A10.1-R4: 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. (1x10)

1.1 The basic design strategies embedded in object-oriented programming is/are
A) Abstraction
B) Composition
C) Generalization
D) All of the above

1.2 Which one of the following does not extends java.awt.Component.
A) Checkbox
B) Canvas
C) CheckboxGroup
D) Label

1.3 In the Java development kit, _____ is a disassembler.
A) javah
B) javap
C) javac
D) jdb

1.4 A class that extends the AbstractList class and implements the List interface akin to an array of a non-primitive data types and having variable length.
A) HashSet
B) LinkedHashMap
C) ArrayList
D) LinkedList

1.5 When the JVM runs out of memory, a _____ will be thrown.
A) MemoryBoundException
B) OutOfRangeException
C) OutOfMemoryException
D) NullReferenceException

1.6 _____ component provides a way to show various dialogs such as error, message, confirmation, etc

A) JDialogBox
B) JOptionPane
C) JFileChooser
D) JTable

1.7 Java allows the programmer to write one class definition inside of another, such a definition is termed as _____ in Java.

A) NonInner class
B) Inner class
C) Object class
D) Class class

1.8 RUP stands for _____

A) Relational Unified Practice
B) Relational Unique Process
C) Rational Unified Paradigm
D) Rational Unified Process

1.9 The execution of the following code will print _____.

```
String  x = "7";
x += "8";
System.out.println(x);
```

A) 7
B) 78
C) 87
D) Error

1.10 The class Graphics2D comes from _____ package.

A) java.awt
B) java.swing
C) javax.swing.
D) java.awt.image

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. (1x10)

2.1 Abstract Data Types is a term referring to an abstract class.
2.2 Reusability is an important aspect of designing classes.
2.3 The Java Virtual Machine enables the same Java application to be used on heterogeneous platforms.
2.4 Exceptions are not allowed to propagate by Java.
2.5 BorderLayout is the default layout manager for an Applet if you do not set any layout manager.
2.6 The LDAP is a protocol for reading and editing directories over an IP network.
2.7 Methods in the Interface are restricted to be public accessibility even there is no public keyword when defining them.
2.8 Constructor of a class can never be private.
2.9 The label's font can be changed using the setFont() method.
2.10 A use case is a scenario tied together by a common user goal.

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. (1x10)

X		Y	
3.1	Constant data field in Java is represented by	**A.**	deployment of artifacts
3.2	An abstract representation of file and directory pathnames.	**B.**	procedural behavior
3.3	Multiple choices for the user	**C.**	configuration of instance
3.4	Single choice for the user	**D.**	final keyword
3.5	Statement	**E.**	abstract keyword
3.6	PreparedStatement	**F.**	File
3.7	FileReader extends	**G.**	A static SQL statement
3.8	java.util.zip.ZipFile extends	**H.**	JCheckBox
3.9	Activity	**I.**	JComboBox
3.10	Object	**J.**	A precompiled SQL statement
		K.	Object
		L.	InputStreamReader
		M.	InputStream

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. (1x10)

A.	AppletContext	**B.**	Green	**C.**	final
D.	AppletStub	**E.**	object	**F.**	Assertion
G.	RuntimeException	**H.**	JRadioButton	**I.**	abstract
J.	Activity	**K.**	Sequence	**L.**	MVC
M.	Use Case				

4.1 The original development of Java was started under Project _____.

4.2 _____ is an invariant, a condition which is always supposed to be true.

4.3 The pattern _____ has been heavily used in the design of the Java Swing.

4.4 _____ interface in Applet API can be used to get the context information the Applet is running.

4.5 BufferOverflowException extends _____ class.

4.6 In Java, Array is implemented as _____.

4.7 Parallel behavior with conditions can be represented with UML _____ diagrams.

4.8 A class containing one or more unimplemented methods must be _____.

4.9 _____ diagram shows interaction by showing each participants with ordering of messages.

4.10 RadioButtons are implemented in swing through the _____ class

PART TWO

(Answer any **FOUR** questions)

5.

a) Explain private, protected and public access modifiers of Java in brief.

b) What are accessor and mutator methods? Explain each of them with example.

c) What are the advantages of Object Oriented Programming?

(6+5+4)

6.

a) How does StringBuffer class differ from String class? Explain the following methods of StringBuffer class with example.

   i) setCharAt()
   ii) append()
   iii) insert()
   iv) setLength()

b) Discuss about the DatabaseMetaData and ResultSetMetaData interface with example.

c) Explain with an example the use of static import in a Java file.

(6+6+3)

7.

a) What are the different types of exceptions that might pop-up while processing streams? Write a program that counts the total number of bytes in a file.

b) What are the adapter classes? Describe the following adapter classes with example.

   i) WindowAdapter
   ii) KeyAdapter
   iii) MouseAdapter

(8+7)

8.

a) Explain Use Case diagrams in UML. What kinds of relationship can be supported by use case diagrams? Draw use case diagrams for item purchasing system for customers.

b) What do you mean by packages in object oriented paradigms? What types of application uses package diagrams? Give any one example of package diagram.

(8+7)

9.

a) Discuss the following methods of Graphics class.

   i) drawString()
   ii) fillRect()
   iii) drawArc()

b) List the Wrapper classes. Explain autoboxing and unboxing conversions.

c) What is a CLASSPATH? How can we set the CLASSPATH? Explain with example.

(6+6+3)