



PROGRAMMING IN JAVA

Assignment 1

TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark: $10 \times 1 = 10$

QUESTION 1:

Java is a platform independent programming language because

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

Correct Answer: b

Detailed Solution:

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

QUESTION 2:

What is the value returned by the method `f()` defined below ?

```
public static int f(int x, int y){return (x>y) ? y : x; }
```

- a. The sum of x and y that is, $x + y$.
- b. The difference of x and y that is, $x - y$.
- c. The maximum of x and y that is, the larger value of x and y.
- d. The minimum of x and y that is, the smaller value of x and y.

Correct Answer: d

Detailed Solution:

It will return the minimum of x and y.

QUESTION 3:

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

- a. An array can store different types of data.
- b. Size of an array is limited.



- c. An array can store only one type of data.
- d. An array uses indices for addressing an item stored in it.

Correct Answer: c

Detailed Solution:

Homogeneous data means data of same type and an array can contain only one type of data i.e. you cannot have an array with items of multiple data type.

QUESTION 4:

Which of the following is a class in Java?

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

Correct Answer: b

Detailed Solution:

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

QUESTION 5:

In Java, which of the following data type groups are of same size?

- a. int and long
- b. long and float
- c. float and double
- d. int and float

Correct Answer: d

Detailed Solution: The size of the data types in the options are listed below:

Type	Size
int	32 bits



long	64 bits
float	32 bits
double	64 bits

QUESTION 6:

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

- 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 allocated in the same 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. All of the following are valid examples for declaring an array in Java.

```
int a [ ] = new int[5];
int [ ] a; a = new int [10];
int a [ ] = { 0, 1, 2, 3, 4};
int a [ ];
a = new int[10];
```

QUESTION 7:

Which of the following is not a Language Processor?

- a. Assembler
- b. Compiler
- c. Interpreter
- d. Fortran

Correct Answer: d

Detailed Solution:



A computer understands instructions in machine code i.e., in the form of 0s and 1s. Special translators are required for this operation like Assembler, Compiler and Interpreter. Fortran is a programming language but not a language processor.

QUESTION 8:

A platform is the hardware or software environment in which a program runs. Which of the following is/are Java platform component(s)?

- a. HTML
- b. Java Virtual Machine
- c. Java Application Programming Interface (API)
- d. HotJava

Correct Answer: b, c

Detailed Solution:

A platform is the hardware or software environment in which a program runs. Some of the most popular platforms are Microsoft Windows, Linux, Solaris OS, and Mac OS. Most platforms can be described as a combination of the operating system and underlying hardware. The Java platform differs from other platforms as it is a software-only platform that runs on top of other hardware-based platforms.

The Java platform has two components:

- a. The Java Virtual Machine
 - b. The Java Application Programming Interface (API)
-

QUESTION 9:

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

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

Correct Answer: d

Detailed Solution:

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



QUESTION 10:

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

- a. The class declaration.
- b. The access modifiers.
- c. The encapsulation of data and methods.
- d. Pointer for referencing

Correct Answer: d

Detailed Solution:

C++ supports pointer but java doesn't.



PROGRAMMING IN JAVA

Assignment 2

TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark: $10 \times 1 = 10$

QUESTION 1:

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 2:

Which of the following is an invalid method overloading?

- a. static double add(int a, double b){return a*b;}
static double add(double a, int b){return a*b;}
- b. static int add(int a, int b){return a*b;}
static int add(int a, int b, int c){return a*b*c;}
- c. static int add(int a, int b){return a*b;}
static double add(int a, int b, double c){return a*b*c;}
- d. static int add(int a,int b){return a*b;}
static double add(int a,int b){return a*b;}



Correct Answer: d

Detailed Solution:

In Java, method overloading is not possible by changing only the return type of the method. It is ambiguous because multiple methods having same parameter signature may execute together. So, changing the return type along with parameter signature will ensure unambiguous execution of the code.

QUESTION 3:

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. Accessibility of the values provided as command line argument is restricted only to the main method.
- d. Only one command line argument input is allowed at a time.

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.

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.
- 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. 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 7:

Which of the following is NOT true about a method in a class?

- a. A method can be defined recursively.
- b. A method can be defined without any statement in it.
- c. A constructor is a special kind of method, which can be defined recursively.
- d. A method can be defined with variable number of arguments passed into it.

Correct Answer: c

Detailed Solution:

A constructor cannot be defined recursively. Other statements are true.

QUESTION 8:

Which of the following is an incorrect way of initializing a variable in Java?

- a. Different line declaration and initialization

```
int a,b;  
a=1;  
b=2;
```

- b. Single line declaration and initialization (One at a each line)

```
int a = 1;  
int b = 2;
```

- c. Single line declaration and initialization (One line multiple variable)

```
int a=1,b=2;
```

- d. Single line declaration and initialization (One line multiple variable)

```
int a, b = 1, 2;
```

Correct Answer: d



QUESTION 9:

Following is a program given for this question.

```
public class Question11{  
    public static void main(String args[]){  
        char a = '2', b='8';  
        System.out.println(a+b);  
    }  
}
```

What will be the output of the above program?

- a. 10
- b. 28
- c. 82
- d. 106

Correct Answer: d

Detailed Solution:

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

QUESTION 10:

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

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

Cons

ider the following input on command line.

Input:

- A: Indian Institute of Technology
 - B: 1 2 3 4 5 6
 - C: Indian Institute of Technology Nptel
 - D: 1 2 3 4 5
- a. Only A executes successfully.
 - b. Only B executes successfully.
 - c. Only C executes successfully.



-
- d. Only D executes successfully.

Correct Answer: b



PROGRAMMING IN JAVA

Assignment 3

TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark: $10 \times 1 = 10$

QUESTION 1:

Which of the following keyword(s) can be used in a subclass to call the constructor of super class?

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

Correct Answer: a

Detailed Solution:

The keyword super is used to call the constructor of the super class from a subclass.

QUESTION 2:

If there is an abstract method in a class, then which of the following is/are NOT true.

- a. The class should be declared abstract.
- b. No object of the class can be created.
- c. Any subclass of the class may or may not be abstract class.
- d. A final class can have abstract method(s) and an abstract class can be declared final.

Correct Answer: d

Detailed Solution:

If a class includes abstract methods, then the class should be declared abstract. No object can be created for an abstract class. Further, if a class is derived from an abstract class and abstract method in the base class is not defined, then the derived class is also an abstract class.

QUESTION 3:

Which of the following statement is true regarding the order of execution of constructors in an inheritance hierarchy?

- a. Base class constructor will be called followed by the derived class constructor.



- b. Derived class constructor will be called followed by the base class constructor.
- c. Only Base class constructor will be called.
- d. Only derived class constructor will be called.

Correct Answer: a

Detailed Solution:

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

QUESTION 4:

Which of the following is TRUE about the break statement in Java in the context of loop?

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

Correct Answer: b

Detailed Solution:

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

QUESTION 5:

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 6:

Which of the following is NOT true about a method in a class?

- a. A method can be defined recursively.
- b. A method can be defined without any statement in it.
- c. A constructor is a special kind of method, which can be defined recursively.
- d. A method can be defined with variable number of arguments.

Correct Answer: c

Detailed Solution:

A constructor cannot be defined recursively. Other statements are true.

QUESTION 7:

```
public class B1 {  
    private static int i = 0;  
    private static int j = 0;  
  
    public static void main(String[] args) {  
        int i = 4;  
        int k = 5;  
  
        {  
            int j = 3;  
            System.out.println("i + j is "+i +j);  
        }  
  
        k = i + j;  
        System.out.println(k);  
        System.out.println(j);  
    }  
}
```

What is the output of the above program?

- a. i + j is 43
4
0
- b. i + j is 7
9
3
- c. i + j is 43
9
3
- d. i + j is 7
2



0

Correct Answer: a

QUESTION 8:

Which inheritance is NOT supported in Java programming?

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

Correct Answer: a

Detailed Solution:

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

QUESTION 9:

Which of the following data structure is used to manage the recursion in Java?

- a. Array
- b. Stack
- c. Queue
- d. Tree

Correct Answer: b

Detailed Solution:

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

QUESTION 10:

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.



PROGRAMMING IN JAVA

Assignment 4

TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark: $10 \times 1 = 10$

QUESTION 1:

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:

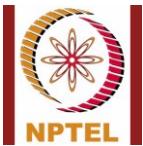
A package is a namespace that organizes a set of related classes and interfaces. It is just like a folder in your computer, where, you might keep HTML pages in one folder, images in another, and scripts or applications in yet another. Since, Java programs can be composed of hundreds or thousands of individual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

QUESTION 2:

Which of the following access specifier(s) should you choose if you need access restricted to only subclass in the same package or different package?

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

Correct Answer: c



Detailed Solution:

In Java, same package subclass is accessible with default, protected and public access specifiers. And, subclass of different package is accessible by protected and public access specifiers. So, in this case we should choose protected only, as with public access specifier even non-subclass of different package will also get access, which is not acceptable.

QUESTION 3:

What is the significance of the “*” in the following line, where “package” denotes a name of a package?

```
import package.*;
```

Select the correct statement in the following.

- a. Only the classes of this package will be imported.
- b. Only the interfaces of this package will be imported.
- c. All the classes and interfaces of this package will be imported.
- d. All the classes, interfaces and sub-packages of this package will be imported.

Correct Answer: c

Detailed Solution:

The significance of “*” in an import statement in Java is that all the classes and interfaces of this package will be imported but not the sub-packages.

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:

Multiple inheritance in Java is achieved by

- a. Encapsulation
- b. Interface
- c. Packages
- d. Multithreading

Correct Answer: b

Detailed Solution:

Java does not support multiple inheritance as C++ supports but Java supports an alternative approach to this OOP feature known as interface.



QUESTION 7:

A platform is the hardware or software environment in which a program runs. Which of the following is/are Java platform component(s)?

- a. HTML
- b. Java Virtual Machine
- c. Java Application Programming Interface (API)
- d. HotJava

Correct Answer: b, c

Detailed Solution:

A platform is the hardware or software environment in which a program runs. Some of the most popular platforms are Microsoft Windows, Linux, Solaris OS, and Mac OS. Most platforms can be described as a combination of the operating system and underlying hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms.

The Java platform has two components:

- a. The Java Virtual Machine
- b. The Java Application Programming Interface (API)

QUESTION 8:

Consider the program given below.

```
package com.nptel.iitkgp.course;
package com.nptel.online.java;

public class Test {
    public static void main(String[] args) {
        if(1) {
            System.out.println("NPTEL");
        }
        else {
            System.out.println("Welcome");
        }
    }
}
```

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. It will produce output

NPTEL

- d. It will produce output
Welcome

Correct Answer: a

Detailed Solution:

In if statement, as a condition, it will take only boolean expression or boolean value.

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. FileWriter is a class present in java.util package.
- d. Thread is a class present in java.lang package.

Correct Answer: c

Detailed Solution:

FileWriter is defined in java.io package.

QUESTION 10:

Which of the following interfaces is/are NOT a member of `java.io` package?

- a. DataInput
- b. ObjectInput
- c. Runnable
- d. FileFilter

Correct Answer: c

Detailed Solution:

Runnable is defined in java.lang package, and the other interfaces are defined in java.io package.

*****END*****



PROGRAMMING IN JAVA

Assignment 5

TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark: $10 \times 1 = 10$

QUESTION 1:

Consider the following piece of code.

```
public class TryCatchFinally {
    public static void main(String []args) {
        try {
            System.out.println("try");
            System.exit(0);
        }
        catch(ArithmetricException e){
            System.out.println("catch");
        }
        finally {
            System.out.println("finally");
        }
    }
}
```

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

a. The output of the code is

```
try
catch
finally
```

b. The output of the code is

```
try
```

c. The output of the code is

```
try
finally
```

d. The output of the code is

```
catch
finally
```



Correct Answer: b

Detailed Solution:

`System.exit(0)` will execute in try block and the control will not go to other block and hence the output is only try.

QUESTION 2:

Which subclass of Throwable is checked at compile time?

- a. NullPointerException
- b. ArithmeticException
- c. IOException
- d. ArrayIndexOutOfBoundsException

Correct Answer: c

Detailed Solution:

Checked exceptions are also called compile-time exceptions, as they arise at compile time. Java code containing any checked exceptions won't compile. IOException is one of the most common checked exceptions in Java. It's caused by different input-output problems such as invalid file access or networking errors.

QUESTION 3:

The fields in an interface are implicitly specified as

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

Correct Answer: d

Detailed Solution:

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

QUESTION 4:



All the classes related to handling exceptions are defined in which of the following Java packages?

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

Correct Answer: c

Detailed Solution:

The classes and all sub-classes related to handling exceptions are defined in `java.lang` package.

QUESTION 5:

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

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

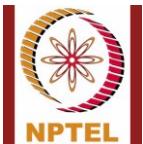
Correct Answer: c

Detailed Solution:

A finally block is optional. A try block can have multiple catch blocks. Further, finally block will not be executed if program encounters an exit statement in a block before the finally block.

QUESTION 6:

Which of the following is an incorrect statement?



- a. All the methods in an interface are abstract and public implicitly.
- b. An interface can be implemented by a class.
- c. An interface can contain constructors.
- d. An interface can be extended by another interface.

Correct Answer: c

Detailed Solution:

All interface methods are implicitly public and abstract. In other words, a programmer need not to explicitly type the public or abstract modifiers in the method declaration. Interface does not have constructor. Because interfaces do not have any instance variable. All the variables in an interface are static and final which are assigned during the declaration phase of the variable, and hence there is no need of constructor in an interface.

QUESTION 7:

Match each item in the first list with an item in the second list.

LIST1:

- a. int[] b;
b[0] = 0;
- b. ArrayIndexOutOfBoundsException

LIST2:

- 1. Compile-time exception
- 2. Compilation error
- 3. Run-time exception

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

Correct Answer: b

Detailed Solution:

List 1 (a) has a compile time error: variable b might not have been initialized **List 2 (b)** *ArrayIndexOutOfBoundsException* is a runtime exception.



QUESTION 8:

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

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

Correct Answer: c

Detailed Solution:

Interfaces can only be implemented but not extended by a class.

QUESTION 9:

Consider the following program.

```
interface A {
    public abstract void run();
}

class B implements A {
    public void run() {
    }
}

class MyThread extends B {
    public void run() {
        for (int i=0;i<5 ; i++ ) {
            System.out.println("NPTEL Java");
        }
    }
}
public class ThreadDemo {
    public static void main(String[] args) {
        MyThread t = new MyThread();
        t.run();
    }
}
```

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



- a. interface A is declared correctly.
- b. The method in class B implements the run() method correctly.
- c. MyThread class inherits the interface A and hence overrides the run() method in B.
- d. The code will compile successfully and then print “NPTEL Java” 5 times.

Correct Answer: d

Detailed Solution:

Interface A has an abstract method and class B has empty implementation of run() method and then this method overrides in MyThread class.

As the for loop is terminated with “;” so only one time it will print “NPTEL Java”.

QUESTION 10:

Consider the code given below.

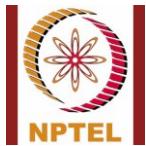
```
public class B1{  
    public static void main(String[] args) {  
        try {  
            int a=100;  
            System.out.println(a);  
            int b=a/0;  
            a=a+1;  
            System.out.println(a);  
        }  
        catch(ArithmeticException e) {  
            System.out.println("Exception thrown: cannot divide by zero");  
        }  
    }  
}
```

Which of the following will be printed if the program is executed?

- a. 100
Exception thrown: cannot divide by zero
- b. 101
Exception thrown: cannot divide by zero
- c. 100
101
- d. 101
100

Correct Answer: a

Detailed Solution:



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Inside the try block, the statement `int b = a/0` causes the ArithmaeticException which will be caught in the next catch block.

*****END*****



PROGRAMMING IN JAVA

Assignment 6

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. isAlive()
- b. getPriority()
- c. getNames()
- d. sleep()

Correct Answer: c

Detailed Solution:

getName() is a method in the pre-defined Java class Thread but not getNames(). Other methods like isAlive(), getPriority() and sleep() are defined in the Thread class.

QUESTION 2:

Which of the following method can be used to know the priority of a thread?

- a. getPriority()
- b. priority()
- c. isRunning()
- d. getThreadPriority()

Correct Answer: a

Detailed Solution:

getPriority() is the method, which is used to know the priority given to a 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:

A thread is better defined as

- a. a basic unit of CPU utilization.
- b. a control used to manage multiple requests by the same user without having to have multiple copies of the program.
- c. a hardware device like Processor.
- d. a multiple copies of the same program.

Correct Answer: a, b

Detailed Solution:

A thread is a basic unit of CPU utilization. Multi-threading is an execution model that allows a single process to have multiple code segments (i.e., threads) running concurrently within the “context” of that process. Multi-threading is the ability of a process to manage its use by more than one user at a time and to manage multiple requests by the same user without having to have multiple copies of the program.



QUESTION 5:

Which of the following statement is NOT true about a thread?

- a. A piece of code that runs concurrently with other threads.
- b. A statically ordered sequence of instructions.
- c. Used to express concurrency on both single and multiprocessor machines.
- d. A thread can be executed independently.

Correct Answer: d

Detailed Solution:

Threads are not independent of one another like processes. And, as a result threads share with other threads their code section, data section, and OS resources (like open files and signals).

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 Question7 extends Thread{
    public void run(){
        System.out.println("Thread started ...");
    }
    public static void main(String args[]){
        Question7 t1 = new Question7();
        t1.start();
    }
}
```



How many threads will be there when the above program is in execution?

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

Correct Answer: c

Detailed Solution:

The main thread and t1 thread altogether count to 2 threads.

QUESTION 8:

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

```
public class Question8{  
    public static void main(String[] args) {  
        Thread thread = Thread.currentThread();  
        System.out.println(thread.isAlive());  
    }  
}
```

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

Correct Answer: b

Detailed Solution:

isAlive() returns a boolean value depending on whether a thread is alive or not.

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:

What `notifyAll()` method does?

- a. Wakes up all threads that are waiting on this object's monitor.
- b. Wakes up only one thread among a group of threads that are waiting on this object's monitor.
- c. Wakes up all threads that are not waiting on this object's monitor.
- d. It doesn't Wake up any thread that are waiting on this object's monitor.

Correct Answer: a

Detailed Solution:

`notifyAll()` : Wakes up all threads that are waiting on this object's monitor. A thread waits on an object's monitor by calling one of the wait methods.

*****END*****



PROGRAMMING IN JAVA

Assignment 7

TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark: $10 \times 1 = 10$

QUESTION 1:

Which of the following interface is NOT a member of `java.io` package?

- a. DataInput
- b. ObjectInput
- c. Runnable
- d. FileFilter

Correct Answer: c

Detailed Solution:

Runnable is defined in `java.lang` package, and the other interfaces are defined in `java.io` package.

QUESTION 2:

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

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

Correct Answer: c, d

Detailed Solution:

Note: `InputStream` and `OutputStream` classes work on byte streams.

QUESTION 3:

Which of the following is NOT a way to read data from the keyboard?

- a. Using an object of `DataInputStream` class
- b. Using an object of `Scanner` class



- c. Passing the data as command line input
- d. Using an object of FileInputStream class.

Correct Answer: d

Detailed Solution:

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

QUESTION 4:

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

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

Correct Answer: c

Detailed Solution:

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

QUESTION 5:

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

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

Correct Answer: a

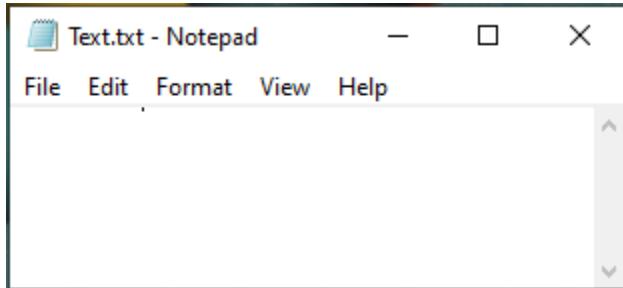
Detailed Solution:

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



QUESTION 6:

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:

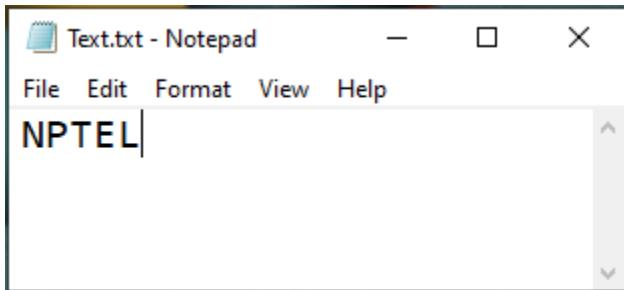
It will compile fine, but raises a run time exception on invoking `readInt()` because nothing is in the file.



QUESTION 7:

```
import java.io.*;  
  
public class Question7{  
    public static void main(String[] args) {  
        try{  
            InputStream file = new FileInputStream("./Text.txt");  
            System.out.print(file.available());  
        }  
        catch(Exception e){  
            System.out.print(e);  
        }  
    }  
}
```

The file **./Text.txt** when opened with the Notepad text editor, it shows the content as shown below.



Which of the following is the correct output for the ‘try’ portion of the code?

- a. Prints the number of bytes in the file.
- b. Prints the number of characters in the file.
- c. Prints ‘true’, if the file is present; else prints ‘false’.
- d. Prints nothing, as an exception will be caught.

Correct Answer: a

Detailed Solution: Returns an estimate of the number of remaining bytes that can be read (or skipped over) from this input stream without blocking by the next invocation of a method for this input stream. The next invocation might be the same thread or another thread. A single read or skip of this many bytes will not block, but may read or skip fewer bytes.

QUESTION 8:

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.

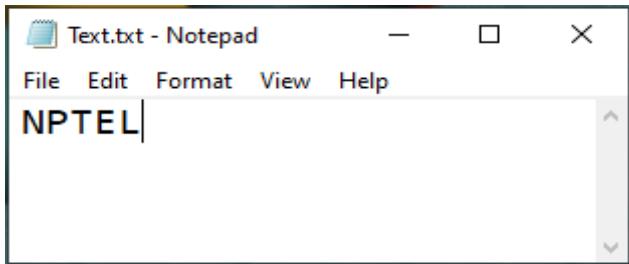
QUESTION 9:

Consider the following program:

```
import java.io.*;
public class Question9{
    public static void main(String[] args) throws IOException {
        BufferedReader br=new BufferedReader(new
                                         FileReader("./Text.txt"));
        String str;
        int c = 0;
        while((str = br.readLine()) != null) {
            c=c+1;
            System.out.println(str.charAt(3));
        }
        System.out.println(c);
    }
}
```



The file “Text.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 4th character of NPTEL that is E.

QUESTION 10:

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

- a. It can allow to open a file both in read and write mode.
- b. It can allow to store the data fields of any object and then reading the same.
- c. The seek(0) method of the object place the file pointer at the beginning of the file.
- d. Creating a RandomAccessFile instance with a constructor will not throw an exception if the file does not exist.

Correct Answer: d



Detailed Solution:

The RandomAccessFile is related to secondary storage only. Creating a RandomAccessFile instance with a constructor will throw an exception if the file does not exist.

*****END*****



PROGRAMMING IN JAVA

Assignment 8

TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark: $10 \times 1 = 10$

QUESTION 1:

In Java AWT, TextArea and TextField are the subclass of

- a. List
- b. Label
- c. TextComponent
- d. TextBox

Correct Answer: c

Detailed Solution:

TextArea and TextField are the two sub classes of TextComponent in Java AWT.

QUESTION 2:

The class at the top of the AWT hierarchy is

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

Correct Answer: a

Detailed Solution:

Others are the sub classes of the Component class.

QUESTION 3:

Which of the following packages 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 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 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 6:

What is the name of the method used to get the timestamp of an event in AWT ActionEvent Class ?

- 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:

What invokes immediately after the `start()` method in an applet?

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

Correct Answer: c

Detailed Solution:

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

QUESTION 8:

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

- e. `stop()`
- f. `paint()`
- g. `init()`
- h. `destroy()`

Correct Answer: c

Detailed Solution:



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:

What is the name of the method used to retrieve the label of a button in AWT?

- a. getLabel() method of Button class.
- b. setLabel(String str) method of Button class
- c. getActionCommand() method of Button class.
- d. addNotify() method of Button class.

Correct Answer: a

Detailed Solution: getLabel() method of Button class is used to retrieve the label of a button.



OBJECT ORIENTED PROGRAMMING WITH JAVA

Assignment 9

TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark: $10 \times 1 = 10$

QUESTION 1:

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

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

Correct Answer: a, c

Detailed Solution:

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

QUESTION 2:

Which of the following is(are) NOT related to a keyboard event?

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

Correct Answer: d

Detailed Solution:

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



QUESTION 3:

Which of the following method is used to set a frame, say `f` with size 300×200 pixels?

- ```
JFrame f = new JFrame();

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

**Correct Answer: a**

**Detailed Solution:**

The `setSize(300,200)` method is used to do the job. Other are either syntactically not valid or not appropriate.

---

### **QUESTION 4:**

**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 5:**

**Which of the following classes can be used to represent a checkbox with a textual label that can appear in a menu?**

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



---

d. Menu

**Correct Answer: c**

**Detailed Solution:**

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

---

**QUESTION 6:**

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

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

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

**Correct Answer: b**

**Detailed Solution:**

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

---

**QUESTION 7:**

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

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



- d. FlowLayout

**Correct Answer: c**

**Detailed Solution:**

This is the layout that the BorderLayout does.

---

**QUESTION 8:**

What is(are) the way(s) to create a Frame using Java Swing?

- a. By creating the object of Frame class (*association*)
- b. By extending Frame class (*inheritance*)
- c. By importing a package named JFrame
- d. By declaring a class with name JFrame

**Correct Answer: a, b**

**Detailed Solution:**

We can create a frame component by creating the object of Frame class (*association*) and by extending Frame class (*inheritance*).

---

**QUESTION 9:**

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

- a. JList
- b. JComboBox
- c. JLabel
- d. JCheckBox

**Correct Answer: b**

**Detailed Solution:**

The JComboBox component creates a pop-up list.

---

**QUESTION 10:**

Analyze the following code.



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

Which button will be displayed?

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

**Correct Answer: b**

**Detailed Solution:**

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

---

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



## PROGRAMMING IN JAVA

### Assignment 10

#### TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark:  $10 \times 1 = 10$

---

#### **QUESTION 1:**

Which of the following package contains classes and interfaces for networking?

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

Correct Answer: c

#### **Detailed Solution:**

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

---

#### **QUESTION 2:**

In the following, which are the protocol follows connection less service?

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

Correct Answer: c

#### **Detailed Solution:**

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

---

#### **QUESTION 3:**

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 4:**

**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 5:**

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

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

**Correct Answer: d**



**Detailed Solution:**

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

---

**QUESTION 6:**

**Which of the following is NOT used to represent a computer uniquely in the Internet?**

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

**Correct Answer: a, b**

**Detailed Solution:**

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

---

**QUESTION 7:**

**Which of the following statement is NOT true for RandomAccessFile object?**

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

**Correct Answer: d**

**Detailed Solution:**

The RandomAccessFile is related to secondary storage only.

---



---

### **QUESTION 8:**

**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 9:**

**Which of the following best describes about JDBC?**

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

**Correct Answer: a**

**Detailed Solution:**

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

---

### **QUESTION 10:**

**Consider the following piece of code.**

```
import java.net.*;

class Networking {
 public static void main(String[] args) throws UnknownHostException {
 try{
 URL url=new URL("https://www.google.com");
 }
 }
}
```



```
InetAddress obj1 = InetAddress.getByName("www.google.com");
InetAddress obj2 = InetAddress.getByName(url.getHost());
boolean x = obj1.equals(obj2);
System.out.println(x);
}
catch(Exception e){}
}
```

**Which of the following is the correct output of the above program?**

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

**Correct Answer: c**

**Detailed Solution:**

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

---

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



## OBJECT ORIENTED PROGRAMMING WITH JAVA

### Assignment 11

#### TYPE OF QUESTION: MCQ

Number of questions: 10

Total mark:  $10 \times 1 = 10$

---

#### **QUESTION 1:**

Which of the following method(s) is/are used to set the query parameters of the PreparedStatement Object?

- a. `putString()`
- b. `insertString()`
- c. `setString()`
- d. `setInt()`

Correct Answer: c, d

#### **Detailed Solution:**

The setter methods (`setShort`, `setString`, and so on) for setting input parameter values must specify types that are compatible with the defined SQL type of the input parameter.

---

#### **QUESTION 2:**

Which one of the following contains date information?

- a. `java.sql.TimeStamp`
- b. `java.sql.Time`
- c. `java.io.Time`
- d. `java.io.TimeStamp`

Correct Answer: a

#### **Detailed Solution:**

`java.sql.Time` contains only time. Whereas, `java.sql.TimeStamp` contains both time and date.

---

#### **QUESTION 3:**

Which of the following can be used to parse data from a table in database?

- a. `ResultSet`
- b. `PreparedStatement`
- c. `Connection`



- 
- d. Statement

**Correct Answer: a**

**Detailed Solution:**

A ResultSet provides access to a table of data generated by executing a Statement.

---

**QUESTION 4:**

The SQL command “USE test” is used to

- a. list all the databases with subtext as ‘test’.
- b. list all the tables those are there under the database with subtext as ‘test’.
- c. create a table called ‘test’.
- d. set ‘test’ as the current working database, so that any SQL command bind to the test database only.

**Correct Answer: d**

**Detailed Solution:**

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

---

**QUESTION 5:**

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

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

**Correct Answer: c**

**Detailed Solution:**

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



---

**QUESTION 6:**

MySQL is a \_\_\_\_\_.

- a. Java Database Connectivity (JDBC)
- b. Relational Database Management System (RDBMS)
- c. Java Runtime Environment (JRE)
- d. Java Development Kit (JDK)

**Correct Answer: b**

**Detailed Solution:**

MySQL is an Oracle-backed open source relational database management system (RDBMS) based on Structured Query Language (SQL).

---

**QUESTION 7:**

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

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

**Correct Answer: a**

**Detailed Solution:**

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

---

**QUESTION 8:**

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

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

**Correct Answer: c**



**Detailed Solution:**

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

---

**QUESTION 9:**

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

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

**Correct Answer: b**

**Detailed Solution:**

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

---

**QUESTION 10:**

What is the use of `PreparedStatement`?

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

**Correct Answer: d**

**Detailed Solution:**

The `PreparedStatement` is used for executing a precompiled SQL statement

---

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



## OBJECT ORIENTED PROGRAMMING WITH JAVA

### Assignment 12

**TYPE OF QUESTION: MCQ**

**Number of questions:** 10

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

---

#### **QUESTION 1:**

**What is the use of Socket and ServerSocket in Java Networking? Select the appropriate option(s).**

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

**Correct Answer: d**

#### **Detailed Solution:**

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

---

#### **QUESTION 2:**

**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**



**Detailed Solution:**

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

---

**QUESTION 3:**

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

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

**Correct Answer: b**

**Detailed Solution:**

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

---

**QUESTION 4:**

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

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

**Correct Answer: b**

**Detailed Solution:**

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

---

**QUESTION 5:**

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



- a. switch
- b. string
- c. lang
- d. this

**Correct Answer: a, d**

**Detailed Solution:**

In Java, String is a class and this is a keyword and thence they are reserved. Since, the Java language is case sensitive “string” is different from String. Therefore, the ‘switch’ and ‘this’ will be considered as reserved.

---

**QUESTION 6:**

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

- a. length()
- b. compareTo()
- c. equals()
- d. append()

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

**Detailed Solution:**

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

---

**QUESTION 7:**

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

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



---

Which of the following is the result?

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

**Correct Answer: a**

**Detailed Solution:**

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

---

**QUESTION 8:**

**Which of the following statements would NOT cause a compilation error?**

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

**Correct Answer: c, d, e, f**

**Detailed Solution:**

Option (c), (d), (e) and (f) are syntactically correct for declaration of an array.

---

**QUESTION 9:**

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

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



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

What is the result, if the above-mentioned program is executed?

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

**Correct Answer: c**

**Detailed Solution:**

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

---

### **QUESTION 10:**

**Which of the statements are correct about Swing programming?**

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

**Correct Answer: c**

**Detailed Solution:**

Swing is lightweight compared to the AWT.

---

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