JAVA VIVA PREPARATION

Q) Explain JDK, JRE and JVM?

JDK	JRE	JVM.
• Java Development kit	• Java Runtime Environ.	• Java Virtual Machine
• Tool necessary to compile, document & package Java programs.	• A Runtime Environment in which Java byte code can be executed.	• An abstract machine. A specification that provides. [] (same)
• Contains JRE + development tools.	• An implementation of JVM which physically exists.	• JVM follows 3 notations: specification, implementation, runtime instance.

Q) Why is Java platform-independent?

Ans) Java is platform-independent because of its byte codes which can run on any system irrespective of its underlying operating system.

Q) Why is Java not 100% object-oriented?

Ans) Because it makes use of eight primitive data types such as boolean, byte, char, int, float, double, long, short which are not objects.

Q) What are wrapper classes in Java?

Wrapper classes convert the Java primitives into reference types (i.e. objects). Every primitive data type has one. Called wrapper as they 'wrap' the primitive data type into objects of class.

Q) What are constructors?

Block of code used to initialize an object, has no return type and is automatically called when object is created.

1) Default constructor: Doesn't take any inputs, main purpose is to initialise variables with default values and object creation.

2) Parameterized Constructor: Capable of initializing the instance variables with provided values.

Q) What is singleton class in Java and how can it be made?

Ans) Singleton class is a class whose only one instance can be created at any given time in one JVM. A class can be made singleton by making its constructor private.

Q) Difference blw equals() and == in Java?

Ans) Equals() method is defined in object class in java and used for checking equality of two objects defined by business logic. (value of objects)

'==' or equality operator in Java is a binary operator used to compare primitives & objects.

Q) What is a package in Java? List down various advantages of packages.

Ans) Packages are collection of related classes and interfaces which are bundled together. ~~By using~~ Developers can easily modularise the code and optimitise its reuse.

- Easy access control on code.
- Create proper hierarchical structure, makes it easier to locate related classes.

Q) Why are pointers not used in Java?

Ans) Because they are unsafe & increases the complexity of the program. Since JVM is responsible for implicit memory allocation, thus in order to avoid direct access to memory by the user., pointers are discouraged in Java.

Q) What is Object-Oriented Programming?

Ans) Is a programming model or approach where the programs are organized around objects rather than logic and functions, this approach is ideal for programs large and complex codes and needs to be actively updated or maintained.

Q) What is the difference between a local variable and an instance variable?

Ans) A local variable is typically used inside a method, constructor, or a block and has only local scope, variable can be used only within scope of block.

An instance variable is a variable which is bounded to its object itself, declared within a class but outside a method. Every object of that class will create its own copy of the variable, so any changes made to the variable won't reflect in any other instances of that class and will be bound to that particular instance only.

Q) Why are Java strings immutable in nature?
Ans) String is immutable because String objects are cached in the string pool. Since cached String literals are shared between multiple clients there is always a risk, where one client's action would affect another client.

Q) If I don't provide any arguments on the command line, then what will the value stored in the string array passed into the main() method be, empty or NULL?
Ans) It is empty, but not NULL.

Q) What if I write 'static public void' instead of 'public static void'?
Ans) Program compiles and runs correctly as order of specifiers doesn't matter.

Q) What is the default value of local variables?
Ans) Local variables are not initialized to any default value, neither primitives nor object references.

Q) What is the difference between an object-oriented programming language and object-based programming language?
Ans) • OOL follow all concepts of OOPs whereas OBL doesn't follow all OOPs concepts like inheritance & polymorphism

• OOLs don't have inbuilt objects whereas OBLs have
for eg JavaScript has window object

- OOL – Java, C#, Smalltalk
  OBL – JavaScript, VBScript

→ Constructor can't be made final.

Q) What is static method and its restrictions?

Ans)
- A static method belongs to the class rather than the object.
- There is no need to create object to call them.
- A static method can access and change the value of static variable.

Restrictions:
- Static method can't use non-static data member or call non-static method directly.
- 'this' and 'super' can't be used in static context as they are non-static

Q) Why is main method static?

Ans) As obj is not required to call static method. If we make main method non-static, JVM will have to create its object and then call main() which leads to extra memory allocation.

→ Making constructors static gives compiler error

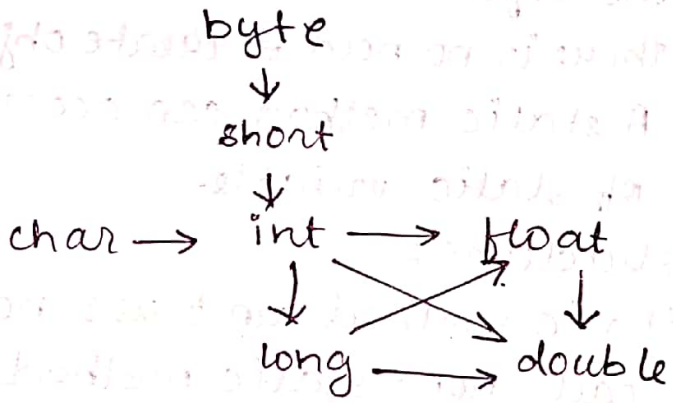
→ If static modified removed from main, program compiles but in runtime throws 'NoSuchMethodError'.

→ The object class is superclass of all other classes in Java.

Q) Why is multiple inheritance not supported in java?
Ans.) To reduce the complexity & simplify the language.

→ We can have any no. of main methods by using overloading.

→ Type promotion:



→ You can't override static method because they are part of the class, not the object.