B2.52-R3: INTRODUCTION TO OBJECT ORIENTED PROGRAMMING THROUGH JAVA

NOTE:

1.	There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.
2.	**PART ONE** is to be answered in the **TEAR-OFF ANSWER SHEET** only, attached to the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book.
3.	Maximum time allotted for **PART ONE** is **ONE HOUR**. Answer book for **PART TWO** will be supplied at the table when the answer sheet for **PART ONE** is returned. However, candidates, who complete **PART ONE** earlier than one hour, can collect the answer book for **PART TWO** immediately after handing over the answer sheet for **PART ONE**.

TOTAL TIME: 3 HOURS **TOTAL MARKS: 100**

(PART ONE – 40; PART TWO – 60)

PART ONE
(Answer all the questions)

1. Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the "tear-off" answer sheet attached to the question paper, following instructions therein. (1 x 10)

1.1 What will be the ***output*** of the following program?

```
public class example {
      int i[] = {0};
      public static void main(String args[]) {
            int i[] = {1};
            change_i(i);
            System.out.println(i[0]);
      }
      public static void change_i(int i[]) {
      int j[] = {2};
      i = j;
      }
}
```

A) The program does not compile.
B) The program prints 0.
C) The program prints 1.
D) The program prints 2.

1.2 Which of the following is an invalid declaration for the main method in java program?
A) public static void main(String args[ ])
B) public static void main(String [ ]args)
C) final static public void main (String args[ ])
D) public static int main(String args[ ])

1.3 What gets printed on the standard output when the class below is compiled and executed?

```
public class ShortCket {
      public static void main(String args[]) {
      int i = 0;
      boolean t = true, f = false, b;
      b = (t && ((i++) == 0));
      b = (f && ((i+ = 2) > 0));
      System.out.println(i);
      }
}
```

A) 0
B) 1
C) 2
D) 3

1.4 Which of the following statement is correct?
A) For positive numbers, results of operators >> and >>> are same.
B) Java provides two operators to do left shift <<< and <<.
C) >> is the zero fill right shift operator.
D) >>> is the signed right shift operator.

1.5 The new operator
A) returns a pointer to a variable
B) creates a variable called new
C) obtains memory for a new variable
D) tells how much memory is available

1.6 What will be the output of the following program?

```
public class test {
      public static void main(String args[]) {
            byte x = 3;
            x = (byte) ~ x;
            System.out.println(x);
      }
}
```

A) 3
B) -4
C) 1
D) 0

1.7 A top level class may have which one of the following access modifiers:
A) package
B) private
C) protected
D) public

1.8 TreeMap class is used to implement which one of the following collection interfaces:
A) Set
B) SortedSet
C) SortedMap
D) List

1.9 To get the object that generates the event which of the following method is used that is defined in EventObject class?

A) getEvent()
B) getObject()
C) getID()
D) getSource()

1.10 What would happen when the following is compiled and executed?

```
public class Compare {
      public static void main(String args[]) {
      int x = 10, y;
      if(x < 10) y = 1;
      if(x >= 10) y = 2;
      System.out.println("y is" +y);
      }
}
```

A) The program does not compile and complains about *y* not being initialized.
B) The program compiles and prints *y* is *0* when executed.
C) The program compiles and prints *y* is *1* when executed.
D) The program compiles and prints *y* is *2* when executed.

2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "tear-off" sheet attached to the question paper, following instructions therein. (1 x 10)

2.1 The default layout manager for java window application of FlowLayout manager.
2.2 Free memory spaces for object are allocated from the garbage-collection stack.
2.3 Object oriented programming language permit functional and data abstraction.
2.4 The SCROLL_LINE_MOVE event is generated when the user clicks on the up arrow of a vertical scrollbar or on the left arrow of a horizontal scrollbar.
2.5 The entry point of every application in java is its main() method.
2.6 A class can implement many interfaces but can have only one superclass.
2.7 The ServerSocket class implements a TCP/UDP server socket.
2.8 The InputStream class is an abstract class that lays the foundation the Java Input class hierarchy.
2.9 Private members of the super class can be accessed by sub class member's function/objects.
2.10 The exception handling mechanism is used for handling compile time errors.

3. Match words and phrases in column X with the closest related meaning/ word(s)/phrase(s) in column Y. Enter your selection in the "tear-off" answer sheet attached to the question paper, following instructions therein. (1 x 10)

X		Y	
3.1	FilterInputStream is base class for BufferedInputStream and	**A.**	Filter
3.2	All the methods in Listener Interfaces should be	**B.**	Private
3.3	All objects have a toString() method which is inherited from	**C.**	Protected
3.4	To change the rectangle color in Applet, we'll use a new method setColor(), that is a part of the	**D.**	Graphics class
3.5	To indicate that this class is a subclass of the Applet class the keyword used is	**E.**	implements
3.6	At the top of the Java error-and-exception hierarchy the class declared as public is	**F.**	the Object class
3.7	The Object class does not have any variables and has only one	**G.**	the Checkbox class
3.8	The state of each checkbox is set using the setState() method of	**H.**	constructor
3.9	In order to provide access to the tokens contained within a string StringTokenizer class implements	**I.**	Applet
3.10	To pass the data, from one stream to another stream, we have to use	**J.**	DataInputStream
		K.	Reader
		L.	the Throwable
		M.	public
		N.	the Enumeration interface
		O.	extends

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Enter your choice in the "tear-off" answer sheet attached to the question paper, following instructions therein. (1 x 10)

A.	public	**B.**	Number	**C.**	Clonable
D.	setupFonts()	**E.**	Short	**F.**	polymorphism
G.	MenuComponent	**H.**	Applet	**I.**	reference
J.	Objectcode	**K.**	javah	**L.**	Bytecode
M.	Inheritance	**N.**	jar	**O.**	Integer
P.	Runnable	**Q.**	getToolKit()	**R.**	value

4.1 _____ class is derived from the Container class.

4.2 Only _____ package members are accessible outside the package in which they are defined.

4.3 _____ is a highly optimized set of instruction designed to be executed by the java run time system.

4.4 Java can call a function stored in a native DLL using _____ utility, which comes with java development kit.

4.5 The concept of _____ is often expressed by the phrase "one interface, multiple methods".

4.6 _____ data type has a range from -32,768 to 32,768.

4.7 An object is implicitly passed to a method by _____.

4.8 The abstract class _____ is a super class that implemented by the classes that wrap the numeric type's byte, short, integer, long, float and double.

4.9 The _____ interface defines no members.

4.10 The _____ method obtains the Toolkit object associated with the program's window and assigns this object to the toolkit variable.

PART TWO

(Answer any **FOUR** questions)

5.

a) Using java development kit we can develop java application as well as java applet. What are the differences between java application and java applet?

b) Explain different types of JDBC drivers and JDBC driver API?

c) A Random class is used for generation of random number in java. Write a code that generates a random integer number between variable ***a*** and variable ***b***?

(6+6+3)

6.

a) There may be two types of members in java program like instance member and class member. Explain what are the differences between:
   i) instance variable and class variable
   ii) instance method and class method

b) What is Runnable interface? Which are the ways to make a java program as multithread java program?

c) What is synchronization in java and how it is used to access the same data bit multiple thread?

d) Objects are created at runtime in java. Describe what happens when an object is created in java?

(2+4+4+5)

7.

a) *final* is access modifier used for any OOD entity like class, method and variable. What does it mean that a class or method or variable is final?

b) Write a TCP/IP client/server program that accepts a string from client. The server converts string to uppercase and reverse it and then send back it to the client.

(3+12)

8.

a) Client uses servlets GETS and POST methods for services from servers. What are the difference between GET and POST service methods?

b) What is meant by user defined exception in Java?

c) Write a Java Applet using swing methods and classes to find maximum number out of *n* given numbers.

(3+4+8)

9. Explain any three of the following:

a) Vector class

b) Garbage collection

c) Dynamic Binding

d) Benefits of Interfaces in java

(5x3)