

B2.51-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)

|           |                  |           |              |           |           |
|-----------|------------------|-----------|--------------|-----------|-----------|
| <b>A.</b> | AppletContext    | <b>B.</b> | Green        | <b>C.</b> | final     |
| <b>D.</b> | AppletStub       | <b>E.</b> | object       | <b>F.</b> | Assertion |
| <b>G.</b> | RuntimeException | <b>H.</b> | JRadioButton | <b>I.</b> | abstract  |
| <b>J.</b> | Activity         | <b>K.</b> | Sequence     | <b>L.</b> | MVC       |
| <b>M.</b> | 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)**