Define variableA variable is name of memory location to store value. Each variable in Java has a specific type, which determines the size, range of values and operations that performed on it.Declaration Syntax:Data type variable = value; Example – inta,b,c; (declaration) – int a=10, b=15, c=20; (initialization)Define ConstantConstants values cannot be modified by the program once they are defined. Constants refer to fixed values. They are also called as literals.Syntax: finaldata_typevariable_name;List down the rules to frame an identifierIdentifiers are used by the programmers to name variables, functions, arrays and class. • Reserved words cannot be used as identifiersExamplesumgrade Total Basic_pay_age Invalid IdentifiersMy Variable (contains a space)123geeks (Begins with a digit) a+c (plus sign should not be used) variable-2 (hyphen should not be used)sum_&_difference (ampersand should not be used)Who developed Java?Java was developed by Sun Micro Systems of USA in 1991. Originally called Oak by James GoslingDefine classA class is a group of objects which have common properties. It is a template from which objects are created. A class in Java can contain:» Fields» Methods» ConstructorsDefine ObjectAn Object is an instance of a class Syntax ClassName object = new className(); • Objects are used to access members of the class. • We can access members (call methods and access variables) by using the .operator.Define OperatorOperators are the symbols used to perform operations on variables and values.Arithmetic Operator • Relational Operator • Logical Operator • Bitwise Operator • Conditional Operator • Assignment Operator • Increment / decrement Operator • Special OperatorDefine ExpressionAn expression is a combination of operands and operators – it computes a single value stored in a variable. The operator denotes the action or operation to be performed.What is meant by Type casting?In Java, type casting is a method or process that converts a data type into another data type in both ways manually and automatically. The automatic conversion is done by the compiler and manual conversion performed by the programmer. In this section, we will discuss type casting and its types with proper examples.What is meant by Autoboxing and Unboxing?Type castingConvert a value from one data type to another data type is known as type casting.There are two types of type casting:Widening Type CastingNarrowing Type CastingWidening Type CastingConverting a lower data type into a higher one is called widening type casting. It is also known as implicit conversion or casting down. It is done automatically. It is safe because there is no chance to lose data. It takes place when:Both data types must be compatible with each other.The target type must be larger than the source type.byte -> short -> char -> int -> long -> float -> double Narrowing Type CastingConverting a higher data type into a lower one is called narrowing type casting. It is also known as explicit conversion or casting up. It is done manually by the programmer. If we do not perform casting then the compiler reports a compile-time error.double -> float -> long -> int -> char -> short -> byte List any 4 features of Java?Simple 2. Object-Oriented 3. Portable 4. Platform independentDefine interfaceAn interface is a reference type in Java. It is similar to class. It is a collection of abstract methods. A class implements an interface, thereby inheriting the abstract methods of the interface.Define ArrayArrays are used to store multiple values in a single variable, instead of declaring separate variables for each value. • Arrays are group of values of same type, stored in continuous memory locations, accessed with single name. dataType[] a;(or)dataType a[];What is the use of final keyword?final is a keyword in java. We can use this keyword with variables, methods and also with classes. The final keyword in java has different meaning depending upon it is applied to variable, class or method.What are the access modifiers in Java?Access modifiers in Java allow us to set the scope or accessibility or visibility of a data member be it a field, constructor, class, or method.DefaultPrivatePublicProtectedDefine Multi threading?Multithreading in Java is a process of executing multiple threads simultaneously. • A thread is a lightweight sub-process, the smallest unit of processing. Multiprocessing and multithreading, both are used to achieve multitasking.Define ExceptionException is an abnormal condition. The Exception Handling in Java is one of the powerful mechanism to handle the runtime errors so that normal flow of the application can be maintained.• An exception can occur for many different reasons. • A user has entered an invalid data. • A network connection has been lost in the middle of communications or the JVM has run out of memory.Define AppletAn applet is a Java program that can be embedded into a web page. It runs inside the web browser and works at client side. • An applet is embedded in an HTML page using the APPLET tag and hosted on a web server. • Applets are used to make the web site more dynamic and entertaining.Define EventChanging the state of

an object is known as an event. For example, click on button, dragging mouse etc. – The java.awt.event package provides many event classes and Listener interfaces for event handlingActionEventActionListenerMouseEventMouseListener andKeyEventKeyListenerDefine PackageA package is a group of similar types of classes, interfaces and sub-packages. • Package names and directory structure are closely relatedPackage in java can be categorized in two form,built-in package and user-defined package.Define swingJava Swing tutorial is a part of Java Foundation Classes (JFC) that is used to create window-based applications. It is built on the top of AWT (Abstract Windowing Toolkit) API and entirely written in java. Unlike AWT, Java Swing provides platform-independent and lightweight components.Thejavax.swing package provides classes for java swing API such as JButton, JTextField, JTextArea, JRadioButton, JCheckbox, JMenu, JColorChooser etc.Write any 4 built in ExceptionsWrite any 4 String methodscharAt - returns a char value at the given index number.Length - finds the length of a stringConcat - combines specified string at the end of this string. It returns a combined string. It is like appending another string.indexOf - returns the position of the first occurrence of the specified character or string in a specified string.Write any 4 StringBuffer Methodsappend(String s)It is used to append the specified string with this string. The append() method is overloaded like append(char), append(boolean), append(int), append(float), append(double) etc.insert(int offset, String s)It is used to insert the specified string with this string at the specified position. The insert() method is overloaded like insert(int, char), insert(int, boolean), insert(int, int), insert(int, float), insert(int, double) etc.replace(int startIndex, int endIndex, String str)It is used to replace the string from specified startIndex and endIndex.delete(int startIndex, int endIndex)It is used to delete the string from specified startIndex and endIndex.reverse()is used to reverse the string.Define Layout ManagerThe LayoutManagers are used to arrange components in a particular manner. The Java LayoutManagers facilitates us to control the positioning and size of the components in GUI forms.java.awt.BorderLayoutjava.awt.FlowLayoutjava.awt.GridLayoutjava.awt.CardLayoutList any 4 AWT componentsLabelTextAreaRadioButton, CheckBoxChoice ListDifference between Overloading and OverridingNo.Method OverloadingMethod Overriding1)Method overloading is performed within class.Method overriding occurs in two classes inheritance.2)parameter must be different.parameter must be same.3)compile time polymorphism.run time polymorphism.4)Return type can be same or different in method overloading. But you must have to change the parameter.Return type must be same or variant in method overriding.Difference between AWT and swingAWTSwingThe AWT Component classes are provided by the java.awt package.The Swing component classes are provided by the javax.swing package.The Components used in AWT are mainly dependent on the operating system.The Components used in Swing are not dependent on the operating system. It is completely scripted in Java.The AWT is heavyweight since it uses the resources of the operating system.The Swing is mostly lightweight since it doesn't need any Operating system object for processing. The Swing Components are built on the top of AWT.The Java AWT provides a smaller number of components in comparison to Swing.Java Swing provides a greater number of components than AWT, such as list, scroll panes, tables, color choosers, etc.Java AWT stands for Abstract Window Toolkit.Java Swing is mainly referred to as Java Foundation Classes (JFC).Java AWT needs a higher amount of memory for the execution.Java Swing needs less memory space as compared to Java AWT.Java AWT is slower than swing in terms of performance.Java Swing is faster than the AWT.Difference between abstract and interfaceAbstract classInterface1) Abstract class can have abstract and non-abstract methods.Interface can have only abstract methods. 2) Abstract class doesn't support multiple inheritance.Interface supports multiple inheritance.3) Abstract class can have final, non-final, static and non-static variables.Interface has only static and final variables.4) An abstract class can be extended using keyword "extends".An interface can be implemented using keyword "implements".5) A Java abstract class can have class members like private, protected, etc.Members of a Java interface are public by default.6)Example:public abstract class Shape{public abstract void draw();}Example:public interface Drawable{void draw();}Difference between final and finalizeSr. no.finalfinalize1.final is the keyword and access modifier which is used to apply restrictions on a class, method or variable.finalize is the method in Java which is used to perform clean up processing just before object is garbage collected.2.Final keyword is used with the classes, methods and variables.finalize() method is used with the objects.3.(1) Once declared, final variable becomes constant

and cannot be modified.(2) final method cannot be overridden by sub class.(3) final class cannot be inherited.finalize method performs the cleaning activities with respect to the object before its destruction.4.Final method is executed only when we call it.finalize method is executed just before the object is destroyed.Difference between break and continueBreak StatementContinue StatementThis statement allows a user to exit a loop's overall structure.It does not allow a user to exit an overall loop structure.The break statement can be used in conjunction with the switch statement. It can also be used inside the while loop, do-while loop, and for loop. The switch statement and the continue statement are incompatible. You can still use it in for loops, do-while loops, and while loops. When the control reaches the break statement in a loop construct, it exits immediately.The control passes from the beginning of a loop statement to the continue statement as soon as it encounters it.if a switch or a loop encounters a break, it will end abruptly.The continue statement does not end the loop, but rather leads it to the next iteration. Compare c and JavaRef:S.No C Java1C is a middle-level language.Java is a high-level language.2C is a structural and procedure-oriented programming language.Java is an object-oriented programming language3It follows the top-down approach to design the application.It follows the bottom-up approach to design the application.4It is a compiled language.It is an interpreted language.5It is platform dependent.It is platform-independent.6It is not secure.It is fully secured language.7It translates the code into machine language so that the machine can understand the code.It translates the code into a bytecode that is executed by the JVM.8It supports the concept of the pointer.It does not support the concepts of pointers because of security.9Exception handling is not present in C language.Exception handling is present in Java.10It does not support inheritance that is useful for code reusability.It supports inheritance that provides code reusability.11There is no concept of threading.It supports the concept of threading.12It directly executes the code.It executes code with the help of JVM.13It supports the goto statement.It does not support the goto statement.14It is not robust.It is robust due to strong memory management.15It is mainly used to develop system applications and firmware.It is mainly used to develop enterprise applications and web-based applications.Compare c++ and JavaC++JavaPlatform-dependentPlatform-independentCompiled programming languageCompiled and interpreted languageNot portablePortableSupports multiple inheritanceDoes not support multiple inheritanceBoth operators and methods can be overloadedAllows only method overloadingSupports pointersSupports pointers with restrictionsDoes not support threadHas built-in thread support via the “thread” classDefine ArrayList Java ArrayList class uses a dynamic array for storing the elements. It is like an array, but there is no size limit. We can add or remove elements anytime. So, it is much more flexible than the traditional array. It is found in the java.util package. It is like the Vector in C++.Define HashTableA Hashtable is an array of a list. Each list is known as a bucket. The position of the bucket is identified by calling the hashcode() method. A Hashtable contains values based on the key. Java Hashtable class contains unique elements.What is meant by mutable class?A mutable class is one that can change its internal state after it is created..The mutable class examples are StringBuffer, Java.util.Date, StringBuilder, etcDefine InheritanceDeriving a new class from an existing class. Java Inheritance is a mechanism in which one class acquires the property of another classDefine PolymorphismPoly means Many, Morphism means forms. Polymorphism means many functions having same name. Why Java does not support multiple inheritance?In java, multiple inheritance is not supported because of ambiguity problem. We can take the below example where we have two classes Class1 and Class2 which have same method display(). If multiple inheritance is possible than Test class can inherit data members (properties) and methods (behaviour) of both Class1 and Class2 classes. Now, Test class have two display() methods inherited from Class1 and Class2. Problem occurs in method call, when display() method will be called with Test class object which method will be called, will it be of Class1 or Class2. This is ambiguity problem because of which multiple inheritance is not supported in java.Why Java is called as platform independent language?Java is platform-independent because it uses a virtual machine. The Java programming language and all APIs are compiled into bytecodes. The meaning of platform-independent is that the java compiled code(byte code) can run on all operating systems.What is meant by byte code?Byte code is the intermediate code compiled and executed by a virtual machine (VM)Expand JVM, JDK, JRE, JITJava Development Kit (JDK) JVM (Java Virtual Machine) Java Runtime Environment (JRE)Java-In-Time

CompilerWhat is Garbage Collection?Garbage Collection in Java is a process by which the programs perform memory management automatically. The Garbage Collector(GC) finds the unused objects and deletes them to reclaim the memoryWrite Syntax of switch statement.switch(expression){ case value1 : // Statements break; case value2 : // Statements break; default : // Statements}Define IO Stream.A stream is a sequence of data. In Java, a stream is composed of bytes. It's called a stream because it is like a stream of water that continues to flow. An input stream is used to read data from the source. And, an output stream is used to write data to the destination.System.out: standard output stream System.in: standard input streamWhat is meant by custom exception?In Java, we can create our own exceptions that are derived classes of the Exception class. Creating our own Exception is known as custom exception or user-defined exception. Basically, Java custom exceptions are used to customize the exception according to user need.What is the use of this keyword?In Java, this is a reference variable that refers to the current object.this can be used to refer current class instance variable.this can be used to invoke current class method (implicitly)this() can be used to invoke current class constructor.What is the use of super keyword?The super keyword in Java is a reference variable super can be used to refer immediate parent class instance variable.super can be used to invoke immediate parent class method.super() can be used to invoke immediate parent class constructor.Define constructorConstructor is a special member method which as same name as class name and it is used to initialize member fields. It is invoked automatically when the object is created.Write the syntax to create destructor in Java.The destructor is used to delete or destroy the object that releases the resource occupied by the object. There is no concept of destructor in Java. Java provides the garbage collector that works the same as the destructor. The Java class provides the finalize () method that works the same as the destructorSyntax:protected void finalize throws Throwable() { //resources to be close }