**JAVA Programming Language**

**Questions and Answers**

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**Object and Class**

1. What is an object in OOP? Give an example.

* An object is any real entity that has state and behavior. Example: dog, table. Here, dog is an animal. It has state like color, name, breed and behavior like bark(), run().

1. What are the advantages of an object?

* The advantages of an object are:

1. Development and maintenance of codes are easier.
2. Data hiding properties are provided.
3. What is a state of an object? Give an example.

* State is a property of an object. Example: a dog states are its color, breed, name.

1. What is a behavior of an object? Give an example.

* Behavior represented by methods of an object. Example: a dog behaviors are it bark(), jump(), run().

1. What is an identity of an object? Give an example.

* Identity is a unique name given to an object. Example: dog’s name is its identity.

1. What are some properties of an object?

* Some properties of an objects are:

1. It is an instance of a class.
2. It is a real-world entity.
3. It is a run time entity.
4. What is a class?

* A class is a blueprint for creating an object.

1. What are some properties of a class?

* Some properties of a class:

1. It doesn’t consume any space.
2. It is a logical entity. Logical entity is produced by logical activities.
3. What are methods? Give an example.

* Methods are set of code that is invoked at any point in a program using its name.

Additional information on methods.

* There are in-built and user defined methods. In- built example: in an array list we have add(), remove () methods. User defined example: user creates his/her own method, like run() method for animal class.

1. What are the advantages of methods?

* The advantages of methods are:

1. Code reusability.
2. Code optimization.
3. What is a constructor?

* Constructor is a special method that is used to initialize an object.

1. What is a default constructor?

* If a class doesn’t have any constructor, then a class calls a constructor which is known as default constructor.

1. Define the types of constructor.

* There are two types of constructor. They are defined below:
  + 1. No argument/ parameter constructor.

- A constructor with no parameter is known as no argument constructor.

ii. Parameterized constructor.

- A constructor with parameters is known as argument constructor.

1. What is the purpose of a constructor?

* The purpose of a constructor is to initialize an object.

1. What is the purpose of a method?

* The purpose of a method is to perform a task by executing code.

1. Does constructor return any value?

* Yes, constructor returns current class instance. It cannot return type.

1. Difference between constructors and methods.

* The difference between constructors and methods are listed below:

|  |  |
| --- | --- |
| Constructor | Method |
| - It is used to initialize the state of an object. | -It is used to expose the behavior of an object. |
| -Its name must be same as class name. | -Its name may or may not be same as a class name |

**Inheritance**

1. What is an inheritance? Give an example.

* An inheritance is a process by which child class inherits the properties of its parent class.

Example: Inheriting the fields of a parent class Employee in a sub class branch employee class.

1. What are the features of an inheritance?

* The features of an inheritance are:
  + 1. It represents Is-A relationship.
    2. It provides code reusability.
    3. It is used to achieve run time polymorphism.

1. What keyword is used to inherit properties of a parent class by subclass?

* “extends” keyword is used to inherit properties of a parent class by subclass.

1. Why multiple inheritance is not supported in Java?

* To reduce the complexity and to avoid error reading, multiple inheritance is not supported in Java. Example: Consider we have 3 classes, A, B, and C, and class C extends both A and B classes. Now, if we have to inherits the method whose name is same in both A and B classes,

compiler will not understand which class’ method to extends and leads to compile time error.

**Polymorphism**

1. What is polymorphism? Give an example.

* Polymorphism is the process by which same action can be performed in different ways.

Example: programmer can use Animal class method sound() in different classes like Dog, Duck, Cow to print out the sound produced by these animal.

1. What are the types of polymorphism? Explain it.

* There are two types of polymorphism. They are: