of an object.

Explanation: Data abstraction involves hiding the internal implementation details of an object and only exposing the necessary information and functionality.

12.Which of the following is NOT a characteristic of an object in object-oriented programming?

- a) Identity
- b) State
- c) Class

d) Behavior

Answer: c) Class

Explanation: While classes are used to define objects, they are not characteristics of objects themselves. Identity, state, and behavior are the key characteristics of objects.

13.What does the term “identity” of an object refer to in object-oriented programming?

- a) The type of the object.
- b) The name assigned to the object.
- c) The memory address of the object.
- d) The current value of an object’s attributes.

Answer: c) The memory address of the object.

Explanation: The identity of an object refers to its unique memory address in the computer’s memory.

14.Which access modifier allows a class member to be accessed only within the same package?

- a) public
- b) private
- c) protected
- d) default

Answer: d) default

Explanation: The default access modifier (sometimes referred to as package-private) allows a class member to be accessed only within the same package.

15.What does a static method in a class mean?

- a) It can only be called on instances of the class.
- b) It cannot access any non-static members of the class.
- c) It is associated with the class itself rather than with instances of the class.
- d) It is executed automatically when an instance of the class is created.

Answer: c) It is associated with the class itself rather than with instances of the class.

Explanation: Static methods in a class are associated with the class itself rather than with instances of the class. They can be called directly on the class without needing an instance.

16.What is the primary purpose of message passing in object-oriented programming?

- a) To encapsulate data within objects.
- b) To define the behavior of objects.
- c) To facilitate communication between objects.
- d) To initialize objects with default values.

Answer: c) To facilitate communication between objects.

Explanation: Message passing in object-oriented programming facilitates communication between objects by allowing them to invoke methods on each other.

17.Which of the following statements about constructors in Java is true?

- a) A class can have multiple constructors with the same signature.
- b) Constructors can return values.
- c) Constructors can be inherited by subclasses.
- d) Constructors are automatically called when an object is garbage-collected.

Answer: a) A class can have multiple constructors with the same signature.

Explanation: In Java, a class can have multiple constructors with different parameters, as long as they have unique signatures.

18.What does the term “data hiding” refer to in object-oriented programming?

- a) Exposing internal implementation details of an object.
- b) Encapsulating data within objects.
- c) Preventing access to certain class members from outside the class.
- d) Passing data between objects.

Answer: c) Preventing access to certain class members from outside the class.

Explanation: Data hiding refers to the practice of preventing access to certain class members from outside the class, thereby encapsulating the data within the class.

19.Which keyword is used to access a static member of a class in Java?

- a) this
- b) super
- c) static
- d) final

Answer: c) static

Explanation: The static keyword is used to declare static members in Java, and it is also used to access them.

20.What is the significance of the “new” keyword in object-oriented programming?

- a) It creates a new instance of a class.
- b) It destroys an instance of a class.
- c) It accesses static members of a class.
- d) It defines a constructor for a class.

Answer: a) It creates a new instance of a class.

Explanation: In object-oriented programming, the “new” keyword is used to create a new instance of a class, i.e., to instantiate an object.

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