Md: Emrul Ahsan

B.Sc(Hon's),M.Sc(1st class)Physics

Java trainee(IDB-BISEW), Round-21,Module-Core java

Mob: 01918-247690

"Descriptive question's of core java with answer"

1.Write the JDK consists of the component.

Answer: The JDK consist of the component are given bellow…..

- The Java programming language
- Tools and tools API
- Deployment technologies
- Java Platform, Standard Edition (Java SE) libraries
- Virtual Machine for the Java platform (Java Virtual Machine (JVM^{TM}))

2.What is the Java Programming Language?

Answer: The Java Programming Language is a general-purpose, concurrent, strongly typed, class-based object-oriented language. The Java programming language is defined by the Java language specification.

3.What is a JVM implementation?

Answer: A JVM implementation executes Java technology applications, which consist of compiled Java classes. Compiled Java classes consist of byte code, so to be precise, a JVM implementation loads the classes that compose a Java technology application and execute s the byte code contained in the classes.

4.How do you know about JVM implementations platform dependent?

Answer: JVM implementations are platform specific. For example, to execute a Java application on a Solaris OS, you need the JVM implementation that is specific to the Solaris OS.

5.***How do you know about Java technology applications platform dependent?***

Answer: An application written using the Java programming language is platform independent. Such an application can run on any platform that contains a supporting JVM implementation.

6.What is a Java Hotspot Client VM?

On platforms typically used for client applications, the JDK software comes with a virtual machine (VM) implementation called the Java Hotspot Client (Client VM). The client VM is turned for reducing start-up time and memory footprint.

7.What is a Java Hotspot Server VM?

Answer: On all platforms, the JDK software comes with an implementation of the Java virtual machine called the Java Hotspot Server VM (Server VM). The server VM is designed for maximum program execution speed.

8.What are the different java class file formats?

Answer: A java technology class has two file formats:

a)Source file formats:

The source file format is a human –readable from of a class file. All source files have **java** file name extensions.

b)Class file formats:

The class file formats is a JVM-readable from of a class file. All class files have **class** file name extensions.

9.What is double primitive?

Answer: The double data type is not a class type. It is one of eight primitive data types defined by the java language specification. The eight primitive types are: Boolean, char, byte, short, int, long, float and double.

10.What is the function of an application main class?

Answer: Every Java application requires an application main class, which is the entry point for the application. It can also be referred to as the application launch class.

11.What are static and dynamic views?

Answer:

Static view: A static view of an object-oriented application is the collection of classes that together constitute the application. A static view of a java application is to consider the view presented by the classes of the application when they are stored in the file system.

Dynamic view: The dynamic view of a java technology application is the view it presents during execution.

12.What do you mean by class and object?

Class in Java

A class is a group of objects that has common properties. It is a template or blueprint from which objects are created.

A class in java can contain:

- **data member**
- **method**
- **constructor**
- **block**
- **class and interface**

Object in Java

An entity that has state and behavior is known as an object e.g. chair, bike, marker, pen, table, car etc. It can be physical or logical (tengible and intengible). The example of integible object is banking system.

An object has three characteristics:

- **state:** represents data (value) of an object.
- **behavior:** represents the behavior (functionality) of an object such as deposit, withdraw etc.
- **identity:** Object identity is typically implemented via a unique ID. The value of the ID is not visible to the external user. But,it is used internally by the JVM to identify each object uniquely.

For Example: Pen is an object. Its name is Reynolds, color is white etc. known as its state. It is used to write, so writing is its behavior.

13.Relation between class and object : Class is a template or blueprint from which objects are created. So object is the instance(result) of a class.

14.What do you mean by Class, subclass and Object?

Class: A class is a term that describes a specification for a collection of objects with common properties.

Subclass: A subclass is a class that inherits all the properties of the parent class, but that also includes extra specialization.

15.What is Encapsulation?

Encapsulation in Java

Encapsulation in java is a *process of wrapping code and data together into a single unit*, for example capsule i.e. mixed of several medicines.

We can create a fully encapsulated class in java by making all the data members of the class private. Now we can use setter and getter methods to set and get the data in it.

The **Java Bean** class is the example of fully encapsulated class.

Advantage of Encapsulation in java

By providing only setter or getter method, you can make the class **read-only or write-only**.

It provides you the **control over the data**. Suppose you want to set the value of id i.e. greater than 100 only, you can write the logic inside the setter method.

16.What is inheritance?

Answer: Inheritance is the mechanism for creating one or more subtypes from an existing type. In Java technology, a class represents a type. Inheritance allows us to create subclasses from existing class

```
Class a { ..}
Class b extends a{ ..}.
```

17.What are the benefits of inheritance?

Benefits of inheritance are as follows:

* Enables the creation of specialized types.
* Eliminates duplication.
* Assists maintainability

18.What do you mean by narrowing and widening ? Give example in each case.

Answer: Narrowing: Converting a broader data type to narrower data type is called narrowing , which loss precision.

Ex: double d= 10.55555;

Int x=(int)d;
Widening : Converting a narrower data type to a boarder data type without loss of information is called widening.
Ex: int x=3, y=2;
Double d=(double)x/y;

19.What do you mean by "super()" and "this" keyword?

Answer: "super()" refers to invoking of super class constructor .
Example: class B extends A{
    B(int b){super(10);   //call super class}}
    "this" refers to current class object.
    Example: class A{A(){}
            A(int a){this();   //call to self}}

20.What do you mean by method overloading and method overriding?

Answer:

Method overloading: it means methods within a class have the same name but they have different parameter lists. Overloaded methods are differentiated by the number and the type of the arguments passed into the method. In the code sample, draw(String s) and draw(int i) are distinct and unique methods because they require different argument types.

Method overriding: It means the ability of a subclass to override a method allows a class to inherit from a superclass whose behavior is "close enough" and then to modify behavior as needed.
The overriding method has the same name, number and type of parameters, and return type as the method it overrides. When overriding a method, you might want to use the @Override annotation

21.What is the difference between Interface and Abstract class?

Answer:

Interface	**Abstract class**
Java interface should be implemented using keyword "implements";	A Java abstract class should be extended using keyword "extends".
A Java class can implement multiple interfaces	It can extend only one abstract class.
Variables declared in a Java interface is by default final.	An abstract class may contain non-final variables.
Methods does not contain body part	Methods may or may not contain body part

22.What do you mean by polymorphism?

Polymorphism

When **one task is performed by different ways** i.e. known as polymorphism. For example: to convense the customer differently, to draw something e.g. shape or rectangle etc.

In java, we use method overloading and method overriding to achieve polymorphism.

Another example can be to speak something e.g. cat speaks meaw, dog barks woof etc.

23.What is JVM?

JVM (Java Virtual Machine)

JVM (Java Virtual Machine) is an abstract machine. It is a specification that provides runtime environment in which java bytecode can be executed.

JVMs are available for many hardware and software platforms (i.e.JVM is plateform dependent).

It is:

1. **A specification** where working of Java Virtual Machine is specified. But implementation provider is independent to choose the algorithm. Its implementation has been provided by Sun and other companies.
2. **An implementation** Its implementation is known as JRE (Java Runtime Environment).
3. **Runtime Instance** Whenever you write java command on the command prompt to run the java class, and instance of JVM is created.

24.Define package. What are the advantages of package? Write down the name of default name of package.

Java Package:

A **java package** is a group of similar types of classes, interfaces and sub-packages.

Package in java can be categorized in two form, built-in package and user-defined package.

There are many built-in packages such as java, lang, awt, javax, swing, net, io, util, sql etc.

Here, we will have the detailed learning of creating and using user-defined packages.

Advantage of Java Package

1) Java package is used to categorize the classes and interfaces so that they can be easily maintained.

2) Java package provides access protection.

3) Java package removes naming collision

How to compile java package

If you are not using any IDE, you need to follow the **syntax** given below:

1. javac -d directory javafilename

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For **example**

1. javac -d . Simple.java

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25.What is the use of abstract, final and static keyword?

Answer: Use of abstract:

a. With class –indicates that the class cannot be instantiate.
b. With method – indicates that the method must be over riding in the sub class of that abstract class.

Use of final:

a. With class –indicates that the class cannot be subclass
b. With variable-indicates that the value first assign cannot be change.
c. With method-indicates that method body cannot be changed.
d. With object of a class –indicates that object reference cannot be changed but value can be changed.

Use of static keyword:

a. Static variable of a class are accessed by static methods only.
b. Static methods of a class are invoked by static methods only.
c. Static methods does not have “this”.
d. Static method cannot be overridden by no0n-static method.

26.What do you mean by logical and short-circuit operator or What is the difference between& and && ?

Answer: If an expression involving the Boolean & operator is evaluated, both operands are evaluated. Then the & operator is applied to the operand. When an expression involving the && operator is evaluated, the first operand is evaluated. If the first operand returns a value of true then the second operand is evaluated. The && operator is then applied to the first and second operands. If the first operand evaluates to false, the evaluation of the second operand is skipped.

27.What is constructor? Write the characteristics of a constructor.

Constructor: Constructor is a special type of method that runs automatically when a class is instantained. Constructor is used to initialize values in the class. Constructor has the same name as the class and no return value.

The characteristics of a constructor:

i. Constructor has the same name as the class.

ii. Constructor never returns a value.

28.What is the difference default constructor and overloaded constructor.

Default constructor: The default constructor initializes the instance variables declared in the class. The compiler creates a default constructor only when there are no other constructor for the class. That has no parameters and does nothing.

Override Constructor: constructor overriding Write a program to demonstrate the overriding of constructor methods.

29.What do you mean by default constructor?

Default constructor is a no argument constructor. If we do not declare a constructor the Java programming language provides it that takes no arguments and has an empty body. For example

```
Class Constructor() {
   String symbol;
   //no constructor declared
}
```

30.What is an Array? How many ways can create an Array in java?

Answer: In the Java programming language, an array is an object even when the away is made up of primitive types and as with other class type.

Array are used to group objects of the same type.

Array can be declared of any type, either primitive or class.

- An Array of char primitive can be declared as follows:

```
Char[] s;
```

- An Array point class object can be declared as follows:

Point[] p;

Array can be declared using the square brackets after the variable name.

```
Char s[];
Point p[];
```

31.Write down the five key words in java.

Answer: Five key words of java are as follow –

1.for 2. do 3. while 4. if 5. Else

32.What is difference between primitive data type and wrapper class?

Answer: Java supports eight basic data types which known as primitive types. Those are byte, short, integer, long, float, double, char, boolean.

Java programming language provides wrapper classes to manipulate primitive data elements as objects. Such data elements are wrapped in an object created around them.Each primitive data types has corresponding wrapper class in the java.lang package.

The following two statements illustrate the difference between a primitive data type and an object of a wrapper class:

```
int x = 25;
Integer y = new Integer(33);
```

33.What is the difference between local variable, instance variable and static variable?

Answer: Local variable: Variables that are declared in a function are called local variables. They are called local because they can only be referenced and used locally in the function in which they are declared. In the method below miles is a local variable. For example-

```
private static double convertKmToMi(double kilometers) {
   double miles = kilometers * MILES_PER_KILOMETER;
   return miles;
}
```

Instance variable: Instance variables are any variables, without "static" field modifier, that are defined within the class body and outside any class's methods body. Instance (field) variables can been seen by all methods in the class.

```
class A {
  B b=new B();
}
```

Class/static variable: Class/static variables are declared with the static keyword in a class, but outside a method. There is only one copy per class, regardless of how many objects are created from it.

```
public class MyClass {
  public static final int MY_CONSTANT = 0;
}
```

34.Overriding and overloading method.

Overriding: Overriding requires the same method signature (name and parameters) and the same return type and that the original method is inherited from its superclass.

Overloading: Overloading requires different methods signature (name and parameters) but the method name should be the same name.

35.What is meant by final class, methods and variables ?

A final variable is essentially a constant. Variables declared as final do not occupy memory on a per-instance basis.

Final methods are used to prevent method overriding.

Final class is used to prevent inheritance.

36.What is the difference between equals() and '=='?

equals( ) is an method where "= =" is an operator. equals ( ) method is used to compare the values(i.e, length, similarities) of strings usually string objects. The equals( ) method requires one argument that must be a String object and that is to be compared with the original object. This method always return Boolean data. Whereas "= =" operator is used to compare the reference or check if two variables point at the same instance of a string object.

37.What is type casting?

Answer: Conversion of data from one type to another type is known as type casting. In java one object reference can be type cast into another object reference. For example

```
         public class CastExample{
          public static void main(String arg[]) {
          String s="27";
          int i=Integer.parseInt(s);
         }
 }
```

38.What is the difference between 'equals()' methods and '==' operator?

Answer:

Equals():

equals() method checks the equality of the content.

== :

"==" checks the equality of object reference.

39.Explain the difference between pass by value and pass by pass by reference.

Answer: Pass by Reference means the passing the address itself rather than passing the value and **pass by value** means passing a copy of the value as an argument. In Java the arguments are always passed by value.

40.What Is an Exception?

Answer: An *exception* is an event, which occurs during the execution of a program that disrupts the normal flow of the program's instructions. The Java programming language uses *exceptions* to handle errors and other exceptional events. Java programming language provides two broad categories of exceptions known as checked and unchecked exceptions.

41.Difference between static and instance veriable.

Instance : - These are typical object level variables, they are initialized to default values at the time of creation of object, and remain accessible as long as the object accessible.
Static: - These are the class level variables. They are initialized when the class is loaded in JVM for the first time and remain there as long as the class remains loaded. They are not tied to any particular object instance.

42.What is the abstract class with example.

A class containing abstract method is called Abstract class. An Abstract class can't be instantiated.
Example of Abstract class:

```
abstract class testAbstractClass {
  protected String myString;
  public String getMyString() {
  return myString;
  }
  public abstract string anyAbstractFunction();
          }
```

43.What do you mean by garbage colletion? How an object eligible for garbage collection.

Garbage collection: The process of disposing of dead objects is called garbage collection.

An object is eligible for garbage collection when no live thread can access it. If the reference variable that refers to the object is set to null, the object becomes eligible for garbage collection, provided that no other reference is referring to it.

44.What is Unicode?

Unicode: Unicode is a standard character set that was developed to allow the characters necessary for almost all languages to be encoded. It uses a 16-bit to represent a character.

45.What is Anonymous class?

Anonymous class: An Anonymous class is a kind of local class that does not have a name and is declared inside of an expression.

46.What's the difference between an interface and an abstract class?

An abstract class may contain code in method bodies, which is not allowed in an interface. With abstract classes, you have to inherit your class from it and Java does not allow multiple inheritance. On the other hand, you can implement multiple interfaces in your class

47. What's the difference between constructors and other methods?

Constructors must have the same name as the class and can not return a value. They are only called once while regular methods could be called many times.

48. What is a constructor? What is a destructor?

Constructor is an operation that creates an object and/or initialises its state. Destructor is an operation that frees the state of an object and/or destroys the object itself. In Java, there is no concept of destructors. Its taken care by the JVM.

49.What is the difference between constructor and method?

Constructor will be automatically invoked when an object is created whereas method has to be called explicitly

50. What is the difference between String and String Buffer?

a) String objects are constants and immutable whereas StringBuffer objects are not.
b) String class supports constant strings whereas StringBuffer class supports growable and modifiable strings.

51.What is Instanceof Operator?

The instanceof operator allows to determine the type of an object. It takes an object on the left side of the operator and a type on the right side of the operator and returns a boolean value indicating whether the object belongs to that type or not.

52.What are arguments and parameters?

Parameter:A parameter defines the type of value that can be passed to the method when it is called.

Argument: An Argument is a value that is passed to a method when it is executed and the value of the argument is referenced by the parameter name during execution of the method.