



## PROGRAMMING IN JAVA

### Assignment 1

#### TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark:  $10 \times 1 = 10$

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#### **QUESTION 1:**

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

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

Correct Answer: b

#### **Detailed Solution:**

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

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#### **QUESTION 2:**

Which of the following is an incorrect array declaration?

- a. `int[] b = new int[10];`
- b. `int [] b;`
- c. `int[][] b = new int[10];`
- d. `int[][] b = {{7, 2, 4, 6}, {9, 8, 5}};`

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.

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**QUESTION 3:**

**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.

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**QUESTION 4:**

**Which of the following is/are TRUE regarding the string array provided as a parameter to the main method in Java?**

- a. It can be used to get command line arguments from the user.
- b. It is mandatory to name the string array as 'args'.
- c. Only one command line argument input is allowed at a time.
- d. Both b and c.

**Correct Answer: a**

**Detailed Solution:**

In Java, the function of the string array provided in the main method is to get the command line arguments provided by the user during the execution of the program. This is just like any other string array and hence, its name can be set anything. Since, the command line values are passed to the main method, this can be used anywhere in the program. Users are allowed to put multiple command line arguments one after another using spaces in between.

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### **QUESTION 5:**

**Consider the following program.**

```
public class Question{
    public static void main(String args[]){
        for(int b=2;b<3;b+=2){
            System.out.print(b+++b);
        }
    }
}
```

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

- a. 5
- b. 2
- c. 4
- d. 1

**Correct Answer: a**

**Detailed Solution: Test by run.**

### **QUESTION 6:**

**Following is a piece of code where some parts of a statement is missing:**

```
public class Question3{
    public static void main(String args[]){
        char nptel[]={J,A,V,A,N,P,T,E,L};
        System.out.print(_____);
    }
}
```

In the following, some options are given. You have to choose the correct option for the argument in *System.out.print()* function to print the second and the last characters in the array nptel.

- a. nptel[nptel.length-1] + nptel[1]
- b. nptel[1] + nptel[nptel.length-1]
- c. "" + nptel[1] + nptel[nptel.length-1]
- d. "" + nptel[nptel.length-1] + nptel[1]

**Correct Answer: c**



### **QUESTION 7:**

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

```
public class Question {  
    public static void main(String args[])  
    {  
        int i = 5;  
        System.out.print(--i * 5);  
    }  
}
```

- a. 20
- b. 25
- c. 32
- d. 31

**Correct Answer: a**

**Detailed Solution:**

First the value of i will be decremented and then multiplication is performed and the result will be printed.

### **QUESTION 8:**

**Which of the following is used to find and fix bugs in the Java programs?**

- a. JVM
- b. JRE
- c. JDK
- d. JDB

**Correct Answer: d**

**Detailed Solution:**



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The Java Debugger (JDB or jdb) is a command-line java debugger that debugs the java class.

**QUESTION 9:**

**Which of the following is/are non-primitive data type(s) in Java?**

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

**Correct Answer: b,c**

**Detailed Solution:**

A String in Java is actually a non-primitive data type, because it refers to an object.

Array is also a non-primitive datatype.

**QUESTION 10:**

**Which of the following features are 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: a,b,c**

**Detailed Solution:**

C++ supports multiple inheritances whereas Java does not.

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## PROGRAMMING IN JAVA

### Assignment2

**TYPE OF QUESTION: MCQ**

**Number of questions:** 10

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

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#### **QUESTION 1:**

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

```
public class Main{  
    public static void main(String args[]){  
        char a = '8';  
        int b=010;  
        System.out.println(a+b);  
    }  
}
```

- a. 88
- b. 8010
- c. 64
- d. 810

**Correct Answer: c**

**Detailed Solution:**

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

---

#### **QUESTION 2:**

**Which of the following is generate API documentation in HTML format from Java source code?**

- a. javac
- b. javadoc
- c. javap
- d. java



**Correct Answer: b**

**Detailed Solution:**

javacdoc is generate API documentation in HTML format from Java source code.

---

**QUESTION 3:**

Following is a program given for this question.

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

        System.arraycopy(copyFrom, 3, copyTo, 0, 9);
    }
}
```

What will be the output of the above program?

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

**Correct Answer: b**

**Detailed Solution:**

---

**QUESTION 4:**

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

**Correct Answer: d**

**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:**

**What was the initial name of Java when it was first developed for embedded systems?**



- a. Greentalk
- b. Oak
- c. Java
- d. Javac

**Correct Answer: a**

**Detailed Solution:**

Java was called "**Greentalk**" by James Gosling and the file extension was .gt and after that java was called **Oak** and was developed as a part of the Green project.

---

**QUESTION 7:**

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

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

**Correct Answer: c**

**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(0).equals(Long.valueOf(1));
        System.out.println(m);
    }
}
```

What will be the output of the above program?

- a. 0
- b. 1



- c. false
- d. true

**Correct Answer: c**

**Detailed Solution:**

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

---

**QUESTION 9:**

**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 10:**

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

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

        int i = 10;
        int n = i++%2;
        int m = ++i%7;
        System.out.println(i+n+m);
    }
}
```



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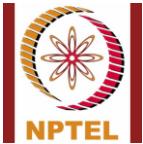


- a. 14
- b. 12
- c. 15
- d. 17

**Correct Answer: d**

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## PROGRAMMING IN JAVA

### Assignment3

**TYPE OF QUESTION: MCQ**

**Number of questions:10**

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

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#### **QUESTION 1:**

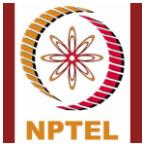
**Consider the following piece of code in Java.**

```
class A {  
    public int i;  
    protected int j;  
}  
class B extends A  
{  
    void display()  
    {  
        super.j = super.i + 1;  
        System.out.println(super.i + " " + super.j);  
    }  
}  
public class inheritance  
{  
    public static void main(String args[])  
    {  
        B obj = new B();  
        obj.i=2;  
        obj.j=2;  
        obj.display();  
    }  
}
```

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

- a. 2 3
- b. 3 3
- c. Runtime Error
- d. Compilation Error

**Answer: a**



**Explanation:** The java super keyword is used to refer the immediate parent class object.

---

### **QUESTION 2:**

**Consider the following piece of code in Java.**

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

        Question a = new Question ();
        Question b = new Question ();
        a.x = 2;
        b.x = 3;
        System.out.println(a.x+b.x++Question.x);
    }
}
```

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

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

**Correct Answer: b**

**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 these keywords are used to define an abstract class?

- a. abst
- b. abstract
- c. Abstract
- d. abstract class

**Answer: b**

**Explanation:**

---

**QUESTION 4:**

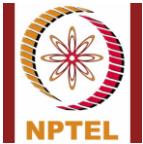
Hiding internal data from the outside world, and accessing it only through publicly exposed methods is known as data\_\_\_\_\_

- 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 Men
{
    int walkingDistance(int weight)
    {
        System.out.println(10);
        return 10;
    }
}
class WildMen extends Men
{
    void walkingDistance(int weight)
    {
        System.out.println("20");
    }
}
public class MethodOverriding3
{
    public static void main(String[] args)
    {
        WildMen wc = new WildMen();
        wc.walkingDistance(30);
    }
}
```

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

- a. 10
- b. 20
- c. 30
- d. It will give compile-time error

**Correct Answer: d**

**Detailed Solution:** If the argument list is the same, the return types can not be the incompatible-types. So, the compiler reports an error "The return type is incompatible with Cat.jumpingHeight(int)".



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### **QUESTION 6:**

**All the variables of interface should be?**

- a. default and final
- b. default and static
- c. public, static and final
- d. protect, static and final

**Answer: C**

**Explanation:** Variables of an interface are public, static and final by default because the interfaces cannot be instantiated, final ensures the value assigned cannot be changed with the implementing class and public for it to be accessible by all the implementing classes.

---

### **QUESTION 7:**

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

- a. Code readability
- b. two classes (base and inherited class) get tightly coupled
- c. Code maintainability
- d. Code reusability

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

**Explanation:**

The main advantages of inheritance are code reusability and readability. When child class inherits the properties and functionality of parent class, we need not write the same code again in child class. This makes it easier to reuse the code, makes us write the less code and the code becomes much more readable.

The main disadvantage of using inheritance is that the two classes (base and inherited class) get tightly coupled. This means one cannot be used independently of each other. Also with time, during maintenance adding new features both base as well as derived classes are required to be changed.

---



### **QUESTION 8:**

**When does method overloading is determined?**

- a. At run time
- b. At compile time
- c. At coding time
- d. At execution time

**Answer: b**

**Explanation:** Overloading is determined at compile time. Hence, it is also known as compile time polymorphism.

---

### **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 for given code?**

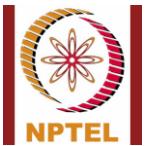
- a. Output will be : Hello
- b. There will be a compile-time error.
- c. Program will compile successfully.
- d. The program will give a runtime error.

**Correct Answer: c, d**

**Detailed Solution:**

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

---



**QUESTION 10:**

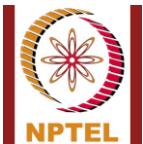
**Which of the following statement(s) is/are not true?**

- 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: c**

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

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## PROGRAMMING IN JAVA

### Assignment4

#### TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark:  $10 \times 1 = 10$

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#### **QUESTION 1:**

**Which of these is a mechanism for naming and visibility control of a class and its content?**

- a. Objects.
- b. Interfaces.
- c. Packages.
- d. Both a and b.

**Correct Answer: c**

**Detailed Solution:**

Packages are both naming and visibility control mechanism.

---

#### **QUESTION 2:**

**Which of the following is false statement about packages in java?**

- a. Packages are used to organize a set of related classes and interfaces.
- b. Packages are used for preventing naming conflicts.
- c. Packages provide code reusability.
- d. Packages cannot be considered as data encapsulation.

**Correct Answer: d**

**Detailed Solution:**

Packages can be considered as data encapsulation (or data-hiding)



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**QUESTION 3:**

**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 an interface of java.awt package, all others are class.

---

**QUESTION 4:**

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

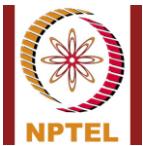
- a. The default package in the Java language is `java.lang`.
- b. `String` is a final class and it is present in `java.lang` package.
- c. `Cloneable` is a class present in `java.lang` package.
- d. `Thread` is a class present in `java.lang` package.

**Correct Answer: c**

**Detailed Solution:**

`Cloneable` is an interface in `java.lang` package.

---



### **QUESTION 5:**

Consider the program given below.

```
import static java.lang.Math.*;  
  
public class Main{  
  
    public static void main(String args[]){  
  
        System.out.println(cos(2*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: c**

**Detailed Solution:**

**Test by run.**

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

```
import static java.lang.Math.*;
```

---

### **QUESTION 6:**

**Which of the following packages is used to include utility classes like Calendar, Collections, and Date?**

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

**Correct Answer: b**

**Detailed Solution:**



---

java.util is used to includes utility classes like Calendar, Collection, Date.

---

**QUESTION 7:**

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

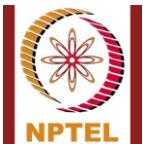
- a. Comparable interface is present in java.lang package
- b. Iterator interface is present in java.util package.
- c. Compare() is a method used in Comparable interface.
- d. Serializable interface is present in java.io package.

**Correct Answer: c**

**Detailed Solution:**

Comparable interface provides compareTo() method to sort elements in Java whereas Comparator interface provides compare() method to sort elements in Java.

---



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### **QUESTION 8:**

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

- a. public interface Question {  
    void method(int value) {  
        System.out.println("Nptel");  
    }  
}
  
- b. public interface Question {  
    void method(int value) {  
    }  
}
  
- c. public interface Question {  
}  
}
  
- d. public interface Question {  
    default void method(int value) {  
        System.out.println("Nptel");  
    }  
}

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

**Detailed Solution:**

In option a , It has a method implementation in it. Only default and static methods have implementations. So option a is not a valid interface. All others are valid.

---

### **QUESTION 9:**

**Which of the following is false statement about interface in java?**

- a. An interface can extend other interfaces.
- b. The interface body can contain abstract methods, default methods, and static methods.
- c. All constant values defined in an interface are implicitly public, static, and final.
- d. A static method in an interface are implicitly private.

**Correct Answer: d**



**Detailed Solution:**

static methods in an interface are implicitly public. So you can omit the public modifier.

---

**QUESTION 10:**

**Which of these access specifier(s) can be used for an interface?**

- a. Public
- b. Protected
- c. Private
- d. Both b and c

**Correct Answer: a**

**Detailed Solution:**

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



## PROGRAMMING IN JAVA

### Assignment 5

#### TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark: 10 X 1 = 10

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#### **QUESTION 1:**

Which of the following is **not true** about **throw**

- a. Throw is used inside a function
- b. Throw can be used to declare multiple exception
- c. Throw is followed by an instance.
- d. Throw is a keyword

**Correct Answer: b**

#### **Detailed Solution:**

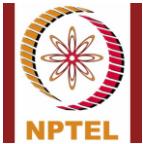
Throw keyword is used to throw an exception explicitly. It can throw only one exception at a time.

---

#### **QUESTION 2:**

Which of the following is not true about custom exception in java?

- a. class Exception extends Exp {  
    public Exception () {super () ;}  
    public Exception (String s) {super(s);}  
}
- b. class Exception extends Exp{  
    Exception(String s){  
        super(s);  
    }  
}
- c. public class Exception extends Exp {  
    public Exception(String s) {  
        super(s);  
    }  
}
- d. class Exception extends Exp {  
    public Exception () {super () ;}  
}



---

**Correct Answer: d**

**Detailed Solution:**

In a custom exception, the user will provide the message which needs to be used as an argument in the Exception () method. Hence, option (d) has no way to provide a custom exception.

---

**QUESTION 3:**

Which of the following is not a property of tagged interface?

- a. Serializable
- b. Cloneable
- c. Remote
- d. Cascading

**Correct Answer: d**

**Detailed Solution:**

Built-in marker or tagged interfaces are Serializable, Cloneable, and Remote.

---

**QUESTION 4:**

Which of the following is not an exception in Java?

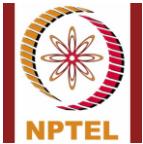
- a. SQLException
- b. ArrayIndexOutOfBoundsException
- c. OutOfMemoryError
- d. StackOverflow

**Correct Answer: d**

**Detailed Solution:**

StackOverflow is not a valid exception in Java; instead StackOverflowError is thrown when a stack overflow occurs because an application recurses too deeply.

---



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### **QUESTION 5:**

Which of the following is type of Java Exception?

- a. unchecked
- b. checked
- c. a & b
- d. error

**Correct Answer: c**

#### **Detailed Solution:**

In java exception, there are two types of exception. Those are checked exception and unchecked exception.

---

### **QUESTION 6:**

Which of the following keywords is not a part of exception handling?

- a. try
- b. throws
- c. throw
- d. thrown

**Correct Answer: d**

#### **Detailed Solution:**

Exceptional handling have 5 keywords – try, catch, throws, throw and finally.

---

### **QUESTION 7:**

Which of the option is correct regarding multiple catch blocks?

- a. The subclass exception cannot be caught at first.
- b. The superclass exception cannot be caught at first.
- c. The subclass exception must be caught at last.
- d. The superclass exception must be caught at first.

**Correct Answer: b**

#### **Detailed Solution:**



---

The superclass exception cannot be caught at first else subclass exceptions will not be executed, which will result in an error.

### **QUESTION 8:**

When an array element is accessed beyond the array size, then which exception occurs

- a. ArrayElementOutOfBound
- b. ArrayIndexOutOfBound
- c. ArraySizeOutOfBound
- d. None of the above

**Correct Answer: d**

**Detailed Solution:**

Array element is accessed beyond the array size then `ArrayIndexOutOfBoundsException` occurs.

---

### **QUESTION 9:**

What is the output of this program?

```
class ExceptionHandling{
    public static void main(String args[ ]) {
        try{
            int num1, num2;
            num1=5;
            num2=num1/0;
            System.out.print("A");
        }
        catch(ArithmetricException e) {
            System.out.print("0");
        }
        finally {
            System.out.print("B");
        }
    }
}
```

- a. 0
- b. A
- c. 0
- d. OB



---

**Correct Answer: d**

**Detailed Solution:**

There will be a divide-by-zero error in the statement `num2 = num1/0;` 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 10:**

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.

---

\*\*\*\*\*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. public void run()
- b. public void exit()
- c. public void start()
- d. public final int getPriority()

**Correct Answer: b**

#### **Detailed Solution:**

The `java.lang.System.exit()` method terminates the currently running Java Virtual Machine. It is a status code where a nonzero or 1 indicates abnormal termination of the program whereas zero or 0 indicates normal termination of the program. It is not included in the thread class as it is not the part of the execution cycle of the method.

---

#### **QUESTION 2:**

**Which of the following statement is true in case of starting a thread with ‘run()’ and ‘start()’ method?**

- a. There is no difference between **starting a thread with ‘run()’ and ‘start()’ method**.
- b. When you call **start()** method, main thread internally calls **run()** method to start newly created Thread
- c. When you call **run() method** directly no new **Thread** is created and code inside **run()** will execute on current **Thread**.
- d. None

**Correct Answer: b**

#### **Explanation:**



Main **difference** is that when program calls **start()** method a new **Thread** is created and code inside **run()** method is executed in new **Thread** while if you call **run()** method directly no new **Thread** is created and code inside **run()** will execute on current **Thread**.

---

### **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;
            System.out.print("a ");
        } catch (ArithmaticException ae) {

            System.out.print("ArithmaticException ");
        }catch (Exception e) {
            System.out.print(" Exception ");
        }
        System.out.print("Hello World");
    }
}
```

- a. Hello World
- b. ArithmaticException
- c. ArithmaticException Exception Hello World
- d. ArithmaticException Hello World
- e. none

**Correct Answer: d**

**Detailed Solution:** ArithmaticException is an unchecked exception in Java that occurs due to an exceptional arithmetic condition. This generally indicates that a mathematical error has occurred at run-time which can't be dealt with, for example, when an integer is divided by zero.

Since here “devide by zero” is already catched by “Arithmatic exception” so catch “Exception” block will not execute.

---



### **QUESTION 5:**

**Which method restarts a dead thread**

- a. start()
- b. restart()
- c. restartThread()
- d. none

**Correct Answer: d**

**Detailed Solution:** Thread can not be restarted you have to create a new Thread everytime. A thread is born, started, runs, and then dies. Once a thread enters dead state it cannot be restarted.

---

### **QUESTION 6:**

**Assume the following method is properly synchronized and called from a thread A on an object B: wait(2000); After calling this method, when will the thread A become a candidate to get another turn at the CPU?**

- a. After thread A is notified, or after two seconds.
- b. Two seconds after thread A is notified.
- c. After the lock on B is released, or after two seconds.
- d. Two seconds after lock B is released.

**Answer : a**

**Explanation:** Either of the two events (notification or wait time expiration) will make the thread become a candidate for running again

---



**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();  
    }  
}
```

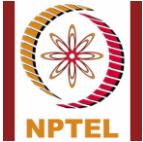
What is the output of the above program?

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

Correct Answer: d

**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.print(thread.activeCount());  
        thread.run();  
        System.out.print(thread.activeCount());  
    }  
}
```

- a. 01
- b. False True
- c. True True
- d. 11

**Correct Answer: d**

**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/are not a correct constructor for a thread object?**

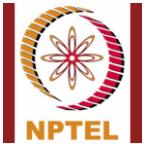
- a. Thread(Runnable a, String str);
- b. Thread(Runnable a, int priority);
- c. Thread(Runnable a, ThreadGroup t);
- d. Thread(int priority);

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

**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 exception is thrown when an array element is accessed beyond the array size?**

- a. `ArrayElementOutOfBoundsException`
- b. `ArrayIndexOutOfBoundsException`
- c. `ArrayListOutOfBoundsException`
- d. None of these

**Answer: B**

**Explanation:** `ArrayIndexOutOfBoundsException` is thrown when an array element is accessed beyond the array size.

---

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



## PROGRAMMING IN JAVA

### Assignment7

#### TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark:  $10 \times 1 = 10$

---

#### **QUESTION 1:**

What will be output for the following code?

```
import java.io.*;  
  
public class Question  
{  
  
    public static void main(String args[])  
    {  
  
        File obj = new File("/Nptel/java");  
  
        System.out.print(obj.getName());  
    }  
}
```

- a. java
- b. Nptel
- c. Nptel/java
- d. /Nptel/java

Correct Answer: a

Detailed Solution:

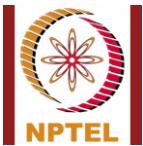
obj.getName() returns the name of the file.

---

#### **QUESTION 2:**

Which of the following is/are NOT member(s) of java.io package?

- a. ObjectFilter
- b. FileFilter
- c. FilenameFilter
- d. ObjectInput



---

**Correct Answer: a**

**Detailed Solution:**

ObjectFilter is not a member of java.io package. All others are interface in java.io package.

---

**QUESTION 3:**

**Which of these class is not a member class of java.io package?**

- a. Writer
- b. FileReader
- c. StringWriter
- d. String

**Correct Answer: d**

**Detailed Solution:**

String class is not a member class of java.io package.

---

**QUESTION 4:**

**Which method is used to write an array of byte to the current output stream?**

- a. public void write(int b) throws IOException
- b. public void write(byte[] b) throws IOException
- c. public void flush() throws IOException
- d. public void close() throws IOException

**Correct Answer: b**

**Detailed Solution:**

public void write(byte[] b) throws IOException is used to write an array of byte to the current output stream.

---



---

**QUESTION 5:**

**In java, how many standard streams are available?**

- a. 2
- b. 3
- c. 4
- d. 5

**Correct Answer: b**

**Detailed Solution:**

In Java, 3 standard streams are available. All these streams are attached with the console.

- 1. System.out
- 2. System.in
- 3. System.err

---

**QUESTION 6:**

**Which of the following method in java.io package help in clearing the contents of the buffer?**

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

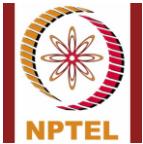
**Correct Answer: a**

**Detailed Solution:**

flush() : Flushes the stream.

Note: Clear( ) and exit( ) are not any valid methods defined in any class in java.io package.

---



---

### **QUESTION 7:**

**Which method of RandomAccessFile class reads a line from the file and returns it as a String ?**

- a. WriteInt( ).
- b. readLine( )
- c. readInt( )
- d. WriteDouble( )

**Correct Answer:b**

**Detailed Solution:**

readLine() : Reads the next line of text from this file and return it as a String.

---

### **QUESTION 8:**

**Which of the following is/are valid method(s) in class File?**

- a. isFile( )
- b. IsFile( )
- c. IsDirectory( )
- d. isAbsolute( )

**Correct Answer: a,d**

**Detailed Solution:**

isFile( ), isDirectory( ),isAbsolute( ) are the valid method(s) in class File.

---

### **QUESTION 9:**

**Which of the following is/are Not interface(s) of `java.io` package?**

- a. FileReader
- b. ObjectInput
- c. ObjectOutputStream
- d. DataInput

**Correct Answer: a**

**Detailed Solution:**

FileReader is a class in java.io package. All others are interface.



### **QUESTION 10:**

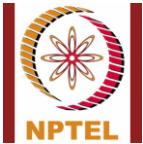
```
import java.io.*;  
  
public class Question {  
    public static void main(String[] args)  
    {  
        try {  
  
            PrintWriter writer = new PrintWriter(System.out);  
  
            writer.write(97);  
  
            writer.close();  
        }  
        catch (Exception e) {  
            System.out.println(e);  
        }  
    }  
}
```

**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. a
- d. 97

**Correct Answer: c**

**Detailed Solution:**



## PROGRAMMING IN JAVA

### Assignment8

**TYPE OF QUESTION: MCQ**

**Number of questions:** 10

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

---

#### **QUESTION 1:**

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 the interface of the **java.awt package**.

---

#### **QUESTION 2:**

Which of the following is/are **NOT** an exception of **java.awt package?**

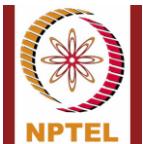
- a. AWTError
- b. AWTException
- c. FontFormatException
- d. all of these

**Correct Answer:** a

#### **Detailed Solution:**

AWTError is error of **java.awt package**.

---



### **QUESTION 3:**

**Which of the following method is/are a class button of java.awt package ?**

- a. paint(Graphics g)
- b. setLabel(String label)
- c. getCurrent()
- d. getItem(int index)

**Correct Answer: b**

**Detailed Solution:**

setLabel(String label) method Changes this button's label to be the String argument.

---

### **QUESTION 4:**

**Which of the following container does not contain titlebar and menubar ?**

- a. window
- b. panel
- c. container
- d. frame

**Correct Answer: b**

**Detailed Solution:**

Panel does not contain titlebar and menubar.

---

### **QUESTION 5:**

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

- a. java.awt.activeevent
- b. java.awt.event
- c. java.awt.listener
- d. none of these

**Correct Answer: b**

**Detailed Solution:**



The class Event is declared in java.awt.event 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 current font of an graphic in java.awt.graphics?**

- a. abstract FontMetrics getFontMetrics(Font f)
- b. abstract Font getFont()
- c. FontMetrics getFontMetrics()
- d. None of these

**Correct Answer: b**

**Detailed Solution:**

abstract Font getFont() method of graphics class get the current font of the graphics when it is occurred.

---

**QUESTION 7:**

**Which of the following method remove all items from scrolling list in java.awt.list?**

- a. hide()
- b. clear()
- c. remove()
- d. None

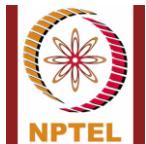
**Correct Answer: b**

**Detailed Solution:**

clear() in java.awt.list is used for remove all items from scrolling list.

---

**QUESTION 8:**



Which of the following statement is true about the update() in java.awt package?

- a. Sets the color of the graphics context to be the foreground color of this component.
- b. Calls this component's paint method to completely redraw this component.
- c. Clears this component by filling it with the background color.
- d. All of these.

**Correct Answer: d**

**Detailed Solution:**

update() perform all of these in java.awt package.

---

**QUESTION 9:**

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

- a. dimension()
- b. setSize()
- c. area()
- d. size()
- e. resize()

**Correct Answer: d**

**Detailed Solution:**

`size()` can be used to return the current size of a component.

---

**QUESTION 10:**

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

- a. show()
- b. draw()
- c. paint()
- d. repaint()

**Correct Answer: c**

**Detailed Solution:**



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---

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



## 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. CellEditor
- b. Action
- c. Box
- d. Scrollable

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

#### **Detailed Solution:**

CellEditor

This interface defines the methods any general editor should be able to implement.

Scrollable:

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

Action

The Action interface provides a useful extension to the ActionListener interface in cases where the same functionality may be accessed by several controls.

Only “Box” is a Class.

Box : A lightweight container that uses a BoxLayout object as its layout manager.

---

#### **QUESTION 2:**

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

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

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



### Detailed Solution:

Except WindowListner, all other Listeners are not supported by frame 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:

What is/are not a listener in context to event handling?

- A listener is a variable that is notified when an event occurs
- A listener is a object that is notified when an event occurs
- A listener is a method that is notified when an event occurs
- None of the mentioned

Correct Answer: a,c

### Detailed Solution:

A listener is a object that is notified when an event occurs. It has two major requirements first, it must have been registered with one or more sources to receive notification about specific event types, and secondly it must implement methods to receive and process these notifications.

---

### QUESTION 4:

Give the abbreviation of AWT?

- Applet Windowing Toolkit
- Absolute Windowing Toolkit
- Applet Window Toolkit
- Abstract Windowing Toolkit

Correct Answer : d

**Detailed Solution:** AWT stands for Abstract Windowing Toolkit



---

**QUESTION 5:**

**How many types of controls does AWT support?**

- a. 17
- b. 6
- c. 7
- d. 8

**Correct Answer : c**

**Detailed Solution:**

---

**QUESTION 6:**

**Which package is not imported for swing components**

- a. java.awt.\*;
- b. java.util.\*;
- c. javax.swing.\*;
- d. javax.awt.swing.\*;

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

**Detailed Solution:**

---

**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. CENTER
- b. LEADING
- c. TRAILING
- d. LEFT

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

**Detailed Solution:**

All are valid constant for horizontal alignment.



### **QUESTION 9:**

**Which of the following are valid “Method or Constructor” in Setting or Obtaining the Field's Contents?**

- a. JTextField()
- b. JTextField(String)
- c. JTextField(String, int)
- d. JTextField(int)

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

**Detailed Solution:**

#### **Setting or Obtaining the Field's Contents**

<b>Method or Constructor</b>	<b>Purpose</b>
<a href="#">JTextField()</a> <a href="#">JTextField(String)</a> <a href="#">JTextField(String, int)</a> <a href="#">JTextField(int)</a>	Creates a text field. When present, the int argument specifies the desired width in columns. The String argument contains the field's initial text.

Check: <https://docs.oracle.com/javase/tutorial/uiswing/components/textfield.html>

---

### **QUESTION 10:**

**When are the keyboard events fired?**

- a. When the user manually calls the button
- b. When the user right clicks the mouse
- c. When the user calls the modifier
- d. When the user clicks a key

**Answer: d**



**Explanation:** The keydown and keyup are the keyboard events are fired when the user presses or releases a key on the keyboard. They are generated for modifier keys, function keys, and alphanumeric keys.

---

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



## 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. TCP is not reliable .
- b. UDP is not reliable.
- c. TCP is fast and UDP is slow.
- d. In HTTPS, all communication between two computers are encrypted.

Correct Answer: a,c

#### Detailed Solution:

TCP is a reliable but slow. HTTPS is the secure version of HTTP, where all communications between two computers are encrypted.

---

#### **QUESTION 2:**

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

- a. DatagramSocket is a UDP endpoint API .
- b. DatagramSocket is a TCP server API .
- c. ServerSocket is a TCP server API.
- d. ServerSocket is a TCP client API.

Correct Answer: a,c

#### Detailed Solution:

ServerSocket is a TCP server API, and will typically accept connections from client sockets. DatagramSocket is a UDP endpoint API and is used to send and receive datagram packets.

---



---

### **QUESTION 3:**

**Which of the following is/are interface(s) present in java.net package?**

- a. InetAddress
- b. URLConnection
- c. SocketOptions
- d. HttpURLConnection

**Correct Answer: c**

**Detailed Solution:**

SocketOptions is an interface in java.net package.

---

### **QUESTION 4:**

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

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

**Detailed Solution:**

All statements are valid.

---

### **QUESTION 5:**

**In the following URL, identify the Resource name?**

**<https://nptel.ac.in>**

- a. https
- b. nptel.ac.in
- c. ac.in
- d. https://nptel.ac.in



---

**Correct Answer: b**

**Detailed Solution:**

Resource name is npTEL.ac.in.

---

**QUESTION 6:**

**Which of the following is/are application layer protocol(s)?**

- a. TCP
- b. UDP
- c. HTTP
- d. FTP

**Correct Answer: c,d**

**Detailed Solution:**

TCP, UDP are transport layer protocols.

---

**QUESTION 7:**

**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 8:**

**Which of the following is/are valid Data Manipulation Language (DML) command(s)?**

- a. SELECT
- b. INSERT
- c. UPDATE
- d. ALTER TABLE

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

**Detailed Solution:**

ALTER TABLE is a Data Definition Language (DDL).

---

**QUESTION 9:**

**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 10:**

**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:**



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---

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

---

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



## OBJECT ORIENTED PROGRAMMING WITH JAVA

### Assignment11

#### TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark:  $10 \times 1 = 10$

---

#### **QUESTION 1:**

Which of the following is not a JDBC drivers?

- a. Native – API driver
- b. Thin driver
- c. Network protocol driver
- d. Local Protocol driver

Correct Answer: d

#### Detailed Solution:

There are 4 types of JDBC drivers : JDBC-ODBC bridge driver, network protocol driver, native-API driver and thine driver.

---

#### **QUESTION 2:**

Which of the following is a JDBC class component?

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

Correct Answer: b

#### Detailed Solution:

ResultSet is a JDBC class component and remaining are JDBC interface components.

---



---

### **QUESTION 3:**

**As with Statement objects, to execute a PreparedStatement object, it need to be call an execute statement. Which of the following statement(s) is/are true regarding this?**

- a. executeQuery: if the query returns only one ResultSet (such as a SELECT SQL statement).
- b. executeUpdate : if the query does not return a ResultSet (such as an UPDATE SQL statement).
- c. execute : if the query might return more than one ResultSet object.
- d. executupdateQuery : if the query does return a ResultSet (such as an UPDATE SQL statement).

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

**Detailed Solution:**

All options are correct except option (d).

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### **QUESTION 4:**

**Which of the following statement(s) is/are true, when the return value for executeUpdate is 0 ?**

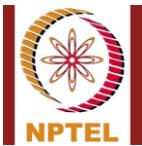
- a. The statement executed was an update statement that affected zero rows.
- b. The statement executed was a DDL statement.
- c. The statement executed was an update statement that affected one row.
- d. The statement executed was a DCL statement.

**Correct Answer: a, b**

**Detailed Solution:**

Either the statement executed was an update statement that affected zero rows or the statement executed was a DDL statement, when the return value for executeUpdate is 0.

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### **QUESTION 5:**

**Which of the following statement is used for executing a database stored procedure?**

- a. Statement
- b. PreparedStatement
- c. CallableStatement
- d. None of these

**Correct Answer: c**

**Detailed Solution:**

CallableStatement in JDBC is used for executing a database stored procedure.

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### **QUESTION 6:**

**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.

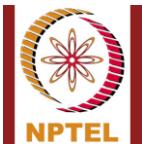
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### **QUESTION 7:**

**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 8:**

**What happens after execution of the following code?**

```
import java.sql.*;
class InsertPrepared{
    public static void main(String args[]){
        try{
            Class.forName("com.mysql.jdbc.Driver");
            Connection con=DriverManager.getConnection(
                "jdbc:mysql://localhost/database","Java","july");
            PreparedStatement stmt=con.prepareStatement("INSERT INTO
table VALUES (?, ?)");
            stmt.setInt(1,"Joe");
            stmt.setString(2,"Dan");
            stmt.executeUpdate();
            con.close();
        }
        catch(Exception e){
            System.out.println(e);
        }
    }
}
```

- a. Compilation error
- b. Runtime error
- c. 1, "Joe" is replaced by 2, "Dan"
- d. "Joe" and "Dan" both are inserted in different columns of same row.

**Correct Answer: d**

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**QUESTION 9:**

**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.

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**QUESTION 10:**

**Which one of the following SQL type represent getfloat()?**

- a. FLOAT
- b. REAL
- c. INTEGER
- d. DOUBLE

Correct Answer: b

**Detailed Solution:**

REAL is a SQL type which represent getfloat(), that is a ResultSet method.

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