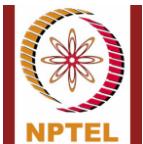
**PROGRAMMING IN JAVA****Assignment 1****TYPE OF QUESTION: MCQ****Number of questions:** 10**Total mark:**  $10 \times 1 = 10$ **QUESTION 1:****Which of the following code fragment(s) is/are true?**

- a. public class Main
  - {  
    static public void main(String[] argv) {  
        System.out.println("Hello World");  
    }  
}
- b. public class Main
  - {  
    static public void main(String[] args) {  
        System.out.println("Hello World");  
    }  
}
- c. public class Main
  - {  
    public static void main(String[] args) {  
        System.out.println("Hello World");  
    }  
}
- d. public class Main
  - {  
    public static void main(String[] argv) {  
        System.out.println("Hello World");  
    }  
}

**Correct Answer: a,b,c,d****Detailed Solution:**

The modifiers public and static can be written in either order (public static or static public). You can name the argument anything you want, but most programmers choose "args" or "argv".



### **QUESTION 2:**

Which of the following is not a valid comment?

- a. /\*\* comment \*/
- b. /\* comment \*/
- c. /\* comment
- d. // comment

**Correct Answer: c**

### **Detailed Solution:**

Option c :/\* comment .

This is not valid comment statement

---

### **QUESTION 3:**

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 4:**

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 5:**

**When you compile a program written in the Java programming language, the compiler converts the human-readable source file into platform-independent code that a Java Virtual Machine can understand. What is this platform-independent code called?**

- a. Source code
- b. Bytecode
- c. Machinecode
- d. Opcode

**Correct Answer: b**

**Detailed Solution:**

Byte code is an intermediate code between source code and machine code that is executed by an interpreter such as JVM. e.g., Java class files.

---

**QUESTION 6:**

**Consider the following program.**

```
public class Question{
    public static void main(String args[]){
        for(int a=1;a<2;a+=1){
            System.out.print(a++ + a);
        }
    }
}
```

What will be the output of the program if it is executed?

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

**Correct Answer: a**

---



---

**QUESTION 7:**

**Why an array is called “homogeneous collection of data” in Java?**

- a. Array cannot store multi-dimensional data.
- b. Array has a limited capacity.
- c. Array can store only one type of data.
- d. Array uses indices for addressing an item.

**Correct Answer: c**

**Detailed Solution:** Homogeneous data means a data of same type. And, array can hold only one type of data i.e. you cannot have an array with items of multiple data type.

---

**QUESTION 8:**

**Which of the following can be used for a variable name in Java?**

- a. boolean
- b. final
- c. finally
- d. calloc

**Correct Answer: d**

**Detailed Solution:**

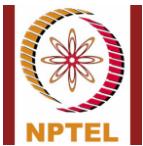
final, boolean, finally are reserved keyword in Java, which cannot be used for naming a variable or class.

---

**QUESTION 9:**

```
public class Main{
    public static void main(String[] args) {
        String str1="NPTEL";
        String str2="java";
        int a=20;
        int b=10;
        System.out.println(str1+a+b); //Statement 1

        System.out.println(a+b+str2); //Statement 2
    }
}
```



**Which of the following statement(s) is/are correct?**

- a. The output of the Statement 1 is  
NPTEL2010
- b. The output of the Statement 1 is  
NPTEL30
- c. The output of the Statement 2 is  
1020java
- d. The output of the Statement 2 is  
30java

**Correct Answer: a,d**

**Detailed Solution:**

+ (plus) operator is overloaded in java.

#### **QUESTION 10:**

**What will be the output of the following code?**

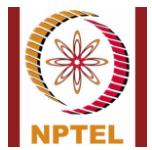
```
public class Question{
    public static void main(String args[]){
        if(true){
            System.out.print("Welcome");
        }
        if(1==1){
            System.out.print(" to ");
        }
        if(1){
            System.out.print("NPTEL");
        }
    }
}
```

- a. Welcome
- b. Welcome to
- c. Welcome to NPTEL
- d. Compilation Error

**Correct Answer: d**

**Detailed Solution:**

**int is not allowed in if(...) construct.**



NPTEL Online Certification Courses

Indian Institute of Technology





## PROGRAMMING IN JAVA

### Assignment2

#### TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark:  $10 \times 1 = 10$

---

#### **QUESTION 1:**

What is the output of the following program?

```
public class Question
{
    public static void main(String[] args) {

        int i = 10;
        int n = i++%5;
        int m = ++i%5;
        System.out.println(i+n+m);
    }
}
```

- a. 14
- b. 13
- c. 15
- d. 11

Correct Answer: a

---

#### **QUESTION 2:**

During constructor overloading, which of the following should be used in a parameterized constructor to call the default constructor?

- a. The parameterized constructor should be declared final in order for it to call the default constructor.
- b. The this() reference should be used as the first statement inside the parameterized constructor.
- c. The this() reference should be used anywhere inside the parameterized constructor.
- d. It is not possible to implicitly call the default constructor from parameterized constructor.



**Correct Answer: b**

**Detailed Solution:**

The `this()` reference should be used as the first statement inside the parameterized constructor in order to redirect

---

**QUESTION 3:**

Following is a program given for this question.

```
public class Main{
    public static void main(String[] args) {
        char[] copyFrom = { 'j', 'a', 'n', 'j', 'a', 'v', 'a',
                           'n', 'p', 't', 'e', 'l' };
        char[] copyTo = new char[9];

        System.arraycopy(copyFrom, 3, copyTo, 0, 9);
        System.out.println(new String(copyTo));
    }
}
```

What will be the output of the above program?

- a. javanptel
- b. npteljava
- c. janjananptel
- d. janjavapn

**Correct Answer: a**

**Detailed Solution:**

---

**QUESTION 4:**

**Which of the following can be used to take input from user during the execution of a program?**

- a. Using the string array provided as a parameter to the main method.
- b. `getText()` method can be used to get user input from the command line.
- c. Scanner class can be used by passing the predefined object `System.in`
- d. Once the execution starts, there is no way to provide user input.

**Correct Answer: c**



---

**Detailed Solution:**

The easiest way to read input in a Java program during execution is by using the Scanner class in `java.util` package. It can be used for obtaining the input of the primitive types like int, double, etc. and strings. The argument values provided in the main method is only applicable when the execution starts but during execution no value can be passed in that argument.

---

**QUESTION 5:**

**Which of the following is/are TRUE about print() and println() methods?**

- a. `print()` prints in a single line only and multiple lines cannot be printed in any way.
- b. `println()` prints and then appends a line break.
- c. `println()` prints in a single line only and multiple lines cannot be printed.
- d. `print()` prints and then appends a line break.

**Correct Answer: b**

**Detailed Solution:**

Method `print()` can be used to print in a single line only but multiple lines can be printed using escape sequence '`\n`'. Similarly, `println()` prints in a single line only and multiple lines can be printed using escape sequence '`\n`'. Method `print()` prints but does not append a line break. So, option (b) `println()` prints and then appends a line break is the only correct option.

---

**QUESTION 6:**

**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. constructor
- d. final

**Correct Answer: c**

**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 7:**

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 8:**

Following is a program given for this question.

```
public class Question
{
    public static void main(String[] args) {
        boolean m=Integer.valueOf(1).equals(Long.valueOf(1));
        System.out.println(m);
    }
}
```

What will be the output of the above program?

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

**Correct Answer: a**

**Detailed Solution:**

The two objects (the Integer and the Long) have different types.

---



### **QUESTION 9:**

**What will happen during the execution of the following code for the command line input?**

```
public class Question {  
    public static void main (String[] args) {  
        for (String s: args) {  
            System.out.println(s+args[0]);  
        }  
    }  
}
```

Consider the following input on command line and select the options with the correct output(s).

*Input:*

A: “jan java nptel”

B: 1 2 3

- a. A : jannptel  
javanptel  
nptelnptel
- b. A : jan java nptel jan java nptel
- c. B : 11  
21  
31
- d. B : 1 2 3 1

**Correct Answer: b, c**

**Detailed Solution:**

Java interpreted as a single argument, if the command line input is enclosing within quotation marks.



**QUESTION 10:**

**What is the output of the following program?**

```
public class Main{
    public static void main(String args[]) {
        char a = '3';
        int b=011;
        System.out.println(a+b);
    }
}
```

- a. 60
- b. 3011
- c. 33
- d. 311

**Correct Answer: a**

**Detailed Solution:**

The argument will take the + operator as the arithmetic addition on the ASCII values instead of characters.

---

\*\*\*\*\*



## PROGRAMMING IN JAVA

### Assignment3

**TYPE OF QUESTION: MCQ**

**Number of questions: 10**

**Total mark:  $10 \times 1 = 10$**

---

#### **QUESTION 1:**

**Which of following statement(s) is/are true?**

- a. Instance methods can access instance variables and instance methods directly.
- b. Instance methods cannot access class variables and class methods directly.
- c. Class methods can access class variables and class methods directly.
- d. Class methods cannot access instance variables or instance methods directly—they must use an object reference.

**Correct Answer: a, c, d**

#### **Detailed Solution:**

Instance methods can access class variables and class methods directly.

---

#### **QUESTION 2:**



```
public class Question
{
    public static int x = 7;
    public static void main(String[] args) {

        Question a = new Question ();
        Question b = new Question ();
        a.x = 1;
        b.x = 2;
        System.out.println(a.x+b.x+Question.x);
    }
}
```

**What is the output of the above program?**

- a. 6
- b. 10
- c. 21
- d. runtime error

**Correct Answer: a**

**Detailed Solution:**

Because x is defined as a public static int in the class Question, every reference to x will have the value that was last assigned because x is a static variable (and therefore a class variable) shared across all instances of the class. That is, there is only one x: when the value of x changes in any instance it affects the value of x for all instances of Question.

---

**QUESTION 3:**



**Which of the following is called when a method having the same name as that of the class 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 4:**

Hiding internal data from the outside world, and accessing it only through publicly exposed methods is known as data \_\_\_\_\_

- a. Polymorphism
- b. Encapsulation.
- c. Inheritance.
- d. Duplication.

**Correct Answer: b**

**Detailed Solution:** Hiding the internal details from the outside world is known as encapsulation.

---

**QUESTION 5:**



Consider the following piece of code in Java.

```
class B {  
    protected int method(int a, int b){  
        return 0;  
    }  
}
```

Which of the following method(s) is/are declaration is/are **not** valid in a class that extends class B?

- a. public int method(int a, int b) {  
 return 0;  
 }
- b. private int method(int a, int b) {  
 return 0;  
 }
- c. static protected int method(int a, int b) {  
 return 0;  
 }
- d. public short method(int a, int b) {  
 return 0;  
 }

**Correct Answer: b,c,d**

**Detailed Solution:**

**Option a is correct because the class that extends A is just simply overriding method.  
Others are not.**

---

#### **QUESTION 6:**

**Which of the following statement(s) is/are true?**

- a. A final method cannot be overridden in a subclass.
- b. The advantage of private static methods is that they can be reused later if you need to reinitialize the class variable.
- c. Class methods cannot use this keyword as there is no instance for this to refer to.
- d. A final method can be overridden in a subclass.

**Correct Answer: a,b,c**

**Detailed Solution:**



---

A final method cannot be overridden in a subclass. Class methods cannot use this keyword as there is no instance for this to refer to. The advantage of private static methods is that they can be reused later if you need to reinitialize the class variable.

---

### **QUESTION 7:**

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

- a. Code sharing
- b. Code maintainability
- 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 8:**

Consider the following class definition:

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

**Which of the following statement(s) is/ are 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**

---



### **QUESTION 9:**

```
public class Test1{
    Test1() {
        Test1 obj1 = new Test1();
    }

    public static void main(String []args) {
        Test1 obj = new Test1();
        System.out.println("Hello");
    }
}
```

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

- a. Hello
- b. Program will compile successfully.
- c. There will be a compile-time error.
- d. The program will give a runtime error.

**Correct Answer: b, d**

**Detailed Solution:**

Constructor if you defined recursively, then it will show runtime error.

---

### **QUESTION 10:**

**Which of the following statement(s) is/are true?**

- a. Hiding internal data from the outside world, and accessing it only through publicly exposed methods is known as data **encapsulation**.
- b. Common behavior can be defined in a **superclass** and inherited into a **subclass** using the **extends** keyword.
- c. The term "class variable" is another name for **non-static field**.
- d. A local variable stores temporary state; it is declared inside a **method**.

**Correct Answer: a,b,d**

**Detailed Solution:**

The term "class variable" is another name for **static field**.

---



---

## PROGRAMMING IN JAVA

### Assignment4

**TYPE OF QUESTION: MCQ**

**Number of questions: 10**

**Total mark:  $10 \times 1 = 10$**

---

#### **QUESTION 1:**

**Which of the following is/are interface(s) of `java.awt` package?**

- a. CardLayout
- b. Checkbox
- c. Choice
- d. MenuContainer

**Correct Answer: d**

**Detailed Solution:**

MenuContainer is interface of java.awt package, all others are class.

---

#### **QUESTION 2:**

**Which of the following keyword 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;

**Detailed Solution:**

---

#### **QUESTION 3:**



**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 4:**

**Which of the following statement(s) is (are) CORRECT regarding an interface in Java?**

- a. An interface can contain only abstract methods and standard methods but no static methods are allowed.
- b. Method bodies in an interface doesn't exist for default methods and abstract methods.
- c. An interfaces cannot be instantiated but can be implemented by classes.
- d. An interfaces cannot be instantiated but can be extended by other interfaces.

**Correct Answer: c, d**

**Detailed Solution:**

In the Java programming language, an interface is a reference type, similar to a class, which can contain only constants, method signatures, default methods, static methods, and nested types. Method bodies exist only for default methods and static methods. Interfaces cannot be instantiated—they can only be implemented by classes or extended by other interfaces.

---

**QUESTION 5:**



---

### How Java Runtime Environment (JRE) knows where to look for a package that you create?

- a. It searches in the current directory.
- b. It searches in the location set in the CLASSPATH environment variable.
- c. A user can set the path during runtime using the -classpath option.
- d. Using the -path option, a user can set the path.

**Correct Answer: a, b, c**

**Detailed Solution:**

- First, by default, the Java run-time system uses the current working directory as its starting point. Thus, if your package is in a sub-directory of the current directory, it will be found.
- Second, you can specify a directory path or paths by setting the CLASSPATH environmental variable.
- Third, you can use the -classpath option with **java** and **javac** to specify the path to your classes.

---

### **QUESTION 6:**

**Which of the following is/are NOT correct regarding packages in Java?**

- a. Java supports both pre-defined and user-defined packages.
- b. Packages are used to organize a set of related classes and interfaces.
- c. Pre-defined packages help to develop programs easily by providing thousands of classes.
- d. Packages are used to organize only a set of related classes and not interfaces.

**Correct Answer: d**

**Detailed Solution:**

A package is a namespace that organizes a set of related classes and interfaces. It is just like a folder in your computer, where, you might keep HTML pages in one folder, images in another, and scripts or applications in yet another. Since, Java programs can be composed of hundreds or thousands of individual classes, it makes sense to keep things organized by placing related classes and interfaces into packages.

---

### **QUESTION 7:**



---

**Which of the following package(s) stores all the standard java classes?**

- a. lang
- b. java
- c. util
- d. java.packages

**Correct Answer: b**

**Detailed Solution:**

The `java` package stores all the standard java classes.

---

**QUESTION 8:**

Consider the program given below.

```
import java.lang.Math.*;
public class Main{
    public static void main(String args[]){
        System.out.println(PI*1/PI);
    }
}
```

**What will be the output if the above program is executed?**

- a. It will give compile-time error
- b. It will give run-time error
- c. 1.0
- d. 3.14

**Correct Answer: a**

**Detailed Solution:**

The static import statement is used to import the static members(e.g., PI) of `java.lang.Math`.  
`import static java.lang.Math.*;`

---

**QUESTION 9:**



---

**Which of the following statement(s) is/are NOT true?**

- a. The default package in the Java language is java.lang.
- b. String is a final class and it is present in java.lang package.
- c. Runnable is a class present in java.lang package.
- d. Thread is a class present in java.lang package.

**Correct Answer: c**

**Detailed Solution:**

Runnable is an interface in java.lang package.

---

**QUESTION 10:**

**Which of the following statement(s) is/are true?**

- a. With the import statement, generally import only a single package member or an entire package.
- b. To import all the types contained in a particular package, use the import statement with the asterisk (\*) wildcard character.  
`import package.*;`
- c. `import package.A*;` it used to match a subset of the classes in a package starts with “A”.
- d. `import package.A*;` it generates compilation error.

**Correct Answer: a,b,d**

**Detailed Solution:**

`import package.A*;` it generates compilation error.

---

\*\*\*\*\*END\*\*\*\*\*



## PROGRAMMING IN JAVA

### Assignments5

**TYPE OF QUESTION: MCQ**

**Number of questions: 10**

**Total mark:  $10 \times 1 = 10$**

---

#### **QUESTION 1:**

**Which of the following statement(s) is/are true?**

- a. All abstract, default, and static methods in an interface are implicitly public.
- b. All constant values defined in an interface are implicitly public, static, and final.
- c. An interface can extend any number of interfaces.
- d. A class that implements an interface must implement all the methods declared in the interface.

**Correct Answer: a, b, c, d**

#### **Detailed Solution:**

All options are correct.

---

#### **QUESTION 2:**

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

- a. public interface Question {  
 void disp(int x) {  
 System.out.println("Hello java");  
 }  
}
- b. public interface Question {  
 void disp(int x);  
}
- c. public interface Question {  
 default void disp(int x) {  
 System.out.println("Hello java");  
 }  
}
- d. public interface Question { }

**Correct Answer: b, c, d**



**Detailed Solution:**

Only default and static methods have implementations. Empty interfaces can be used as types and to mark classes without requiring any particular method implementations.

**QUESTION 3:**

Consider the following piece of program.

```
class Question {  
    int a=4;  
    int b=2;  
}  
  
public class Child1 extends Question {  
    int a=10;  
    int b=20;  
  
    void add(int a,int b) {  
        //body  
    }  
    public static void main(String[] args) {  
        Child1 c = new Child1();  
        c.add(100,200);  
    }  
}
```

Which of the following statements(s) is/are replaced in body of the function definition of **void add(int a,int b)** to get the output 12?

- a. System.out.println(this.a+ super.b);
- b. System.out.println(this.a+this.b)
- c. System.out.println(super.a+super.b);
- d. System.out.println(a+b);

**Correct Answer: a**

**Detailed Solution:**

this.a =10 and super.b =2, so addition is 12.



---

#### **QUESTION 4:**

**Which of the following statement(s) is/are true?**

- a. A subclass inherits all of the public and protected members of its parent class.
- b. A subclass inherits the package-private members of the parent, if it is present in the same package as of its parent class.
- c. A nested class has access to all the private members of its enclosing class.
- d. A subclass does not inherit the package-private members of the parent, if it is present in the same package as of its parent class.

**Correct Answer: a, b, c**

**Detailed Solution:**

A subclass inherits the package-private members of the parent, if it is present in the same package as of its parent class.

---

#### **QUESTION 5:**

**What is the output of the following code?**

```
try {
    int num = 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.
  - a. Program is in execution...
- b. Something went terribly wrong!
  - a. Program is in execution...
- c. Program is in execution...
- d. You don't have a number.
  - a. Something went terribly wrong!
  - b. 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 6:**

**What is the output of this program?**

```
class ExceptionHandling
    public static void main(String args[ ])
        try {
            int a, b;
            b = 0;
            a = 5 / b;
            System.out.print("A");
        } catch(ArithmaticException 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 `ArithmaticException` 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 7:**



---

**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 .

---

**QUESTION 8:**

**Which of the following statement(s) is/are true?**

- a. Static methods in interfaces are never inherited.
- b. You will get a compile-time error if you attempt to change an instance method in the super class to a static method in the subclass.
- c. A protected instance method in the super class can be made public, but not private, in the sub class.
- d. An instance method in a subclass with the same signature (name, plus the number and the type of its parameters) and return type as an instance method in the super class overrides the super class's method.

**Correct Answer: a,b,c,d**

**Detailed Solution:**

All options are correct.

Option (c): The access specifier for an overriding method can allow more, but not less, access than the overridden method.

---

**QUESTION 9:**



Consider the classes as given below.

```
class Explanation{
    public void Print() {
        System.out.println("This is Explanation's Print method");
    }
}
class Answer extends Explanation{
    public void Print() {
        super.super.Print();
        System.out.println("This is Answer's Print method");
    }
}

public class Question15{
    public static void main(String[] args) {
        Answer a = new Answer();
        a.Print();
    }
}
```

What will be the output of the code given above?

- a. Output : *This is Explanation's Print method*  
*This is Answer's Print method*
- b. Error: '*super.super*' is not allowed.
- c. Error: Compilation unsuccessful, as there is only one super class of Answer.
- d. Output : *This is Answer's Print method*  
*This is Explanation's Print method*

**Correct Answer: b**

---

**QUESTION 10:**



**Which of the following statement(s) is /are true?**

- a. An abstract class can only be sub classed; it cannot be instantiated.
- b. An abstract class may or may not include abstract methods.
- c. You can prevent a class from being sub classed by using the final keyword in the class's declaration.
- d. Methods in an interface that are not declared as default or static are implicitly abstract.

**Correct Answer: a, b, c, d**

---

\*\*\*\*\*END\*\*\*\*\*



## PROGRAMMING IN JAVA

### Assignment6

**TYPE OF QUESTION: MCQ**

**Number of questions: 10**

**Total mark:  $10 \times 1 = 10$**

---

#### **QUESTION 1:**

**Which of the following is NOT a method of the Thread class in Java?**

- a. `isInterrupted()`
- b. `interrupt()`
- c. `joins()`
- d. `sleep()`

**Correct Answer: c**

**Detailed Solution:**

`join()` is a method in the pre-defined Java class `Thread` but not `joins()`. Other methods like `isInterrupted()`, `interrupt()` and `sleep()` are defined in the `Thread` class.

---

#### **QUESTION 2:**

**Which of the following statement(s) is/are true?**

- a. `public int getId()`: returns the id of the thread.
- b. `public boolean isAlive()`: tests if the thread is alive.
- c. `public void interrupt()`: interrupts the thread.
- d. `public boolean isInterrupted()`: tests if the thread has been interrupted.

**Correct Answer: a,b,c,d**

**Detailed Solution:**

**All options are correct.**

---

#### **QUESTION 3:**



**Which of the following can be used to create an instance of Thread?**

- a. By implementing the `Runnable` interface.
- b. By extending the `Thread` class.
- c. By creating a new class named `Thread` and calling method `run()`.
- d. By importing the `Thread` class from package.

**Correct Answer: a, b**

**Detailed Solution:**

An application that creates an instance of `Thread` must provide the code that will run in that thread. There are two ways to do this:

- *Provide a `Runnable` object.* The `Runnable` interface defines a single method, `run`, meant to contain the code executed in the thread. The `Runnable` object is passed to the `Thread` constructor
- *Subclass `Thread`.* The `Thread` class itself implements `Runnable`, though its `run` method does nothing. An application can subclass `Thread`, providing its own implementation of `run`

**Reference:**<https://docs.oracle.com/javase/tutorial/essential/concurrency/runthread.html>

---

**QUESTION 4:**



**What is the output of the following program?**

```
public class Question
{
    public static void main(String[] args) {

        try {
            int a=5/0;

        } catch (Exception e) {

            catch (ArithmaticException a) {

            }

        }
        System.out.println("Hello World");
    }
}
```

- a. Hello World
- b. 5
- c. Compile time error
- d. ArithmaticException

**Correct Answer: c**

**Detailed Solution:**

This first handler catches exceptions of type Exception; therefore, it catches any exception, including ArithmaticException. The second handler could never be reached. This code will not compile.

---

**QUESTION 5:**



---

**Which one of these keywords must be used to handle the exception thrown by try block in some rational manner?**

- a. try
- b. finally
- c. throw
- d. catch

**Correct Answer: d**

**Detailed Solution:**

The catch block is responsible for handling the exceptions raised by try block.

---

**QUESTION 6:**

**Which of the following will contain the body of the thread?**

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

**Correct Answer: a**

**Detailed Solution:**

The run() method of a thread is same as the main() method for an application. Starting the thread causes the object's run method to be called.

---

**QUESTION 7:**



The following is a simple program using the concept of thread.

```
public class Question extends Thread{
    public void run(){
        for(int i=1;i<5;i++){
            System.out.println(i++);
        }
    }
    public static void main(String args[]){
        Question t1=new Question();
        t1.run();
    }
}
```

**What is the output of the above program?**

- a. 1  
3
- b. 1  
2  
3  
4
- c. Runtime error
- d. 1  
2

**Correct Answer: a**

**Detailed Solution:**

---

**QUESTION 8:**



For the program given below, what will be the output after its execution?

```
public class Main{  
    public static void main(String[]args){  
        Thread thread=Thread.currentThread();  
        System.out.println(thread.activeCount());  
    }  
}
```

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

**Correct Answer: c**

**Detailed Solution:**

**java.lang.Thread.activeCount()** : Returns an estimate of the number of active threads in the current thread's thread group and its subgroups.

---

**QUESTION 9:**

Which of the following is a correct constructor for a thread object?

- a. Thread(Runnable a, String str);
- b. Thread(Runnable a, int priority);
- c. Thread(Runnable a, ThreadGroup t);
- d. Thread(int priority);

**Correct Answer: a**

**Detailed Solution:**

Thread(Runnable a, String str) creates a new Thread object. The others are not valid constructors to create a thread object.

---

**QUESTION 10:**



**Which of these keyword(s) is used to manually throw an exception?**

- a. try
- b. finally
- c. throw
- d. catch

**Correct Answer: c**

**Detailed Solution:**

The throw keyword is used to manually throw an exception.

---

\*\*\*\*\*END\*\*\*\*\*



## PROGRAMMING IN JAVA

### Assignment7

#### TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark:  $10 \times 1 = 10$

---

#### **QUESTION 1:**

Which of the following cannot be used to read a text file in Java?

- a. BufferedReader
- b. FileReader
- c. Scanner
- d. Document

**Correct Answer: d**

#### **Detailed Solution:**

Text files can be read using all the options a,b and c; so option d is the answer.

---

#### **QUESTION 2:**

Which of the following statement(s) is/are true?

- a. In unbuffered I/O, each read or write request is handled directly by the underlying OS.
- b. Buffered input streams read data from a memory area known as a buffer; the native input API is called only when the buffer is empty.
- c. Buffered output streams write data to a buffer, and the native output API is called only when the buffer is full.
- d. In buffered I/O scheme, each read or write request often triggers disk access, network activity.

**Correct Answer: a,b,c**

#### **Detailed Solution:**

In unbuffered I/O scheme, each read or write request often triggers disk access, network activity. So it is less efficient.

---

#### **QUESTION 3:**



**Which of the following is/are Standard Stream(s)?**

- a. System.in
- b. System.out
- c. System.err
- d. System.console

**Correct Answer: a,b,c**

**Detailed Solution:**

The Java platform supports three Standard Streams: Standard Input, accessed through System.in; Standard Output, accessed through System.out; and Standard Error, accessed through System.err.

---

**QUESTION 4:**

Which of the following code is correct?

- a.  

```
FileWriter fileWriter = new FileWriter("../file.txt");
File file = new File(fileWriter );
BufferedWriter bufferedOutputWriter = new BufferedWriter(fileWriter);
```
- b.  

```
BufferedWriter bufferedOutputWriter = new
BufferedWriter("../file.txt");
File file = new File(bufferedOutputWriter );
FileWriter fileWriter = new FileWriter(file);
```
- c.  

```
File file = new File("../file.txt");
FileWriter fileWriter = new FileWriter(file);
BufferedWriter bufferedOutputWriter = new BufferedWriter(fileWriter);
```
- d.  

```
File file = new File("../file.txt");
BufferedWriter bufferedOutputWriter = new BufferedWriter(file);
FileWriter fileWriter = new FileWriter(bufferedOutputWriter );
```

**Correct Answer: c**

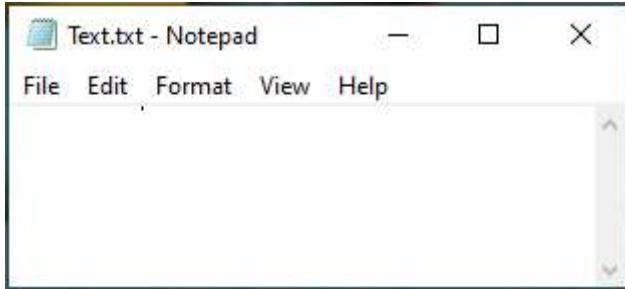
**Detailed Solution:**

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



### **QUESTION 5:**

Assume that “Text.txt” file is already created in the root directory, which is shown below.



Consider the following program and choose the correct option.

```
import java.io.*;  
  
public class Question6{  
    public static void main(String[] args) {  
        try ( RandomAccessFile rf =  
              new RandomAccessFile("Text.txt", "r") ) {  
            int i = rf.readInt();  
        }  
        catch (FileNotFoundException ex) {  
            System.out.println("File not found");  
        }  
        catch (IOException ex) {  
            ex.printStackTrace();  
        }  
    }  
}
```

- a. The program will not be compiled successfully.
- b. The program will be compiled successfully, but will encounter runtime exception
- c. The program produces an output “File not found”.
- d. The program will be executed successfully, but doesn’t produce any output.

**Correct Answer: b**

**Detailed Solution:**



---

It will compile fine, but raises a run time exception on invoking readInt() because nothing is in the file.

---

**QUESTION 6:**

**Which of the following statement(s) is/are true?**

- a. DataStreams detects an end-of-file condition by using EOFException, instead of testing for an invalid return value.
- b. DataStreams uses floating point numbers to represent monetary values.
- c. Data streams support I/O of primitive data types.
- d. Object streams support I/O of objects.

**Correct Answer: a,b,c,d**

**Detailed Solution:**

All options are correct.

DataStreams detects an end-of-file condition by catching EOFException, instead of testing for an invalid return value.

---

**QUESTION 7:**



What will happen during execution of the following code for the command line input?

```
public class Question14 {  
    public static void main(String args[]) {  
        System.out.println(args[5]);  
    }  
}
```

Consider the following input on command line.

Input:

- A: Indian Institute of Technology
- B: 1 2 3 4 5
- C: Indian Institute of Technology Nptel
- D: 1 2 3 4 5 6

- a. A : *Exception ArrayIndexOutOfBoundsException*  
B : *Exception ArrayIndexOutOfBoundsException*  
C : *Exception ArrayIndexOutOfBoundsException*  
D : *Exception ArrayIndexOutOfBoundsException*
- b. A : *Output Technology*  
B : *Output 1 2 3 4 5*  
C : *Exception ArrayIndexOutOfBoundsException*  
D : *Exception ArrayIndexOutOfBoundsException*
- c. A : *Exception ArrayIndexOutOfBoundsException*  
B : *Exception ArrayIndexOutOfBoundsException*  
C : *Output Nptel*  
D : *Exception ArrayIndexOutOfBoundsException*



- d. A : *Exception ArrayIndexOutOfBoundsException*
- B : *Exception ArrayIndexOutOfBoundsException*
- C : *Exception ArrayIndexOutOfBoundsException*
- D : *Output 6*

**Correct Answer: d**

---

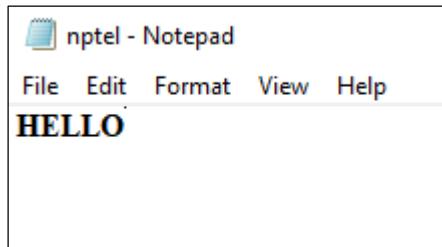
**QUESTION 8:**



Consider the following program.

```
import java.io.*;
public class TestIO {
    public static void main(String[] args) throws IOException {
        BufferedReader br=new BufferedReader(new
        FileReader("nptel.txt"));
        String str;
        int c=0;
        while((str=br.readLine())!=null) {
            c=c+1;
            System.out.println(str.charAt(1));
        }
        System.out.println(c);
    }
}
```

The file **nptel.txt** when browse with the Notepad text editor, it shows the content, which is shown below.



If the program is executed, then what will be the output from the execution?

- a. E  
1
- b. E  
5
- c. N  
1
- d. L  
5

**Correct Answer: a**



**Detailed Solution:**

It will print the 2<sup>nd</sup> character of HELLO that is E.

---

**QUESTION 9:**

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).

---

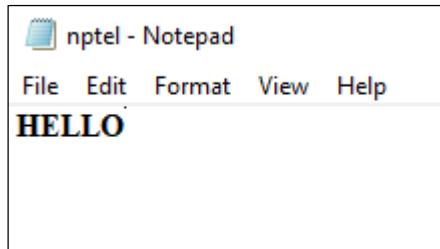
**QUESTION 10:**



Consider the following program.

```
import java.io.*;  
  
public class FileInfo {  
    public static void main(String args[]) {  
        File f = new File("nptel.txt");  
        System.out.println("length: "+ f.length());  
    }  
}
```

The file **nptel.txt** when browse with the Notepad text editor, it shows the content, which is shown below.



If the program is executed, then what will be the output from the execution?

- a. length: 6
- b. length: 5
- c. length: 0
- d. length: 1

**Correct Answer: b**

**Detailed Solution:**

It will print length of “HELLO” that is 5.



## PROGRAMMING IN JAVA

### Assignment8

#### TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark:  $10 \times 1 = 10$

---

#### **QUESTION 1:**

Which of the following statement(s) is/are NOT true?

- a. An applet can extend the `java.applet.Applet` class or the `java.swing.JApplet` class.
- b. The `java.applet.Applet` class extends the `java.awt.Panel` class and enables you to use the GUI tools in the AWT package.
- c. The `java.swing.JApplet` class is a subclass of `java.applet.Applet` that also enables you to use the Swing GUI tools.
- d. An applet can make network connections to any host on the Internet

Correct Answer: d

#### **Detailed Solution:**

An applet can only connect to the host that it came from.

---

#### **QUESTION 2:**

Which of the following is NOT a class of `java.awt` package?

- a. Button
- b. Component
- c. Dialog
- d. Paint

Correct Answer: d

#### **Detailed Solution:**

Paint is interface of `java.awt` package.

---

#### **QUESTION 3:**

Which of the following statement(s) is/are correct?

- a. AWT components are platform-independent.
- b. AWT follows the MVC (Model View Controller).
- c. Swing components are platform-dependent.
- d. Swing follows MVC (Model View Controller).



---

**Correct Answer: d**

**Detailed Solution:**

AWT components are platform dependent and not follow MVC. Swing components follow MVC and are platform independent.

---

**QUESTION 4:**

When we invoke `repaint()` for a `java.awt.Component` object, the AWT invokes which of the following method ?

- a. `draw()`
- b. `show()`
- c. `update()`
- d. `paint()`

**Correct Answer: c**

**Detailed Solution:**

The `repaint()` method calls automatically `update()` method and in turn `update()` method calls `paint()` method.

---

**QUESTION 5:**

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 6:**

**What is the name of the method used to get the timestamp of an event in AWT ActionEventClass ?**

- a. `getWhen()`.
- b. `getModifiers()`.
- c. `paramString()`.
- d. `getActionCommand()`.

**Correct Answer: a**

**Detailed Solution:**

`getWhen( )` method of ActionEvent class returns the timestamp of the event when it is occurred.

---

### **QUESTION 7:**

**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 8:**

**Which of the following methods is called only once during the run time of an applet?**

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



**Correct Answer: c**

**Detailed Solution:**

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

---

**QUESTION 9:**

**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 10:**

**The APPLET tag is used to start an applet from both an HTML document and from an applet viewer.**

- a. True
- b. False
- c. APPLET tag is not mandatory in both cases
- d. None of the above

**Correct Answer: a**



**Detailed Solution:**

The APPLET tag needs to be used to start an applet from both an HTML document and from an applet viewer.

---



## OBJECT ORIENTED PROGRAMMING WITH JAVA

### Assignment9

**TYPE OF QUESTION: MCQ**

**Number of questions: 10**

**Total mark:  $10 \times 1 = 10$**

---

#### **QUESTION 1:**

**Which of the following is/are interface(s) in javax.swing package?**

- a. MenuElement
- b. BoxLayout
- c. JComponent
- d. Scrollable

**Correct Answer: a, d**

#### **Detailed Solution:**

MenuElement:

Any component that can be placed into a menu should implement this interface.

Scrollable:

An interface that provides information to a scrolling container like JScrollPane.

All others are Class.

---

#### **QUESTION 2:**

**Which of the following Listener(s) is/are not supported by button (Swing component)?**

- a. ActionListener
- b. ChangeListener
- c. ItemListener
- d. WindowListener

**Correct Answer: d**

#### **Detailed Solution:**

Except WindowListner, all other Listeners supported by button component.



This table lists Swing components with their specialized listeners

Component	Action Listener	Caret Listener	Change Listener	Document Listener, Undoable Edit Listener	Item Listener	List Selection Listener	Window Listener	Other Types of Listeners
button	✓		✓		✓			
check box	✓		✓		✓			
color chooser			✓					
combo box	✓				✓			
dialog							✓	
editor pane		✓		✓				hyperlink
file chooser	✓							
formatted text field	✓	✓		✓				
frame							✓	

### **QUESTION 3:**

**Which of the following Listener Interface has an Adapter Class?**

- a. ActionListener
- b. ChangeListener
- c. ComponentListener
- d. ItemListener

**Correct Answer: c**

**Detailed Solution:**

Only ComponentListener is having an Adapter class *ComponentAdapter* (among the options).

---

### **QUESTION 4:**

To set a FlowLayout in a panel, say jp, 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 5:**



**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 6:**

**In Java AWT, TextArea and TextField are subclass of:**

- a. List.
- b. Label.
- c. TextComponent.
- d. TextComponent and Label, respectively.

**Correct Answer: c**

**Detailed Solution:** TextArea and TextField are the two sub classes of TextComponent in Java AWT.

---

**QUESTION 7:**



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.

---

**QUESTION 8:**

**In JLabel(Icon, int) method/constructor, the int argument specifies the horizontal alignment of the label's contents within its drawing area.**

**Which of the following is/are valid constants for horizontal alignment?**

- a. RIGHT
- b. LEADING
- c. TRAILING
- d. TOP

**Correct Answer: a,b,c**



**Detailed Solution:**

TOP is not a valid constant for horizontal alignment.

---

**QUESTION 9:**

Select the correct statement(s) in the following.

- a. JTextField cannot be used as an alternative to JLabel.
- b. JLabel cannot be used as an alternative to JTextField.
- c. Button grouped radio button cannot be used as an alternative to JComboBox.
- d. The class JPasswordField extends the class JLabel.

**Correct Answer: b**

**Detailed Solution:**

- a) **False:** *Setting JTextField property 'setEditable=False'; it can be used as a label.*
  - b) **True:** *Label cannot be used to input data (it is never editable).*
  - c) **False:** *In a button grouped radio button, only one item can be selected similar to JComboBox. So, they can be used interchangeably.*
  - d) **False:** *JPasswordField extends JTextField.*
- 

**QUESTION 10:**

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

- a. Class KeyEvent 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.

---



NPTEL Online Certification Courses  
Indian Institute of Technology Kharagpur





## PROGRAMMING IN JAVA

### Assignment10

**TYPE OF QUESTION: MCQ**

**Number of questions: 10**

**Total mark:  $10 \times 1 = 10$**

---

#### **QUESTION 1:**

**Which of the following statement(s) is/are NOT true?**

- a. URL is the acronym for Uniform Resource Locator.
- b. A URL takes the form of a string that describes how to find a resource on the Internet.
- c. URLs have two main components: the protocol needed to access the resource and the location of the resource.
- d. The URL class is present in the java.io package.

**Correct Answer: d**

**Detailed Solution:**

The URL class is present in the java.net package.

---

#### **QUESTION 2:**



**Consider the following program:**

```
import java.net.*;
import java.io.*;

public class Question {
    public static void main(String[] args) throws Exception {
        URL aURL = new URL("http://nptel.com:80/docs/java/tutorial"
                            +index.html?name=networking#connection");

        System.out.println("authority = " + aURL.getAuthority());
        System.out.println("host = " + aURL.getHost());
    }
}
```

**Which of the following is/are valid output(s) from the above program?**

- a. authority = nptel.com:80
- b. host = nptel.com
- c. authority = nptel.com
- d. host = nptel.com:80

**Correct Answer: a,b**

**Detailed Solution:**

---

**QUESTION 3:**



**Consider the following program:**

```
import java.net.*;
import java.io.*;

public class Question {
    public static void main(String[] args) throws Exception {
        URL aURL = new URL("http://nptel.com:80/docs/java/tutorial"
                            + "index.html?name=networking#connection");

        System.out.println("query = " + aURL.getQuery());
        System.out.println("ref = " + aURL.getRef());
    }
}
```

**Which of the following is/are valid output(s) from the above program?**

- a. query = name=networking
- b. query = name=networking#connection
- c. ref=connection
- d. ref=/docs/java/tutorial/index.html?name=networking

**Correct Answer: a, c**

**Detailed Solution:**

Using getFile().

filename=/docs/java/tutorial/index.html?name=networking

#### **QUESTION 4:**

**Which of the following statement(s) is(are) 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 5:**

**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 6:**

**Which of these is a protocol for breaking and sending packets to an address across a network?**

- a. TCP/IP
- b. DNS
- c. Socket
- d. Proxy Server

**Correct Answer: a**

**Detailed Solution:**

TCP/IP is the protocol that breaks the packets and sends them in a network channel.

---

**QUESTION 7:**

**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 8:**

**Which of the following statement(s) is/are true?**

- a. isLoopback(): it indicates if the network interface is a loopback interface.
- b. isPointToPoint(): it indicates if the interface is a point-to-point interface.
- c. isVirtual(): it indicates if the interface is a virtual interface.
- d. isUP() : it indicates the interface is running.

**Correct Answer: a,b,c,d**

**Detailed Solution:**

All options are correct.

---

**QUESTION 9:**

**Once a JDBC driver has been registered, which of the following method is used to make a 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 10:**

**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.

---

\*\*\*\*\*END\*\*\*\*\*