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 minimum value of char type variable is

A) '\u0020'

B) '\u00ff'

C) ' '

D) '\u0000'

1.2 Which of the following is correct?

A) int a = 16, a>>2 = 4

B) int b = -8, b>>1 = -4

C) int a = 16, a>>>2 = 4

D) All of the above

1.3 Consider the following code

```
if ( number >= 0)
      if (number > 0)
            System.out.println("Number is positive");
      else
            System.out.println("Number is negative");
```

What will be the output if number is equal to 0?

A) Number is negative

B) Number is positive

C) Both A) and B)

D) None of the above

1.4 What is the error in the following class definition?

```
abstract class MyTest
{
      abstract sum (int x, int y){     }
}
```

A) Class header is not defined properly
B) Constructor is not defined
C) Method is not defined properly
D) No error

1.5 Consider the following class definitions:

```
class mathstest
{
      Student student1;
}
class Student
{
      String name;
}
```

This code represents:
A) an 'is a' relationship
B) a 'has a' relationship
C) both
D) neither

1.6 Which of the following methods belong to the String class?
A) length( )
B) compareTo()
C) equals( )
D) All of the above

1.7 When repaint( ) is invoked for a component, the AWT invokes the _____ method.
A) draw( )
B) update( )
C) paint( )
D) show( )

1.8 Partitions in activity diagram are basically known as _____.
A) Grouplens
B) Swimlens
C) Workflow
D) None

1.9 The deployment diagram represents _____ view of a use case model.
A) Physical
B) Logical
C) Process
D) All

1.10 The setBackground( ) method is part of the class _____.
A) Graphics
B) Applet
C) Component
D) Container

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 The CODE value in an <APPLET> tag must name a class file that is in the same directory as the calling HTML page.

2.2 It is possible to use the File class to list the contents of the current working directory.

2.3 If a frame uses a GridLayout manager and does not contain any panels, then all the components within the frame are of the same width and height.

2.4 An abstract class can be final also.

2.5 Exceptions can be caught or rethrown to a calling method.

2.6 Subclasses' methods can access all members/ attributes of the superclass.

2.7 The Vector class provides the capability to implement a growable array of objects.

2.8 In Java, an array can store different types of values.

2.9 In UML, Component structure diagram shows process view of the use case model.

2.10 A parameterized class is actually not a class, it is a template.

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	Random class	**A.**	abstract
3.2	A javadoc tag which is used to denote a comment for a method parameter	**B.**	Association
3.3	A method used to output a string to an applet	**C.**	java.lang package
3.4	A component generates an action event	**D.**	@argument
3.5	createStatement() method	**E.**	Interaction
3.6	bytecode file	**F.**	finalize( )
3.7	garbage collection	**G.**	@param
3.8	System.in	**H.**	Button
3.9	Aggregation	**I.**	drawstring( )
3.10	Collaboration	**J.**	PreparedStatement
		K.	Statement
		L.	.class extension
		M.	.java extension
		N.	writeString( )
		O.	InputStream
		P.	java.io package

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.	flush( )	**B.**	java.util	**C.**	Unicode
D.	clearbuffer( )	**E.**	Graphics	**F.**	Java.lang
G.	listener	**H.**	class variable	**I.**	JFrame
J.	static	**K.**	Object	**L.**	Panel
M.	Map	**N.**	instance variable	**O.**	Applets
P.	Country	**Q.**	Locale	**R.**	Dynamic

4.1 Java uses _____ character set.

4.2 StringTokenizer class is available in _____ package.

4.3 A paint( ) method of an applet has a parameter of type _____.

4.4 In java, _____ class is the root of class hierarchy.

4.5 Static variable is also called _____.

4.6 Frame class is the immediate superclass of _____.

4.7 The _____ method helps in clearing the buffer.

4.8 Method overloading is an example of _____ method binding.

4.9 Multimedia applications can be designed in JAVA using _____.

4.10 _____ class of java.util package supports internationalization.

PART TWO

(Answer any **FOUR** questions**)**

5.

a) Differentiate between an interface and an abstract class.

b) Write an applet that draws a circle every time the mouse button is clicked. Set the radius of the circle to 6 pixels.

c) Briefly explain the three main concepts of Object Oriented Programming Paradigm.

(5+5+5)

6.

a) Discuss method overloading and method overriding with suitable example.

b) Explain constructors. Why they should not be declared private?

c) List types of JDBC drivers. Explain any two of them.

(5+5+5)

7.

a) What is an applet? Explain life cycle of an applet.

b) Describe event delegation model

c) Briefly explain following command-line tools available in Java.

i) javac
ii) java
iii) appletviewer
iv) javadoc
v) javap

(5+5+5)

8.

a) What are packages and how are they useful?

b) Write a brief note on following types of diagrams in UML.

i) Sequence Diagrams
ii) Activity Diagrams

c) In a class hierarchy, in which order are the constructors for the classes that make up the hierarchy are called? How can a specific parameterized constructor of the superclass be called by the subclass?

(5+5+5)

9.

a) What do you mean by UML USE case diagrams? Explain book issue and return process of Library Management System with USE case diagrams.

b) Distinguish between throw and throws with the help of examples.

c) What are UML class diagrams? What is generalization relationship? Explain it with suitable example.

(5+5+5)