



PROGRAMMING IN JAVA

Assignment1

TYPE OF QUESTION: MCQ

Number of questions: 15

Total mark: $15 \times 1 = 15$

QUESTION 1:

Which of the following is true?

- a. Java uses only interpreter.
- b. Java uses only compiler.
- c. Java uses both interpreter and compiler.
- d. None of the above.

Correct Answer: c

Detailed Solution:

Creating a *.class* file from *.java* using *javac* command is a compilation task, whereas execution of a *.class* file using *java* or *appletviewer* command is the process of interpretation.

QUESTION 2:

A Java file with extension '*.class*' contains

- a. Java source code
- b. HTML tags
- c. Java Byte code
- d. A program file written in Java programming language

Correct Answer:c

Detailed Solution:

A *.class* file is a complied version of the *.java* file in Byte code (it is a kind of object code with JVM (Java Virtual Machine) as the target machine).

QUESTION 3:

Applet execution is



- a. Server sided
- b. Client sided
- c. Both a and b
- d. None of the above

Correct Answer:b

Detailed Solution:

An applet is embedded in an HTML file, which a browser machine (i.e., client) can download from a server hosting the HTML file. The browser machine then run the HTML file. Thus, an applet execution is always client sided.

QUESTION 4:

Which of the following is a Class in Java?

- a. int
- b. String
- c. short
- d. double

Correct Answer:b

Detailed Solution:

The class String is defined in *java.lang* package, which is a default package in any Java program. Others are data type in Java programming language.

QUESTION 5:

What is the length of the applet window made by this program?

```
import java.awt.*;  
import java.applet.*;  
public class myApplet extends Applet {  
    Graphic g;  
    g.drawString("A Simple Applet", 20, 20);  
}
```

- a. 20
- b. The same as the computer screen
- c. Compilation Error

d. Runtime Error

Correct Answer:c

Detailed Solution:

To implement the method *drawstring()* first we need to overwrite the *paint()* method. In other words, without *paint()* method we cannot use *drawstring()* method.

QUESTION 6:

Which of the following is **not a correct** statement?

- a. It is always necessary to use *new* operator to initialize an array.
- b. Array can be initialized using comma separated expressions surrounded by curly braces.
- c. Array can be declared and memory can be allotted in one statement.
- d. An array can be declared in one statement and memory can be allocated in other statement.

Correct Answer: a

Detailed Solution:

Array can be initialized using both *new* and comma separated expressions surrounded by curly braces example : `int a [] = new int[5]; int [] a; a = new int [10];` and `int a [] = { 0, 1, 2, 3, 4};`

QUESTION 7:

Which of the following is an incorrect array declaration?

- a. `int[] a = new int[10];`
- b. `int [] a;`
- c. `int[][] a = new int[10];`
- d. `int[][] a = {{1, 2, 3}, {1, 2, 3}};`

Correct Answer:c

Detailed Solution:

In the left hand side, it is a declaration for two-dimensional array, whereas at the right side it uses *new* operator to allocate a memory for a one-dimensional array.

QUESTION 8:

Which of the following **cannot** be used for a variable name in Java?

- a. identifier
- b. final
- c. malloc
- d. calloc

Correct Answer:b

Detailed Solution:

final is a reserved keyword in Java, which cannot be used for naming a variable or class.

QUESTION 9:

Which of the following is **not** an object-oriented programming paradigm?

- a. Encapsulation
- b. Inheritance
- c. Polymorphism
- d. Dynamic memory allocation

Correct Answer:d

Detailed Solution:

Dynamic memory allocation is a memory allocation strategy and not a programming paradigm.

QUESTION 10:

What is the output of this program?

```
class Increment {  
    public static void main(String args[])  
    {  
        int i = 3;  
        System.out.print(++i * 8);  
    }  
}
```

- a. 24

- b. 25
- c. 32
- d. Runtime error

Correct Answer: c

Detailed Solution:

First the value of i will be incremented and then multiplication and the result will be printed.

QUESTION 11:

```
public class Test {  
    public static void main(String[] args){  
        int[] x = {1, 2, 3, 4};  
        char[] y = {'a', 'b', 'c', 'd'};  
        for (inti = 0; i<x.length; i += 2)  
            for (int j = y.length-1; j > 0; j--)  
                if (((i+j) % 2) == 0)  
                    System.out.print(x[i]);  
                else  
                    System.out.print(y[j]);  
            }  
    }
```

Which of the following does this program print?

Note: The value of $k \% 2$ is 0 only when k is even.

- a. d1bd3b
- b. d1b1d3b3
- c. d12cd34c
- d. d1b2c2d3b4c4

Correct Answer: a

QUESTION 12:

Which of the following features are **not** common in both Java and C++?

- a. The class declaration.
- b. The access modifiers.
- c. The encapsulation of data and methods.



d. Multiple inheritance from class

Correct Answer: d

Detailed Solution:

C++ supports multiple inheritances whereas Java does not.

QUESTION 13:

Choose the wrong statement.

- a. Applets can read from or write to a file in the local computers.
- b. Applets cannot communicate with other servers in the networks.
- c. Applets can run any java program.
- d. Applets can be viewed by Java enabled browser.

Correct Answer: b

Detailed Solution:

Java applets, like other Java programs, can use the API defined in the java.net package to communicate across the network. A Java applet can communicate with server applications that run on the same host as the applet. This communication does not require any special setup on the server.

Many browsers such as Chrome, Safari, Mozilla, Internet Explorer have stopped supporting the execution of applet code. However, some browsers support the view of applets with special plug-in software.

QUESTION 14:

Java is a platform independent programming language because

- a. It is written almost similar to English language.
- b. It compiles to an intermediate code targeting a virtual machine, which can be interpreted by an interpreter for a given OS.
- c. Java compiler translates the source code directly to the machine level language.
- d. It follows the concept of "write once and compile everywhere".

Correct Answer: b

Detailed Solution:

The compiled code (bytecode) can be executed (interpreted) on any platform running a JVM.



QUESTION 15:

So far the declaration of `main()` method is concerned, which of the following specification is not valid?

- a. `void`
- b. `public`
- c. `static`
- d. `private`

Correct Answer: d

Detailed Solution:

The `main()` method should not return anything, hence its return type is *void*, it should be declared as *public*, as the method should be invoked externally, it is being static method, no object of the class in which the method is to be created.

*****END*****



PROGRAMMING IN JAVA

Assignment2

TYPE OF QUESTION: MCQ

Number of questions: 15

Total mark: $15 \times 1 = 15$

QUESTION 1:

Which of the following is **true** regarding the execution of Java applets?

- a. HTML file is mustto run an applet.
- b. Any file containing the <APPLET> tag can be used during an execution.
- c. Compilation of source is not needed for applet execution.
- d. The source file should be in the local machine.

Correct Answer:b

Detailed Solution:

Any file containing a valid <APPLET> ... </APPLET> is sufficient for appletviewer to run an applet provided that the code value in the tag correctly specify the location of the .class file. This location can be anywhere.

QUESTION 2:

Which of the following is a valid specifier with the *main()* method?

- a. public
- b. private
- c. protected
- d. default (i.e., nothing)

Correct Answer:a

Detailed Solution:

The *main()* method cannot be declared as private/ protected as it is to be invoked externally. It should be declared with *public* access specifier always.

QUESTION 3:

Consider the following object declaration statement


```
Scanner inp= new Scanner(System.in);
```

What is `System.in` in this declaration?

- a. Any file storing data
- b. Reference to standard input device, that is, keyboard
- c. Reference to a scanner as an input device
- d. It is a mouse as an input device

Correct Answer:b

Detailed Solution:

System.in refers to the keyboard as standard input device.

QUESTION 4:

Which of the following is a valid declaration of an object of class, say `Box`?

- a. `Box obj = new Box();`
- b. `Box obj = new Box;`
- c. `obj = new Box();`
- d. `new Box obj;`

Correct Answer:a

Detailed Solution:

Others are invalid declarations.

QUESTION 5:

Which of the following is a Class in Java?

- a. `int`
- b. `String`
- c. `short`
- d. `double`

Correct Answer:b

Detailed Solution:



String is class defined in *java.lang* package, whereas *int*, *short*, *double* are the built-in data type in Java programming language.

QUESTION 6:

Which of the following statement is **incorrect**?

- a. Every class must contain a `main()` method
- b. Applets do not require a `main()` method at all
- c. There can be only one `main()` method in a program
- d. `main()` method must be made public

Correct Answer:a

Detailed Solution:

A class can be declared with *main()* method. There is no *main()* method to be defined in a class which extends Applet. If a program contains more than one classes, then only one class will include the *main()* method. The *main()* method should be declared as public, no other specifier is valid.

QUESTION 7:

What is the output of the following program?

```
public class Test {
public static void main(String [ ] args) {
    Test t = new Test();
    t.start();
}
void start(){
    int a = 4;
    int b = 5;
    System.out.print(" " + 8 + 3 + " ");
    System.out.print(a + b);
    System.out.print(" " + a + b + " ");
    System.out.print(foo() + a + b + " ");
    System.out.println(a + b + foo());
}
String foo(){
    return "foo";
}
```



}

- a. 839 45foo45 9foo
- b. 9 7 7 foo34 34foo
- c. 72 34 34 foo34 34foo
- d. 9 7 7 foo 7 7foo

Correct Answer: a

Detailed Solution:

You should check the result with running the program.

QUESTION 8:

What is the return type of a method that does not return any value?

- a. int
- b. float
- c. void
- d. double

Correct Answer: c

Detailed Solution:

If a method does not return anything, then its return type should be void.

QUESTION 9:

What is the process of defining more than one method in a class having the same name but differentiated by method signature?

- a. Method overriding
- b. Method overloading
- c. Encapsulation
- d. Inheritance

Correct Answer: b

Detailed Solution:



If you define the same method (i.e., with same return type and list of arguments) in a sub class, then it is called *method overriding*. Whereas it is called *method overloading* (also called as *polymorphism*) when it is defined with the same method name but with different return type and/or different list of arguments (this is called signature of a method) within a class.

QUESTION 10:

Which of the following is called when a method having the same name as that the name of the class where it is defined?

- a. abstract
- b. this
- c. final
- d. constructor

Correct Answer: d

Detailed Solution:

In a class, if more than one method having the same name but with different signature is used, then it is called a constructor.

QUESTION 11:

```
public class Test{
    public static void main(String args[]){
        int x = 9;
        if (x == 9) {
            int x = 8;
            System.out.println(x);
        }
    }
}
```

- a. 8.
- b. 9.
- c. Compilation error.
- d. Runtime error.

Correct Answer:c



Detailed Solution:

Variable x is already defined in method main ();

QUESTION 12:

Which of the following statements is/ are **incorrect**?

- a. Two or more methods with the same name can be differentiated on the basis of their parameters data type.
- b. Two or more method having the same name can be differentiated on the basis of number of parameters.
- c. Any already defined method in Java library can be defined again in the program with different data type of parameters.
- d. No method can call another method without creating an object of the class to which it is defined.

Correct Answer:d

Detailed Solution:

Java supports (a), (b) and (c) as the programming feature called method overloading (also called polymorphism). Constructor for example can be called without creating any object.

QUESTION 13:

```
class Box {
    intwidth;
    intheight;
    intlength;
}

classTest {
    public static void main(String args[]) {
        Box b1 = new Box();
        Box b2 = new Box();
        b1.height = 1;b1.length = 2;b1.width = 3;
        b2 = b1;
        System.out.println(b2.height);
    }
}
```

}

- a. 1
- b. 2
- c. 3
- d. NULL

Correct Answer: a

Detailed Solution:

When we assign an object to another object of same class, all the elements of right side object get copied to object on the left side of = operator.

QUESTION 14:

What is the maximum number of arguments that can be passed to a method in Java?

- a. No arguments
- b. One
- c. Any number of arguments
- d. Varies from one compiler to another

Correct Answer: c

Detailed Solution:

Logically, there is no limit on the number of arguments that can be planned to pass values to a method.

QUESTION 15:

What is not the use of "this" keyword in Java?

- a. Passing itself to another method
- b. Calling another constructor in constructor chaining
- c. Referring to the instance variable when local variable has the same name
- d. Passing itself to method of the same class

Correct Answer: d



Detailed Solution:

The keyword *this* refers to the current class instance in which it is referred. In fact, *this* can be used to invoke current class method, can be passed as an argument in the method call and also it can be used to invoke current class constructor. Hence, all the statements (a)-(c) are correct except (d).

*****END*****



PROGRAMMING IN JAVA

Assignment3

TYPE OF QUESTION: MCQ

Number of questions: 15

Total mark: $15 \times 1 = 15$

QUESTION 1:

Which of the following is **true** about the break statement in Java?

- a. Break stops the execution of entire program.
- b. Break halts the execution and forces the control out of the loop.
- c. Break forces the control out of the loop and starts the execution of next iteration.
- d. Break halts the execution of the loop for certain time frame.

Correct Answer:b

Detailed Solution:

A break statement inside a loop will terminate the loop execution and the control jumps to the statement immediately after the last statement in the loop.

QUESTION 2:

Which of the following is usually used with the switch statement?

- a. continue
- b. exit
- c. break
- d. do

Correct Answer:c

Detailed Solution:

A break statement inside a switch statement is possible. It returns the control out of the switch construct.

QUESTION 3:

Which of these is used by operating system to manage the Recursion in Java?

- a. Array
- b. Stack

- c. Queue
- d. Tree

Correct Answer:b

Detailed Solution:

A stack is internally used by the Java run time manager to execute a recursive method.

QUESTION 4:

Carefully trace the following piece of code written in Java.

```
class A{
    static int x = 100;
    A() {
        x++;
        System.out.println(x);
    }
}
class B {
    public static void main(String[] args)
    {
        A a1 = new A();
        A a2 = new A();
    }
}
```

What will be the correct output from the above program.

- a. 100
101
- b. 101
102
- c. 100
100
- d. 100
103



Correct Answer:b

Detailed Solution:

There will be only one instance of the static variable. Further, the initialization of variable takes place only once. So, for a1 it prints 101 whereas for a2 it prints 102.

QUESTION 5:

Which of the following statements is/ are incorrect?

- a. public members of a class can be accessed by any code in the program.
- b. private members of class can only be accessed any members in the same class.
- c. private members of a class can be inherited by a subclass, and become protected members in subclass
- d. protected members of a class can be inherited by a subclass, and become private members of the subclass.

Correct Answer:c

Detailed Solution:

A private member can be inherited in a sub class, however, no method in the sub class can access the member.

QUESTION 6:

Which of the following access specifier must be used for class so that a sub class can inherit it?

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

Correct Answer:a

Detailed Solution:

Only public class can be inherited.

QUESTION 7:

A class member declared as protected becomes member of subclass of which type?

- a. public member
- b. private member
- c. protected member
- d. default member

Correct Answer: b

Detailed Solution:

A class member declared protected becomes private member of its subclass.

QUESTION 8:

Which inheritance in Java programming is not supported?

- a. Multiple inheritance using classes.
- b. Multiple inheritance using interfaces.
- c. Multilevel inheritance.
- d. Single inheritance.

Correct Answer: a

Detailed Solution:

Java does not support multiple inheritance of classes but it supports **multiple inheritance** for interfaces. Means, a class cannot inherit more than one class but it can inherit and implement multiple interfaces.

QUESTION 9:

How can a protected member be accessed?

- a. Accessible only within the class.
- b. Accessible only within package.
- c. Accessible within the package as well as outside the package but through inheritance only.
- d. Accessible to everywhere.



Correct Answer:c

Detailed Solution:

A protected member is accessible to any sub class of the class.

QUESTION 10:

Order of execution of constructors in Java Inheritance is

- a. Base to derived class.
- b. Derived to base class.
- c. Random order.
- d. No execution of a constructor in the derived class.

Correct Answer: a

Detailed Solution:

On object creation of derived class, first base class constructor and then derived class constructor will be called.

QUESTION 11:

Which of this keyword can be used in a subclass to call the constructor of superclass?

- a. super
- b. this
- c. extent
- d. extends

Correct Answer:a

Detailed Solution:

Using the super keyword, we can explicitly call a base class constructor.

QUESTION 12:

Advantage(s) of inheritance in Java programming is/are

- a. Code sharing
- b. Codemaintainability
- c. Code reusability
- d. All of the above



Correct Answer: d

Detailed Solution:

In fact, above benefits are related to each other. Frequent use of inheritance in Java language is for deriving classes from existing classes that provides reusability. In simple terms, once we have written a class then it can be extended or sub classed without changing the code of base class.

QUESTION 13:

For each description on the left, find the best matching modifier on the right. You may use a choice more than once or not at all.

- | | |
|---|----------------------|
| 1. Hides the instance variable from code in other files. | A. private |
| 2. Hides the method from code in other files. | B. public |
| 3. Hides the subclass from code in other files. | C. final |
| 4. Exposes the API method to code in other files. | D. static |
| 5. Prevents the value of the instance variable from being Changed once initialized. | E. none of the above |
| a. 1-A,2-A,3-C,4-D,5-E | |
| b. 1-A,2-A,3-A,4-B,5-C | |
| c. 1-C,2-B,3-A,4-A,5-D | |
| d. None of Above | |

Correct Answer: b

Detailed Solution:

This matching is as per the general rule of the access specifiers in Java.

QUESTION 14:

If there is an abstract method in a class then,

- a. Class must be abstract class.
- b. No object of the class can be created.
- c. Any sub class of the class may or may be abstract class.
- d. All of the above.

Correct Answer:d

Detailed Solution:



It is a rule that if a class has even one abstract method, it must be an abstract class. No object can be created for an abstract class. Further, if a class is derived from an abstract class and the abstract method is not defined in the base class, then the derived class is also abstract class.

QUESTION 15:

Suppose the class *Undergraduate* extends the class *Student* which extends the class *Person*. Given the following variable declaration:

```
Person p = new Person();  
Student s = new Student();  
Undergraduate ug = new Undergraduate();
```

Which of the following assignments are legal?

- I. `p = ug;`
- II. `p = new Undergraduate();`
- III. `ug = new Student();`
- IV. `ug = p;`
- V. `s = new Person();`

- a. I and IV
- b. III, II and IV
- c. I and II
- d. III and IV

Correct Answer: c

Detailed Solution:

Up casting is possible, that is, any derived class object can be assigned to its base class but opposite is not possible.

*****END*****



PROGRAMMING IN JAVA

Assignment 4

TYPE OF QUESTION: MCQ

Number of questions: 15

Total mark: $15 \times 1 = 15$

QUESTION 1:

For which purpose packages are used in Java?

- a. Categorizes data
- b. Organizing java classes into namespaces
- c. For faster compilation
- d. None

Correct Answer:b

Detailed Solution:

Java packages resolve the name conflicts among different classes.

QUESTION 2:

Which of the following keywords is used to define a package in Java?

- a. class
- b. implements
- c. extends
- d. package

Correct Answer: d

Detailed Solution:

For example: `package mypack;`

QUESTION 3:

Which of the following is an incorrect statement about packages?

- a. Package defines a namespace in which classes are stored.
- b. A package can contain other package within it.
- c. Java uses file system directories to store packages.



-
- d. A package can be renamed without renaming the directory in which the classes are stored.

Correct Answer: d

Detailed Solution:

Yes, where you have defined the package (this is a .java file) only that need to be changed. No need to change the directory where a package is stored.

QUESTION 4:

Which of these access specifiers can be used for an interface?

- a. public
- b. private
- c. protected
- d. All of the above

Correct Answer:a

Detailed Solution:

Access specifier of an interface is either public or no specifier. When no access specifier is used then default access specifier is used due to which interface is available only to other members of the package in which it is declared, when declared public it can be used by any code.

QUESTION 5:

Which of the following is an incorrect statement about packages?

- a. Interfaces specifies what class must do but not how it does.
- b. Interfaces are specified public if they are to be accessed by any code in the program.
- c. All variables in interface are implicitly final and static.
- d. All variables are static and methods are public if interface is defined public.

Correct Answer: d

Detailed Solution:

This is according to the general rule of the interface.



QUESTION 6:

Which one is correct declaration for implementing two interfaces?

- a. class C implements A, B { }
- b. class C implements A, implements B { }
- c. class C implements A extends B { }
- d. class C extend A, B { }

Correct Answer:a

Detailed Solution:

Here, (b) and (d) are syntactically wrong! (c) is valid but B is a class not an interface. Hence, the correct answer is (a)

QUESTION 7:

The fields in an interface are implicitly specified as

- a. public
- b. protected
- c. private
- d. static and final

Correct Answer: d

Detailed Solution:

Fields in an interface are by default, static and final.

QUESTION 8:

Let us consider the following piece of code in Java.

```
interface A {
    inti = 111;
}

class B implements A {
    void methodB() {
        i = 222;
        System.out.println(i);
    }
}
```



What will be the result of this code will be?

- a. There is no main () method so the program is not executable.
- b. The value of i will be printed as 111, as it is static and final by default.
- c. The value of i will be printed as 222, as it is initialized in class B.
- d. Compile time error

Correct Answer: d

Detailed Solution:

Because interface fields are static and final by default and you can't change their value once they are initialized. In the above code, methodB() is changing value of interface field A.i. It shows compile time error.

QUESTION 9:

Which of the following is/are true?

- 1) Every class is a part of some package.
 - 2) All classes in a file are part of the same package.
 - 3) If no package is specified, the classes in the file go into a special unnamed package.
 - 4) If no package is specified, a new package is created with folder name of class and the class is put in this package.
-
- a. Only 1, 2 and 3
 - b. Only 3 and 4
 - c. Only 1 and 3
 - d. Only 3

Correct Answer: a

Detailed Solution:

This according to the property of package concept in Java.

QUESTION 10:

Which of the following class inheritance is/ are not supported in Java?

- a. Single inheritance
- b. Hybrid inheritance
- c. Multilevel inheritance
- d. Multiple inheritance

Correct Answer:b, d

Detailed Solution:

Hint: Hybrid inheritance and multiple inheritance from two classes are not possible.

QUESTION 11:

If a class inheriting an abstract class does not define all of its methods, then it will be known as

- a. Abstract class.
- b. A normal class.
- c. Final class
- d. An interface

Correct Answer: a

It cannot be a normal class as its method(s) remain(s) abstract (by virtue of inheritance). A class with final specifier is “final class” only. Further, a class with abstract method is not an interface; hence, (d) is also not true.

QUESTION 12:

Does a subclass inherit both member variables and methods?

- a. No—only member variables are inherited.
- b. No—only methods are inherited.
- c. Yes—both are inherited - but not those are declared as private.
- d. Yes—only the members/ methods with protected are inherited.

Correct Answer:c

Detailed Solution:

Both members and methods are inheritable except those are not declared as private.



QUESTION 13:

Can an object subclass another object?

- a. Yes—as long as single inheritance is followed.
- b. No—inheritance is only between classes.
- c. Only when one has been defined in terms of the other.
- d. Yes—when one object is used in the constructor of another.

Correct Answer: b

Detailed Solution:

Object is an instance of class; all inheritance are applicable to class and interface type only.

QUESTION 14:

What is the output for the following Java program?

```
class Base {
    public void show() {
        System.out.println("Base show() called");
    }
}

class Derived extends Base {
    public void show() {
        System.out.println("Derived show() called");
    }
}

public class Main {
    public void show() {
        System.out.println("Main show() called");
    }
    public static void main(String[] args) {
        Base bb = new Derived();
        bb.show();
    }
}
```

- a. Base show() called
- b. Main show() called
- c. Derived show() called
- d. Compile time error



Detailed Solution:

QUESTION 15:

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

Detailed Solution:

*****END*****



PROGRAMMING IN JAVA

Assignment5

TYPE OF QUESTION: MCQ

Number of questions: 15

Total mark: $15 \times 1 = 15$

QUESTION 1:

Which of the following best describes the inheritance in Java?

- a. A sub class can access all the methods in the base class.
- b. A sub class can access alldata in the base class.
- c. A sub class can access both data and methods in the base class.
- d. A sub class not necessarily can access all data and all methods in the base class.

Correct Answer:d

Detailed Solution:

A sub class can inherit only the data and methods which are specified with public/ protected access specifier.

QUESTION 2:

If a class, say B inherits from a class, say A, then which one of the following statement is true?

- a. A data but not method if it is declared in A cannot be declared in B.
- b. A method but not data if it is declared in A cannot be declared in B.
- c. Both data and method declared in A can be declared in B.
- d. Nothing can be declared in B once declared in A.

Correct Answer:c

Detailed Solution:

Java inheritance supports method overriding, hence, method once defined in a base class can be redefined in a derived class. Further, java supports static scope rule, so a data with the same declaration is allowed both in base and derived class.

QUESTION 3:

Which of the following is true, for a derived class C when A and B are two interfaces?



- a. `class C extends A, B { ... }`
- b. `class C extends A implements B { ... }`
- c. `class C implements A, B { ... }`
- d. `class C implements A extends B { ... }`

Correct Answer:c

Detailed Solution:

In case of inheritance, `extends` is not applicable to interface.

QUESTION 4:

Which access type data gets derived as private member in derived class?

- a. `private`
- b. `public`
- c. `protected`
- d. `default`

Correct Answer:c

Detailed Solution:

A data/ method with `protected` becomes the `private` in the derived class.

QUESTION 5:

Suppose A and B are two classes. Then which of the following statements is true?

- a. `class D extends A, B { ... }`
- b. `class D extends A implements B { ... }`
- c. `class D implements A, B { ... }`
- d. `class D implements A extends B { ... }`
- e. None of the above

Correct Answer: e

Detailed Solution:

A class cannot extend two classes (i.e., multiple inheritance is not possible with classes). Further, A class cannot come under “implements” specification.

QUESTION 6:

All interface methods are implicitly

- a. public and final
- b. public and abstract
- c. protected and abstract
- d. private and abstract

Correct Answer:b

Detailed Solution:

All interface methods are implicitly public and abstract. In other words, a programmer need not to explicitly type the public or abstract modifiers in the method declaration.

QUESTION 7:

If a derived class object is created, which constructor is called first?

- a. Base class constructor is called first and then the derived class constructor.
- b. Derived class constructor is called first and then the base class constructor.
- c. Only derived class constructor is called.
- d. Only base class constructor is called.

Correct Answer:a

Detailed Solution:

The constructors are called in the order of level of inheritance, that is, if D inherits B, then B() is called first and then D().

QUESTION 8:

All variables defined in an interface should be

- a. public
- b. static
- c. final
- d. None of the above



Correct Answer: a, b, c

Detailed Solution:

All variables defined in an interface should be public, static and final. In other words, interfaces can declare only constants, no instance variables.

QUESTION 9:

All interface methods must not be?

- a. public
- b. static
- c. final
- d. abstract

Correct Answer: b, c

Detailed Solution:

An interface method must not be static. Also, it should not be final, as in the derived class it should be implemented.

QUESTION 10:

Which of the following is **not true** so far the inheritance is concerned?

- a. An interface can inherit one or more class(s).
- b. An interface cannot inherit another interface.
- c. A class can inherit from multiple interfaces at the same level.
- d. An interface can inherit from multiple interfaces at the same level.

Correct Answer: a, b

Detailed Solution: An interface can inherit another interface. A class can implement one and more than one interfaces.

QUESTION 11:

When does an exception occur?

- a. During the time of compilation of a Java program.
- b. During the time of execution of a Java program.
- c. Anytime, that is, during compilation and execution of a program.
- d. At the end of execution of a Java program, if there is an exception.

Correct Answer:b

Detailed Solution:

Exception occurs when there is a run time error, that is, during the time of execution.

QUESTION 12:

If there is a try block, then

- a. there should be a catch block.
- b. there may not be any catch block.
- c. there should be a finally block.
- d. there may be multiple catch blocks.

Correct Answer: d

Detailed Solution: A *try block* must be followed by *catch blocks* or *finally block* or *both*.

QUESTION 13:

Which of the following is true about try-catch construct in Java?

- I. A try-catch blocks must have a finally block.
 - II. A try block is limited to maximum two catch blocks.
 - III. Barring the Java virtual machine from exiting, the finally block will always be executed.
- a. I and III
 - b. I only
 - c. III only
 - d. I and II

Correct Answer: c

Detailed Solution:

A try block should be accompanied with at least one catch block and there is no limit on catch block(s). The finally block is not mandatory in try-catch construct, and if there is a finally block, then it will execute always even if there is no run time error, that is, exception in a program.

QUESTION 14:

Which of the following is TRUE?

- a. The multiple catch blocks should be listed in the order from general exception classes to more specialized ones.
- b. If there is no exception, the finally block will not be executed.
- c. If there are multiple catch blocks, only the first one matching the exception will be executed.
- d. If there are multiple catch blocks, all blocks that match the exceptions will be executed.

Correct Answer: c

Detailed Solution: There can be multiple catch blocks, but only the one that first matches the exception type is executed. That means you need to order the catch blocks properly.

QUESTION 15:

What is the output of the following code?

```
try {
    intnum = Integer.parseInt("Two thousand nineteen");
} catch (NumberFormatException e) {
    System.out.println("You don't have a number.");
} catch (Exception e) {
    System.out.println("Something went terribly wrong!");
}
finally {
    System.out.println("Program is in execution...");
}
```

- (a) You don't have a number.
Program is in execution...
- (b) Something went terribly wrong!
Program is in execution...
- (c) Program is in execution...
- (d) You don't have a number.
Something went terribly wrong!
Program is in execution...

Correct Answer: a

Detailed Solution:

There will be an error in the statement in the try { } block for which the exception object of type `NumberFormatException` will occur, which then be caught by the first catch { } block in the program.

QUESTION 16:

What is the output of this program?

```
classExceptionHandling    {
public static void main(String args[ ])    {
try {
int a, b;

                b = 0;
                a = 5 / b;
System.out.print("A");
                } catch(ArithmeticException e)    {
                System.out.print("B");
                }
finally {                {
                System.out.print("C");
                }
                }
}
}
```

- a. A
- b. B
- c. AC
- d. BC

Correct Answer: d

Detailed Solution:

There will be a divide-by-zero error in the statement `a = 5/b;` and as a consequence it will throw an exception object of type `ArithmeticException` which will be caught by the catch { } block in the program. From the point of exception, the control will jump to the catch block and then to the finally { } block.



QUESTION 17:

The exception class is defined in which of the following Java package?

- a. java.awt
- b. java.io
- c. java.lang
- d. java.util

Correct Answer: c

Detailed Solution:

The exception class and all its sub-classes are defined in `java.lang` package.

*****END*****



PROGRAMMING IN JAVA

Assignment6

TYPE OF QUESTION: MCQ

Number of questions: 15

Total mark: $15 \times 1 = 15$

QUESTION 1:

Which of the following is not suitable in a single CPU environment?

- a. Multiprogramming
- b. Multithreading
- c. Multiprocessing
- d. Multitasking

Correct Answer: c

Detailed Solution:

All are concurrent programming in a single CPU environment in the sense that execution of multiple processes are taken place except the multiprocessing where a process is executed with multiple processors.

QUESTION 2:

Which class/ interface should be considered to create a Java program to define multiple threads?

- a. Thread
- b. Runnable
- c. Exception
- d. No class/ interface is required to write a thread program.

Correct Answer: a, b

Detailed Solution:

There are two ways that a thread program can be defined in Java: Using the class Thread and interface Runnable. These two things are defined in `java.lang` package.

QUESTION 3:

What is/ are of the following method(s) necessary to be called to start the execution of a thread?

- a. `init()`

- b. start()
- c. run()
- d. None of the above as automatically a thread program starts its execution.

Correct Answer: b

Detailed Solution:

There is no init() method in the context of multithreaded programming in Java. The run() method is not needed to be defined in order to define a thread.

QUESTION 4:

Which will contain the body of the thread?

- a. run();
- b. start();
- c. stop();
- d. main();

Correct Answer: a

Detailed Solution:

The run() method to a thread is like the main() method to an application. Starting the thread causes the object's run method to be called in that separately executing thread.

QUESTION 5:

Let's consider the following program in Java.

```
class Test extends Thread {
    public void run() {
        System.out.println("I am from Run...");
    }
}

class MyProgram {
    public static void main(String[] args) {
        Test t = new Test();
        t.start();
    }
}
```



If you run this program the how many threads will be executed altogether?

- a. One thread only.
- b. Two threads only.
- c. Three threads only.
- d. No thread will run in this case.

Correct Answer: b

Detailed Solution:

Here, two thread objects will be in execution: One is the thread due to the execution of the `main()` method and other is the `run()` of the object `t`.

QUESTION 6:

A thread is defined using the `java.lang.Thread` class, which is as follows.

```
public class MyThread extends Thread {  
    public void run() {  
        // Some code here ...  
    }  
}
```

Which of the following statement will require to create a thread and then start running it?

- a. `MyThread t = new MyThread();`
 `t.start();`
- b. `MyThread t = new MyThread();`
 `t.run();`
- c. `MyThread t;`
 `t.start();`
- d. `MyThread t;`
 `t.run();`

Correct Answer: a

Detailed Solution:

The standard procedure of running a thread using class `Thread` is to define a thread class (e.g., here, the `MyThread` as a sub class of the class `Thread`) then in a `main()`, create a thread object of class `MyThread` and then call the `start()` method of the thread object.

QUESTION 7:

A thread is defined using the `java.lang.Runnable` interface, which is as follows.

```
public class MyThreadimplementsRunnable{  
  
    public void run()    {  
        // Some code here ...  
    }  
}
```

Which of the following statement will require to create a thread and then start running it?

- a. `MyThread t = new MyThread();`
 `t.start();`
- b. `MyThread t = new MyThread();`
 `t.run();`
- c. `Thread t = new Thread(MyThread);`
 `t.start();`
- d. `Thread t = new Thread(MyThread);`
 `t.run();`

Correct Answer: c

Detailed Solution:

The standard procedure of running a thread using `Runnable` interface is to create a class implementing the `run()` (e.g., here, the `MyThreadimplementsRunnable`) then in a `main()`, create a thread object of class `Thread` and then call the `start()` method of the thread object passing the class as an argument and then call the `start()` of the class `Thread`.

QUESTION 8:

What will happen if two threads of the different priority values are called to run simultaneously?

- a. The thread for which the `start()` is called first will start its execution first irrespective of their priority.



- b. The thread with higher priority value will start its execution first, completes its execution and then the thread with lower priority will start.
- c. The thread with lower priority value will start its execution first, completes its execution and then the thread with higher priority will start.
- d. The thread with higher priority value will start its execution first, and then the thread with lower priority will start. Subsequently, both the threads will run simultaneously.

Correct Answer:d

Detailed Solution:

When two threads are started from the `main()` method one after another. say, then the thread with higher priority value will start first and then the thread with lower priority and subsequently both the threads share the CPU simultaneously.

QUESTION 9:

How many priority values that a thread can be assigned?

- a. 2
- b. 3
- c. Any number of values within any range.
- d. Any number of values within the range of 1 to 10 both inclusive;

Correct Answer: b

Detailed Solution:

There are three priority values that a thread can be assigned: `MIN_PRIORITY` with the value 1, `NORM_PRIORITY` with the value 5, and `MAX_PRIORITY` with the value 10. If no priority value is assigned, then the default priority value is `NORM_PRIORITY`.

QUESTION 10:

What will happen if two threads of the same priority value are called to run simultaneously?

- a. Any one thread can start its execution with 50-50 chance for each.
- b. The thread for which the `start()` is called first will start its execution first.
- c. The order of execution is decided by the operating system (OS) of the system where the program is running.

- d. The thread whose run method is defined first in the program will be executed first.

Correct Answer: a

Detailed Solution:

When two threads with the same priority values are started from the `main()` method, then any one can start its execution first irrespective of the order their `start()` methods are called or their `run()` are defined.

QUESTION 11:

Consider the execution of the following programs.

```
class Thread1 extends Thread {
    public void run() {
        for(int i = 0; i < 3; i++) {
            System.out.print("A");
            System.out.print("B");
        }
    }
}

class Thread2 extends Thread {
    public void run() {
        for(int i = 0; i < 3; i++) {
            System.out.print("C");
            System.out.print("D");
        }
    }
}

class MainThread {
    public static void main(String args[]) {
        Thread1 t1 = new Thread1();
        Thread2 t2 = new Thread2();
        t1.start();
        t2.start();
    }
}
```

What will be the output likely to be?

- a. Will print in this order ABCDABCD...ABCD
- b. Will print in this order ACBDACBD...ACBD
- c. Will print CDABCDAB...CDAB
- d. Will print in any random order of A, B, C, D which is in fact different in different runs.

Correct Answer: d



Detailed Solution:

The order of output cannot be predicted, it can be in any order and the order is also not same from one run to another.

QUESTION 12:

Which of the following are the valid constructor(s) of Thread class?

- i. `Thread(Runnable r, String name;)`
- ii. `Thread();`
- iii. `Thread(int priority);`
- iv. `Thread(Runnable r, ThreadGroup g);`
- v. `Thread(Runnable r, int priority);`

- a. i and ii
- b. ii and iv
- c. i and iii
- d. ii and v

Correct Answer: a

Detailed Solution:

At the time of creating a thread object, neither its priority value nor its group can be set. All these settings are possible after the creation of thread objects only.

QUESTION 13:

Which of the following methods make thread leave the running state?

- i. `yield()`
- ii. `wait()`
- iii. `notify()`
- iv. `notifyAll()`
- v. `sleep(1000)`
- vi. `join()`
- vii. `suspend()`

- a. iii, iv and vii
- b. i, ii and iv
- c. i, ii, v, vi, vii
- d. i, iv and vii

Correct Answer: c

Detailed Solution:

notify() and notifyALL() methods changes the state of thread from blocked to runnable states.

QUESTION 14:

Consider the execution of the following programs.

```
class Thread1 extends Thread {
    synchronized(this) {
        public void run() {
            for(int i = 0; i < 3; i++) {
                System.out.print("A");
                System.out.print("B");
            }
        }
    }
}

class Thread2 extends Thread {
    synchronized(this) {
        public void run() {
            for(int i = 0; i < 3; i++) {
                System.out.print("C");
                System.out.print("D");
            }
        }
    }
}

class MainThread {
    public static void main(String args[]) {
        Thread1 t1 = new Thread1();
        Thread2 t2 = new Thread2();
        t1.start();
        t2.start();
    }
}
```

What will be the output likely to be when the we synchronized the execution of the threads?

- a. Will print in this order ABCDABCD...ABCD
- b. Will print in this order ACBDACBD...ACBD
- c. Will print CDABCDAB...CDAB
- d. Will print in any random sequence of AB, CD.

Correct Answer: d

Detailed Solution:



There will be pairs of AB and CDM and their order of appearance cannot be predicted, it can be in any order and the order is also not same from one run to another.

QUESTION 15:

Let us consider the following program segments.

```
class ThreadDemo implements Runnable {
    String x, y;
    public void run() {
        for(int i = 0; i < 10; i++)
            synchronized(this)
            {
                x = "Hello";
                y = "Java";
                System.out.print(x + " " + y + " ");
            }
    }

    public static void main(String args[]) {
        ThreadDemo run = new ThreadDemo ();
        Thread obj1 = new Thread(run);
        Thread obj2 = new Thread(run);
        obj1.start();
        obj2.start();
    }
}
```

- a. There will be an arbitrary order the two strings Hello and Java 10 times each.
- b. It will print Hello Java 20 times.
- c. It will print Hello 10 times and then Java 10 times.
- d. This program will not print anything.

Correct Answer: b

Detailed Solution:

A block with synchronized keyword is atomic, that is, when control enters into the block, it will not allow any other block in other threads to execute. Note that, here two threads namely obj1 and obj2 execute two loops (that is, two blocks of codes) simultaneously.

*****END*****



PROGRAMMING IN JAVA

Assignment7

TYPE OF QUESTION: MCQ

Number of questions: 15

Total mark: $15 \times 1 = 15$

QUESTION 1:

Which are the ways to read data from the keyboard?

- a. Using an object of DataInputStream class
- b. Directly from keyboard and using Scanner class
- c. Passing the data as command line input
- d. All of the above-mentioned ways

Correct Answer: d

Detailed Solution:

Note: Command line input provides data to the running program from the keyboard only.

QUESTION 2:

Which of the following streams contains the classes which can work on character stream?

- a. InputStream
- b. OutputStream
- c. FileReader
- d. FileWriter

Correct Answer: c, d

Detailed Solution:

Note: InputSteam and OutputStram classes work on byte streams.

QUESTION 3:

Which of the following methods of DataInputStraem class is used to read characters from a file?



- a. read()
- b. readChar()
- c. readLine()
- d. readUTF()

Correct Answer: b, d

Detailed Solution:

read() method reads a byte from a file. readLine() is used to read the entire buffer from the keyboard (as standard input file) and readUTF() read a character in unicode character encoding format.

QUESTION 4:

Which of the following classes can be used to implement the input stream that uses a character array as the source?

- a. BufferedReader
- b. FileReader
- c. CharArrayReader
- d. FileArrayReader

Correct Answer:c

Detailed Solution:

Note: FileArrayReader creates a stream to read an array from a file, whereas CharArrayReader class read an array of characters in memory (main memory).

QUESTION 5:

Which of the following methods help in clearing the contents of the buffer:

- a. flush()
- b. clear()
- c. close()
- d. exit()

Correct Answer: a

Detailed Solution:



Note: Clear() and exit() are not any valid methods defined in any class in java.io package. The close() method closed a stream.

QUESTION 6:

In which Java APIs the classes for handling all IO-streams are defined?

- a. java.lang
- b. java.util
- c. java.io
- d. java.awt

Correct Answer: c

Detailed Solution:

java.io package is meant for handling io-streams in Java program.

QUESTION 7:

Which of the following statements is/ are NOT true?

- a. While you are creating an instance of File class, and if you do not use the file naming according to the convention of the local machine, the constructor will throw an exception of class `IOException`.
- b. A File object can be opened for both reading and writing.
- c. When you create an object of Fileclass for writing, if the corresponding file does not exist on the local file system, then it will be created.
- d. Closing operation of a File object never faces any run-time error and hence need not to be placed under try-catch block.

Correct Answer: b

Detailed Solution:

You can open a File object either in read or write mode, but not both.

QUESTION 8:

Which of the following code is correct?



- a.
`FileWriterfileWriter = new FileWriter("../file.txt");`
`File file = new File(fileWriter);`
`BufferedWriterbufferedOutputWriter = new BufferedWriter(fileWriter);`
- b.
`BufferedWriterbufferedOutputWriter = new`
`BufferedWriter("../file.txt");`
`File file = new File(bufferedOutputWriter);`
`FileWriterfileWriter = new FileWriter(file);`
- c.
`File file = new File("../file.txt");`
`FileWriterfileWriter = new FileWriter(file);`
`BufferedWriterbufferedOutputWriter = new BufferedWriter(fileWriter);`
- d.
`File file = new File("../file.txt");`
`BufferedWriterbufferedOutputWriter = new BufferedWriter(file);`
`FileWriterfileWriter = new FileWriter(bufferedOutputWriter);`

Correct Answer: c

Detailed Solution:

The correct procedure would be to create a File object first, then create aFileWriter object with File object and finally create a stream object for writing in to the File object.

QUESTION 9:

Should FileReader be used to read a Java bytecode (e.g, a .class) file? Which of the following is an appropriate answer?

- a. No, bytecode files can only be executed, never read.
- b. No, the bytes in bytecode files are not intended to be interpreted as characters.
- c. Yes, any file can be read with FileReader under byte-stream class.
- d. Maybe, as long as the bytcodes were created on the same computer as the program usingFileReader.

Correct Answer: c

Detailed Solution:

Once can open a .class file and read its content using byte-stream class. However, the similar attempt with the FileReader class character stream is useless.

QUESTION 10:

Which of the following statement is NOT true for RandomSAccessFile object?

- a. It can allow to open a file both in read and write mode.
- b. It can allow to store the data fields of any object and then reading the same.
- c. The seek(0) method of the object place the file pointer at the beginning of the file.
- d. It cannot be used to read a network line.

Correct Answer: d

Detailed Solution:

The RandoAccessFile is related to secondary storage only.

QUESTION 11:

What method of an applet is called by the browser when it wishes to draw anything in the applet on the display screen?

- a. paint()
- b. drawLine()
- c. drwaString()
- d. setBackground()

Correct Answer: a

Detailed Solution:

The paint() method is the method, which calls any object of class Graphics to draw in it. For g.DrawLine(...) to draw a line.

QUESTION 12:

Which of the followingstements sets the background color of an applet to white?

- a. setColor(white);
- b. setColor(Color.white);
- c. setBackground(Color.white);
- d. setBackground(white);

Correct Answer:c



Detailed Solution:

The method `setBackground(...)` is used to change the back ground color of an applet. The argument value for this method should a constant, which is defined in class `Color`.

QUESTION 13:

Which of the following sequence of method calls take place when an applet begins?

- a. `paint()`, `start()`, `stop()`
- b. `start()`, `init()`, `paint()`
- c. `init()`, `start()`, `paint()`
- d. `init()`, `paint()`, `start()`

Correct Answer:c

Detailed Solution:

If `init()` is defined, then it will be executed followed by the `start()` and then `paint()` method.

QUESTION 14:

Which of the following methods is/are must and to be override?

- a. `init()`
- b. `start()`
- c. `stop()`
- d. `paint()`

Correct Answer:d

Detailed Solution:

The `init()` and `paint()` methods are to be defined, as these two methods are abstract methods in the class `Applet`. The `start()` method cannot be overridden as it is `final`. However, an applet program can be executed successfully without any one of the applet method in it. In this case, it will draw a blank applet.

QUESTION 15:

Which of the following is a valid code to be written in an HTML file for the applet program store in MyApplet.java file?

a.

```
<html>
<body>
<applet code="MyApplet.class">
</applet>
</body>
</html>
```

b.

```
<html>
<body>
<applet code="MyApplet.java" width=250 height=200>
</body>
</html>
```

c.

```
<html>
<applet code="MyApplet.class" width=250 height=200>
</applet>
</html>
```

d.

```
<html>
<body>
<applet code="MyApplet.class" height="250"width ="200">
</applet>
</body>
</html>
```

Correct Answer: c, d

Detailed Solution:

The Applet tage should include .class file with height and width parameters. They are not necessaruiy in a fixed order or to be mentioned within double codes “ “.

*****END*****



PROGRAMMING IN JAVA

Assignment 8

TYPE OF QUESTION: MCQ

Number of questions: 15

Total mark: $15 \times 1 = 15$

QUESTION 1:

Which of the following statement is/ are true about the execution of an applet?

- a. The browser downloads the .class file from the machine hosting the .html file.
- b. Applet cannot read any data (e.g., file, keyboard, etc.) from the browser machine.
- c. If any image, audio and video files are to be played, it needs to be downloaded from the host machine prior to the execution of the applet code.
- d. If a browser cannot understand a tag in an HTML file, the browser will simply ignore that and continue the processing of the next tag in the HTML file.

Correct Answer: d

Detailed Solution:

Earlier versions of the browsers were supporting the execution of applet hosted in an html file. Now, almost all browsers ignore the APPLET tag in html. However, there are some browsers (e.g., Mozilla, Netscape) support the execution of applets subject to the availability of some plug-ins.

QUESTION 2:

Which of the following is a valid HTML file to run an applet program store in MyApplet.java file?

- a.

```
<APPLET CODE = "MyApplet.class">
</APPLET>
```
- b.

```
<APPLET CODE="MyApplet.java"  WIDTH=250 HEIGHT=200>
```
- c.

```
<applet code="MyApplet.class"  width=250 height=200>
</applet>
```
- d.

```
<applet code="MyApplet"  height ="250" width ="200">
</applet>
```



Correct Answer: c, d

Detailed Solution:

The Applet tag should include .class file with height and width parameters. They are not necessarily in a fixed order or to be mentioned within double codes “ “. Option (b) is not correct as the matching of applet tag </applet> is missing.

QUESTION 3:

Which of the following is NOT necessarily TRUE for an html file?

- a. An html file is a case sensitive.
- b. The name of an html file hosting a class file not necessarily be the same as the name of the .class file.
- c. The extension of an html file may be .html or .htm
- d. An applet can read its input from an html file.

Correct Answer: a

Detailed Solution:

An html file is NOT case sensitive.

QUESTION 4:

What invokes immediately after the start() method?

- a. stop()
- b. init()
- c. paint()
- d. destroy()

Correct Answer: c

Detailed Solution:

There are five important methods in applet programming: init(), start(), paint(), stop() and destroy(). The executions of these methods are in the aforementioned stated order only.



QUESTION 5:

Which method is called only once during the run time of an applet?

- a. stop()
- b. paint()
- c. init()
- d. destroy()

Correct Answer: c

Detailed Solution:

init() is used to initialize an applet. Hence, it is called only once.

QUESTION 6:

Which is the container that doesn't contain title bar, but it can have other components like button, textfield, etc.?

- a. Window
- b. Frame
- c. Panel
- d. Container

Correct Answer: c

Detailed Solution:

Panel is a component unlike Frame, that does not have any title bar; otherwise, both are same.

QUESTION 7:

The class at the top of the AWT hierarchy is

- a. Component
- b. Window
- c. Container
- d. Frame

Correct Answer: c

Detailed Solution:

Others are the sub classes of the Container class.



QUESTION 8:

Which package provides many event classes and Listener interfaces for event handling?

- a. java.awt
- b. java.lang
- c. java.io
- d. java.util

Correct Answer: a

Detailed Solution:

The class Event is declared in java.awt package which is used for event classes and Listener interfaces for event handling.

QUESTION 9:

Give the abbreviation of AWT?

- a. Applet Window Toolkit
- b. Abstract Window Toolkit
- c. Absolute Window Toolkit
- d. None of the above

Correct Answer: b

Detailed Solution:

Such a package is called “abstract”, as it gives classes to define many elements required for window (i.e., GUI) programming.

QUESTION 10:

Name the class which is used to represent a GUI application window, and is optionally resizable and can have a title bar, an icon. Select the correct answer in the following.

- a. Window
- b. Panel
- c. Dialog
- d. Frame



Correct Answer: c

Detailed Solution:

The component Dialogue is resizable and can have a title bar, and an icon.

QUESTION 11:

Which class can be used to represent a checkbox with a textual label that can appear in a menu.
Select the one correct answer.

- a. MenuBar
- b. MenuItem
- c. CheckboxMenuItem
- d. Menu

Correct Answer: c

Detailed Solution:

The component CheckboxMenuItem is with a textual label that can appear in a menu.

QUESTION 12:

Which is/are used to create a Frame?

1. By creating the object of Frame class (association)
 2. By extending Frame class (inheritance)
- a. Only 1
 - b. Only 2
 - c. Both
 - d. None

Correct Answer: c

Detailed Solution:

A Frame object can be created using the Frame class itself as well as extending the Frame class..



QUESTION 13:

Which of the following methods can be used to change the size of a `java.awt.Component` object?

- (A) `dimension()`
- (B) `setSize()`
- (C) `area()`
- (D) `size()`
- (E) `resize()`

- a. (A), (B), (C) & (E)
- b. (D) & (E)
- c. (A), (B) & (E)
- d. (B) & (E)

Correct Answer: d

Detailed Solution:

The two methods, namely `setSize()` and `resize()` can be used to change the size of a component.

QUESTION 14:

Which of the following sets the frame, say frame to 300 pixels wide by 200 high?

- a. `fram.setSize(300, 200);`
- b. `fram.setSize(200, 300);`
- c. `fram.paint(300, 200);`
- d. `fram.setVisible(300, 200);`

Correct Answer: a

Detailed Solution:

The `setSize()` method is used to do the job.

QUESTION 15:

Fill in the blanks so that this program displays a Frame:



```
import java.awt.*;  
  
public class microGUI  
{  
    public static void main ( String[] args )  
    {  
        Frame frm = new _____ ( );  
        frm._____ ( 150, 100 );  
        frm._____ ( true );  
    }  
}
```

- a. Form, setVisible, setOn
- b. Frame, setSize, setVisible
- c. Frame, setVisible, setSize
- d. Window, setSize, paint

Correct Answer: b

Detailed Solution:

Here, we create frm as the Frame object, and then set its size and make its visibility is enabled.

*****END*****



OBJECT ORIENTED PROGRAMMING WITH JAVA

Assignment9

TYPE OF QUESTION: MCQ

Number of questions: 15

Total mark: $15 \times 1 = 15$

QUESTION 1:

Which package provides many methods for graphics programming?

- a. java.awt
- b. java.Applet
- c. java.Graphics
- d. java.io

Correct Answer: a

Detailed Solution:

There is no package like java.Graphics and java.Applet. The Graphics class and other classes, which are necessary for GUI programming is defined in java.awt package.

QUESTION 2:

In which of the following package, the class Applet is defined?

- a. java.awt
- b. java.applet
- c. javax.swing
- d. javax.jws

Correct Answer: b

Detailed Solution:

The Applet class is defined in java.applet package.

QUESTION 3:

Which of the following steps are must for any kind of event handling?

- a. Implement the listener method(s) to receive and process event related notifications



- b. Adding mouse listener in the init() method.
- c. Register the source(s) to receive notifications about specific type of event(s).
- d. Adding mouse motion listener in the main() method .

Correct Answer:a, c

Detailed Solution:

There are two basic steps so far the event handling is concerned: 1) Register all the sources of events and 2) implement the listener methods related to the event(s). The (b) and (d) are related to dealing with handling mouse event.

QUESTION 4:

Which of the following is/ are not related with keyboard event?

- a. ClassKeyEvent is used to notify if any key pressed occurs or not.
- b. The KeyListener should be added either in init() or the main method.
- c. RequestFocus should be added either in init() or the main method.
- d. The class InputEvent should be imported explicitly in the program.

Correct Answer:d

Detailed Solution:

The InputEvent class is the super class of all the sub classes dealing with events from different sources. When, we import java.awt.*, we import it automatically. No need to import it explicitly.

QUESTION 5:

Which of the following package supports event handling routine, when we use Swing components in GUI programs?

- a. Javax.swing
- b. Java.awt
- c. Java.util
- d. Java.applet

Correct Answer:b

Detailed Solution:

To support GUI programming, Java provides two packages: java.awt and javax.swing. Whatever be the GUI components, event handling classes are defined in java.awt.

QUESTION 6:

Which of the following displays components row-by-row in the order in which they were added to the JFrame?

- a. CardLayout
- b. FlowLayout
- c. BorderLayout
- d. GridLayout

Correct Answer: b

Detailed Solution:

Flow layout adds the components serially in the order in which they were added.

QUESTION 7:

Using a FlowLayout manager, which is the correct way to add elements to a container?

- a. add (component);
- b. add("Center", component);
- c. add(x, y, component);
- d. set(component);

Correct Answer:a

Detailed Solution:

add() - Other options are not valid in the context of FlowLayout manager.

QUESTION 8:

What will be the output produced by the following piece of code?

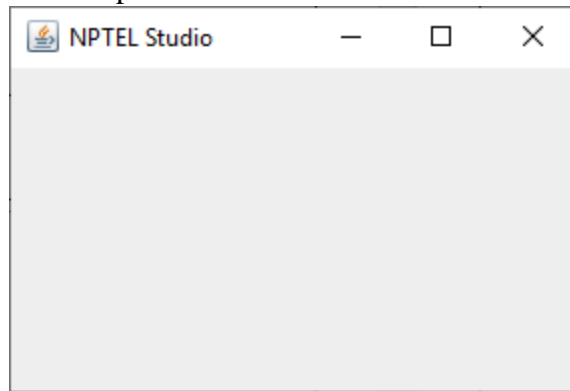
```
public class MyWindow {  
    public static void main(String args[]){  
        JFrame myWindow = new JFrame();  
        myWindow.setSize(300, 200);  
        myWindow.setTitle("NPTEL Studio");  
        JLabel myLabel;  
        JButton myButton = new JButton("Exit");  
        myWindow.setVisible(true);  
    }  
}
```

- a. A window with a title and a button.
- b. Only a window.
- c. Only a button.
- d. Only a window with a title and without any button.

Correct Answer: d

Detailed Solution:

Below is the screen-shot of the output.



QUESTION 9:

Which layout manager places components in one of five regions: north, south, east, west, and center?

- a. CardLayout
- b. GridLayout
- c. BorderLayout
- d. FlowLayout

Correct Answer:c

Detailed Solution:

This is the layout that the BorderLayout does.

QUESTION 10:



The `MouseListener` interface specifies the following methods: `mouseClicked`, `mouseEntered`, `mouseExited`, `mousePressed`, and `mouseReleased`. In order to use a `MouseListener` in your code, you must provide an implementation for which of the following?

- a. None of the `MouseListener` methods.
- b. All `MouseListener` methods.
- c. At least the `mouseClicked` method.
- d. Any one `MouseListener` method.

Correct Answer:b

Detailed Solution:

You should implement all the methods, otherwise, the corresponding event for which the method(s) is (are) not implemented will get un-notified.

QUESTION 11:

Which class is used to create a pop-up list of items from which the user may choose?

- a. `JList`
- b. `JChoice`
- c. `JLabels`
- d. `JCheckbox`

Correct Answer: b

Detailed Solution:

The `JChoice` component creates a pop-up list.

QUESTION 12:

Consider a subclass of `JFrame` that implements `MouseListener`. Assume that the class has five instance data, `int x1, x2, y1, y2`, and `boolean inside`. The four `int` values represent the two end-points of a box (`x1, y1` is the upper left hand point and `x2, y2` is the lower right hand point). Which of the following properly defines code that will determine whenever the mouse button is clicked if the mouse is currently inside this box or not. If the mouse is inside the box, `inside` is set to `true`, otherwise it is set to `false`.

- a.

```
public void mouseMoved(MouseEvent me){  
    if(me.getX() >= x1 && me.getX() <= x2 && me.getY() >= y1 && me.getY() <= y2)  
        inside = true;  
}
```

```
        else
            inside = false;
        }
    b. public void mousePressed(MouseEvent me) {
        if(me.getX()>=x1 &&me.getX()<=x2 &&me.getY()>=y1 &&me.getY()<=y2)
            inside = true;
        else
            inside = false;
        }
    c. public void mouseReleased(MouseEvent me){
        if(me.getX()>=x1 &&me.getX()<=x2 &&me.getY()<=y1 &&me.getY()>=y2)
            inside = true;
        else
            inside = false;
        }
    d. public void mouseEntered(MouseEvent me){
        if(me.getX()>=x1 &&me.getX()<=x2 &&me.getY()>=y1 &&me.getY()<=y2)
            inside = true;
        else
            inside = false;
        }
    }
```

Correct Answer: c

Detailed Solution:

Once the MouseReleased event takes place, then only it will notified the event and hence its position where the event takes place.

QUESTION 13:

How many frames will be displayed according to the following program?

```
import javax.swing.*;
public class Test{
    public static void main(String[] args){
        JFrame f1 = new JFrame("My Frame");
        JFrame f2 = f1;
        JFrame f3 = f2;
        f1.setVisible(true);
        f2.setVisible(true);
        f3.setVisible(true);
    }
}
```

- a. 0
- b. 1
- c. 2
- d. 3



Correct Answer: b

Detailed Solution:

Although there are three frames declared, eventually they refer to only one frame.

QUESTION 14:

To set a FlowLayout in a panel, sayjp, which of the following method(s) that you can use?

- a. `jp.setLayout(new FlowLayout());`
- b. `jp.setLayout(new FlowLayout(FlowLayout.CENTER));`
- c. `jp.setLayout(new FlowLayout(FlowLayout.center));`
- d. `jp.setLayout(FlowLayout());`

Correct Answer: a, b

Detailed Solution:

(c) and (d) are not valid according to the syntax.

QUESTION 15:

Analyze the following code.

```
import java.awt.*;
import javax.swing.*;

public class Test {
    public static void main(String[] args) {
        JFrame frame = new JFrame("My Frame");
        frame.add(new JButton("OK"));
        frame.add(new JButton("Cancel"));
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(200, 200);
        frame.setVisible(true);
    }
}
```

Which button will be displayed?

- a. OK
- b. Cancel
- c. both
- d. None

Correct Answer: b



Detailed Solution:

By default, the layout of the content pane in a JFrame is BorderLayout. Button OK is placed in the center of content pane, then button Cancel is placed in the same place. So you only can see button Cancel.

*****END*****



OBJECT ORIENTED PROGRAMMING WITH JAVA

Assignment10

TYPE OF QUESTION: MCQ

Number of questions: 15

Total mark: $15 \times 1 = 15$

QUESTION 1:

Which of these package contains classes and interfaces for networking?

- a. java.io
- b. java.util
- c. java.net
- d. javax.swing

Correct Answer: c

Detailed Solution:

The java.net packages includes many classes and interfaces for network programming in Java.

QUESTION 2:

Which of the following represents a computer uniquely?

- a. URL
- b. Port Number
- c. IP Address
- d. Mac Address

Correct Answer:c, d

Detailed Solution:

The IP address (a logical address) and Mac address (physical address) are to indicate a unique identification to a computer connected in a network. On the other hand, URL is used to indicate a specific location of a document/ program, for example, an HTML page. Next, a port number is used in TCP/IP and UDP networks, where a port is an endpoint to a logical connection and the way a client program specifies a specific server program on a computer in a network (that is to uniquely identify different applications). Also, a port number is used to identify what type of port it is.



QUESTION 3:

In the following URL, identify the protocol identifier?

`https://nptel.ac.in:8080/course.php`

- a. https
- b. nptel.ac.in
- c. //nptel.ac.in:80/course.php
- d. 8080

Correct Answer:a

Detailed Solution:

Here, https is the protocol for communication between two communication. The option (b) is the identity of the server, where course.php can be found. (c) is called resource name and 80 is the port number, that is, the address for a logical connection so that a client program can connect to the server program.

QUESTION 4:

Which of the following protocol follows connection less service?

- a. TCP
- b. TCP/IP
- c. UDP
- d. HTTP

Correct Answer:c

Detailed Solution:

TCP is connection-oriented, IP and UDP are connection-less, TCP/IP is thus connection-less protocol. HTTP is a stateless and not actually connection less. In other words, (a)-(c) are transport layer protocols, whereas HTTP is an application layer protocol.

QUESTION 5:

Which of the following statement is NOT true?

- a. TCP is a reliable but slow.
- b. UDP is not reliable but fast.



- c. File Transfer Protocol (FTP) is a standard Internet protocol for transmitting files between computers on the Internet over TCP/IP connections.
- d. In HTTP, all communication between two computers are encrypted.

Correct Answer: d

Detailed Solution:

HTTPS is the secure version of HTTP, where all communications between two computers are encrypted. The secure communication is not true in case with HTTP.

QUESTION 6:

Which of the following statement is TRUE?

- a. With stream sockets there is no need to establish any connection and data flows between the processes are as continuous streams.
- b. Stream sockets are said to provide a connection-less service and UDP protocol is used
- c. Datagram sockets are said to provide a connection-oriented service and TCP protocol is used
- d. With datagram sockets there is no need to establish any connection and data flows between the processes are as packets.

Correct Answer:d

Detailed Solution:

So far the stream sockets are concerned 1) a process establishes a connection to another process, 2) data flows between the processes are continuous streams, 3) provides a connection-oriented service and 4) TCP is used. On the other hand, with datagram sockets, with datagram sockets 1) individual packets of information are transmitted, 2) the transmission of packets follows a connection less service and 3) the UDP protocol is used.

QUESTION 7:

Which of the following method call is valid to obtain the server's hostname by invoking an applet?

- a. `getCodeBase().host()`
- b. `getCodeBase().getHost()`
- c. `getCodeBase().hostName()`
- d. `getCodeBase().getHostName()`



Correct Answer:b

Detailed Solution:

Option (b) is the correct syntax in this context.

QUESTION 8:

The server listens for a connection request from a client using which of the following statement?

- a. `Socket s = new Socket(ServerName, port);`
- b. `Socket s = serverSocket.accept();`
- c. `Socket s = serverSocket.getSocket();`
- d. `Socket s = new Socket(ServerName);`

Correct Answer:b

Detailed Solution:

Option (b) is the correct statement for listening to a client request.

QUESTION 9:

The client requests a connection to a server using which of the following statement?

- a. `Socket s = new Socket(ServerName, port);`
- b. `Socket s = serverSocket.accept();`
- c. `Socket s = serverSocket.getSocket();`
- d. `Socket s = new Socket(ServerName);`

Correct Answer: a

Detailed Solution:

Option (a) is the correct statement for connecting to a server.

QUESTION 10:

To connect to a server running on the same machine with the client, which of the following cannot be used for the hostname?

- a. "localhost"



- b. "127.0.0.1"
- c. InetAddress.getLocalHost(),
- d. "127.0.0.0".

Correct Answer:d

Detailed Solution:

Options (a)-(c) are the valid names of a server, when both client socket and server socket run in the same machine.

QUESTION 11:

In the socket programming, for an IP address, which can be used to find the host name and IP address of a client/ server?

- a. The ServerSocket class
- b. The Socket class
- c. The InetAddress class
- d. The Connection interface

Correct Answer: c

Detailed Solution:

An object of the InetAddress class is used to obtain the IP address and the host name of a client/ server computer connected in a network.

QUESTION 12:

To create an InputStream on a socket, say s, which of the following statement is necessary?

- a. InputStream in = new InputStream(s);
- b. InputStream in = s.getInputStream();
- c. InputStream in = s.obtainInputStream();
- d. InputStream in = s.getStream();

Correct Answer: b

Detailed Solution:

The getInputStream() for a socket is required to read from a socket.



QUESTION 13:

Which of the following protocols is/are for splitting and sending packets to an address across a network?

- a. TCP/IP
- b. FTP
- c. SMTP
- d. UDP

Correct Answer: a, d

Detailed Solution:

Here, TCP/IP and UDP use datagram streams.

QUESTION 14:

Consider the following piece of code.

```
import java.net.*;

class Networking{
    public static void main(String[] args) throws UnknownHostException{
        try{
            URL url=new URL("https://www.google.com");
            InetAddress obj1 =InetAddress.getByName("www.google.com");
            InetAddress obj2 =InetAddress.getByName(url.getHost());
            boolean x = obj1.equals(obj2);
            System.out.println(x);
        }
        catch(Exception e){}
    }
}
```

Which will be the output of the program?

- a. 0
- b. 1
- c. true
- d. false

Correct Answer: c

Detailed Solution:

Objects obj1 and obj2 contains the same host name and IP address, though they have been initialized by different methods.



QUESTION 15:

Consider the following piece of code.

```
import java.net.*;

class networking {
public static void main(String[] args) throws MalformedURLException {
try {
        URL obj = new URL("http://www.xyz.com/java");
System.out.print(obj.getPort());
        } catch (Exception e) { }
}
}
```

Which will be the output of the program?.

- a. 1
- b. 0
- c. -1
- d. garbage value

Correct Answer: c

Detailed Solution:

Since the URL does not have explicitly the port number, the default value, that is, -1 is printed.

*****END*****



OBJECT ORIENTED PROGRAMMING WITH JAVA

Assignment11

TYPE OF QUESTION: MCQ

Number of questions: 15

Total mark: $15 \times 1 = 15$

QUESTION 1:

Which of the following statement is TRUE?

- a. SQL is a database management system based on relational algebra.
- b. SQL is a programming language like C, C++ and Java.
- c. SQL is case-sensitive.
- d. SQL is used in Java programs with JDBC to process data in DBMS.

Correct Answer:d

Detailed Solution:

SQL is not a DBMS like MySQL. It is a command processing using 4GL unlike all programming languages, which are 3GL and SQL is not-case-sensitive.

QUESTION 2:

The package, which is required to be imported for the JDBC programming?

- a. java.net
- b. java.sql
- c. java.lang
- d. java.io

Correct Answer:b

Detailed Solution:

All classes and interfaces related to JDBC are defined in java.sql package.



QUESTION 3:

Which of the following is true about MySQL?

- a. MySQL is a database system used on the web.
- b. MySQL is a database system that runs on a server.
- c. MySQL uses standard SQL.
- d. MySQL is used to create a table, enter data into table, update records in a table and retrieving data from a table.
- e. All of the above.

Correct Answer:e

Detailed Solution:

All of the above-mentioned statements are true so far the MySQL is concerned.

QUESTION 4:

The SQL command “USE test”implies,which of the following?

- a. List all the databases those are there in the database server.
- b. List all the tables those are there under the database.
- c. Create a table called test.
- d. Set test as the current working database, so that any SQL command bind to the test database only.

Correct Answer:d

Detailed Solution:

The USE command is used to set the current working database.

QUESTION 5:

Which of the following SQL command(s) is/are used for entering a new record into a table, say TEST?

- a. SELECT
- b. CREATE
- c. INSERT



d. UPDATE

Correct Answer:c

Detailed Solution:

The INSERT INTO command is used to insert a record in to a table provided that a table already exists. If the table contains record, then the current record will be added at the end of the table.

QUESTION 6:

Which of the following best describes about JDBC?

- a. JDBC works like a bridge connecting a Java application to a RDBMS, execute SQL commands and return results to the application.
- b. JDBC is a software component, which is both network and database independent.
- c. JDBC should be installed in the same machine from where the Java application will run.
- d. JDBC should be installed in the same server that of the database.

Correct Answer:a

Detailed Solution:

The JDBC driver for different databases is different. But, as an end-user, we don't have to bother about their implementation. The networking is also not an issue for the users. Further, JDBC can be installed anywhere in between the client and server.

QUESTION 7:

Which JDBC driver is efficient and always preferable for using JDBC applications?

- a. Type – 1
- b. Type – 2
- c. Type – 3
- d. Type – 4

Correct Answer:d

Detailed Solution:



The JDBC Driver Type-4 is better compared to all other drivers because it performs better than all other drivers. No software is required at client side or server side.

QUESTION 8:

In JDBC, all raw data types (including binary documents or images) should be read and uploaded to the database as an array of

- a. int
- b. char
- c. byte
- d. String

Correct Answer:c

Detailed Solution:

All data types should be read and uploaded to the database as an array of bytes.

QUESTION 9:

The class `java.sql.Timestamp` has its super class as

- a. `java.sql.Time`
- b. `java.util.Date`
- c. `java.util.Time`
- d. `java.lang.Date`

Correct Answer:b

Detailed Solution:

The `java.sql.Timestamp` inherits `java.util.Date` class.

QUESTION 10:

Once a JDBC driver has been registered, what method is used to make the database connection?

- a. `getConnection(String url, String userID, String password)`
- b. `setConnection(String url, String userID, String password)`
- c. `Connect(String url, String userID, String password)`
- d. Any one of the above.



Correct Answer: a

Detailed Solution:

The `getConnection(String url, String userID, String password)` method is used to make the database connection.

QUESTION 11:

What is/ are the steps required to include in a Java program using JDBC?

- a. Create a Connection object.
- b. Grab the connection with the DriverManager.
- c. Create a statement object from the connection.
- d. Get the ResultSet object and use it.
- e. All of the above.

Correct Answer: e

Detailed Solution:

These are the four basic steps to be followed as the JDBC program in Java.

QUESTION 12:

How do you know in your Java program that a SQL warning is generated as a result of executing a SQL statement in the database?

- a. You must catch the checked `SQLException` which is thrown by the method which executes the statement.
- b. You must catch the unchecked `SQLWarningException` which is thrown by the method which executes the statement.
- c. You must invoke the `getWarnings()` method on the Statement object (or a sub interface thereof).
- d. You must query the ResultSet object about possible warnings generated by the database.

Correct Answer: c

Detailed Solution:

The `getWarnings()` method can return, if the SQL database server returns any error or warning.



QUESTION 13:

Which of the statements are correct about JDBC transactions?

- a. A transaction is a set of successfully executed statements in the database
- b. A transaction is finished when commit() or rollback() is called on the Connection object,
- c. A transaction is finished when commit() or rollback() is called on the Transaction object
- d. A transaction is finished when close() is called on the Connection object.

Correct Answer: b, d

Detailed Solution:

A transaction is finished when commit(), rollback() or close() method is called on the Connection object.

QUESTION 14:

What is the use of PreparedStatement?

- a. It makes the Connection object to be getting ready.
- b. It executes SQL query and returns the data in a table (ResultSet) object.
- c. It determines the number of rows a ResultSet can contain.
- d. It is a precompiled series of SQL statements to be executed at one go.

Correct Answer: d

Detailed Solution:

The PreparedStatement is used for executing a precompiled SQL statement

QUESTION 15:

Which of the following is/ are interface(s)?

- a. DriverManager.
- b. Connection.
- c. Statement.
- d. ResultSet.

Correct Answer: b, c



Detailed Solution:

This **DriverManager** class manages a connection requests from the Java application with the proper database driver using communication sub protocol. This **ResultSet** class retrieves data from a database server after executing an SQL query using Statement objects. It acts as an iterator to allow you to move through its data. This **interface** Connection is responsible for communicate to a database server, i.e., all communication with database is through Connection object only. The Statement **interface** is used to submit the SQL statements to the database server.

*****END*****



OBJECT ORIENTED PROGRAMMING WITH JAVA

Assignment 12

TYPE OF QUESTION: MCQ

Number of questions: 15

Total mark: $15 \times 1 = 15$

QUESTION 1:

Which of the following control expression is valid for an **if** statement in Java?

- a. Any integer expression.
- b. Any Boolean expression.
- c. A String object.
- d. Any expression with mixed arithmetic.

Correct Answer: b

Detailed Solution:

Java only supports Boolean datatype in if statement.

QUESTION 2:

Consider the following class definition:

```
class Student extends String {  
  
}
```

Which of the following statement is TRUE?

- a. Code will not compile because the body is not defined.
- b. Code will not compile because the class is not declared as public.
- c. Code will not compile because of the super class String.
- d. Code will compile successfully.

Correct Answer: c

Detailed Solution:

One cannot extend a class which is declared as final. The `java.lang.String` class is final.



QUESTION 3:

Which of the following cannot protect a class (non sub-class) in a package from accessibility by the class outside the package?

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

Correct Answer: c

Detailed Solution:

The private access modifier makes a class private in the sense that the methods or data members are accessible only within the class in which they are declared. Any other class of same package (or in other package) will not be able to access these members. In other words, private means “only visible within the enclosing class”. If a class is declared as protected, then only different package non-subclass is unaccessable. The default class is accessible within the same package only. Only public gives the freedom of accessibility everywhere.

QUESTION 4:

We would like to make a member of a class invisible in all sub classes regardless of what package they are in. Which of the following keywords would achieve this?

- a. public
- b. private
- c. protected
- d. final

Correct Answer: b

Detailed Solution:

A private member is not accessible to any sub-class, whether it is within the same package or different package.

QUESTION 5:

Which of the following is/ are reserved keyword(s)?

- a. switch



- b. string
- c. Boolean
- d. this

Correct Answer: a, d

Detailed Solution:

In Java, boolean and String are reserved keywords. Since the Java language is case sensitive string and Boolean are different from String and boolean, respectively.

QUESTION 6:

Which of the following method(s) belong(s) to the **String** class?

- a. length()
- b. compareTo()
- c. equals()
- d. substring()
- e. All of them

Correct Answer: e

Detailed Solution:

Consult the String class in java.lang package (<https://docs.oracle.com/javase/7/docs/api/>) to see what are the methods there.

QUESTION 7:

Consider the following piece of code in Java.

```
public class Test{
    public static void main(String args[]){
        class Foo{
            public int i = 3;
        }
        Object o = (Object)new Foo();
        Foo foo = (Foo)o;
        System.out.println("i = " + foo.i);
    }
}
```

Which of the following is the result?



- a. `i = 3`
- b. The program will not be able to compile successfully.
- c. A `ClassCastException` is thrown at line 6
- d. A `ClassCastException` is thrown at line 7

Correct Answer: a

Detailed Solution:

Class Object is a super class of any class and any subclass object can be up casted to its superclass object, hence line 6 and 7 executes without error.

QUESTION 8:

Which of the following statements would not cause a compiler error?

- a. `float[] = new float(3);`
- b. `float f2[] = new float[];`
- c. `float[] f1 = new float[3];`
- d. `float f3[] = new float[3];`
- e. `float f5[]={ 1.0f, 2.0f, 2.0f };`
- f. `float f4[] = new float[] { 1.0f, 2.0f, 3.0f};`

Correct Answer: c, d, e, f

Detailed Solution:

Option (c), (d), (e) and (f) are syntactically correct to declare an array.

QUESTION 9:

Consider the following piece of code in Java.

```
public class Test {
    public static void aMethod() throws Exception {
        try {
            throw new Exception();
        }
        finally {
            System.out.print("finally ");
        }
    }
    public static void main(String args[]){
        try {
```



```
        aMethod();  
    }  
    catch (Exception e) {  
        System.out.print("exception ");  
    }  
    System.out.print("finished ");  
}  
}
```

What is the result?

- a. finally
- b. exception finished
- c. finally exception finished
- d. Compilation fails

Correct Answer: c

Detailed Solution:

The program is syntactically correct and here for two try blocks, there is one catch block.

QUESTION 10:

Consider the following piece of code in Java.

```
class A {  
    protected int method1 (int a, int b){  
        return 0;  
    }  
}
```

Which of the following are valid in a class that extends class A?

- a.

```
public int method1(int a, int b) {  
    return 0;  
}
```
- b.

```
private int method1(int a, int b) {  
    return 0;  
}
```
- c.

```
private int method1(int a, long b) {  
    return 0;  
}
```
- d.

```
public short method1(int a, int b) {  
    return 0;  
}
```



```
}  
e. static protected int method1(int a, int b) {  
    return 0;  
}
```

Correct Answer: b

Detailed Solution:

A protected member in super class become private member in its sub class. Anyway, as the method polymorphism, all of the above except (e) are valid.

QUESTION 11:

Consider the following piece of code in Java.

```
public class X implements Runnable {  
    private int x;  
    private int y;  
    public static void main(String [] args) {  
        X that = new X();  
        (new Thread( that )).start();  
        (new Thread( that )).start();  
    }  
  
    public void run() {  
        for (;;) {  
            synchronized (this) {  
                x++;  
                y++;  
            }  
            System.out.println(Thread.currentThread().getName() + "x = " + x + ",  
y = " + y);  
        }  
    }  
}
```

What the result is expected from the above?

- The program prints pairs of values for x and y that might not always be the same on the same line (for example, "x = 2, y = 1")
- The program prints pairs of values for x and y that are always the same on the same line (for example, "x = 1, y = 1"). In addition, each value appears only once (for example, "x = 1, y = 1" followed by "x = 2, y = 2"). The thread name at the start of the line shows that both threads are executing concurrently.



- c. The program prints pairs of values for x and y that are always the same on the same line (for example, “x = 1, y = 1”)
- d. In addition, each value appears only once (for example, “x = 1, y = 1” followed by “x = 2, y = 2” and so on). The thread name at the start of the line shows that only a single thread is actually executing.

Correct Answer: c

Detailed Solution:

Here, two threads will run concurrently and as they are synchronized so print will be in that order. However, order of printing may be arbitrary.

QUESTION 12:

Which of the following statement is correct?

- a. The appletviewer can run any file irrespective of the file extension as .htm.
- b. The CheckboxGroup class is a subclass of the Component which is defined in the java.io package.
- c. The CODE value in an <APPLET> tag must name a class file that is in the same directory as in the calling directory.
- d. An applet can contain a component Frame.

Correct Answer: a

Detailed Solution:

Note: ChckboxGroup is defined in java.awt package. For an applet, the .class file can be anywhere and an applet cannot contain a frame.

QUESTION 13:

Which of the statements are correct about Swing programming?

- a. AWT is a heavyweight programming.
- b. Swing is heavyweight programming.
- c. Swing is lightweight programming.
- d. Both AWT and Swing are lightweight programming

Correct Answer: c

Detailed Solution:

Swing is lightweight compared to the AWT.



QUESTION 14:

What is the use of Socket and ServerSocket??

- a. The class Socket is used to run two programs in two different machines and then communicate each other.
- b. The class Socket is used to run two programs in the same machines and then communicate each other.
- c. The class ServerSocket is used to run two programs in two different machines and then communicate each other.
- d. The class ServerSocket is used to run a program in a machine and then listen to other programs defined with Socket class.

Correct Answer: d

Detailed Solution:

The ServerSocket and Socket are the classes used to build Client-Server systems.

QUESTION 15:

Execution of SQL command like `SELECT * FROM myTable` using JDBC program will return a ResultSet object. This object is

- a. Same as the myTable.
- b. All records in verbatim from the table.
- c. All records in verbatim from the table but those records with null values.
- d. All records in verbatim from the table but those records are not with null values.

Correct Answer: b

Detailed Solution:

The ResultSet object includes all records stored as an array of records and irrespective of whether a record contains null value(s) or not.

*****END*****