A10.1-R4 : INTRODUCTION TO OBJECT ORIENTED PROGRAMMING THROUGH JAVA

अवधि: 03 घंटे **अधिकतम अंक: 100**

DURATION: 03 Hours **MAXIMUM MARKS: 100**

ओएमआर शीट सं.: **OMR Sheet No.:**						

रोल नं.: **Roll No.:** | | | | | | |

उत्तर-पुस्तिका सं.: **Answer Sheet No.:** | | | | | | |

परीक्षार्थी का नाम: **परीक्षार्थी के हस्ताक्षर:**

Name of Candidate: _____; Signature of candidate: _____

परीक्षार्थियों के लिए निर्देश: **Instructions for Candidates:**

कृपया प्रश्न-पुस्तिका, ओएमआर शीट एवं उत्तर-पुस्तिका में दिये गए निर्देशों को ध्यान पूर्वक पढ़ें।	Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet.
प्रश्न-पुस्तिका की भाषा अंग्रेजी है । परीक्षार्थी केवल अंग्रेजी भाषा में ही उत्तर दे सकता है ।	Question Paper is in English language. Candidate can answer in English language only.
इस मॉड्यूल/पेपर के **दो भाग** हैं। **भाग एक** में चार प्रश्न और **भाग दो** में पाँच प्रश्न हैं।	There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions**.**
भाग एक "वैकल्पिक" प्रकार का है जिसके कुल अंक 40 है तथा **भाग दो,** "व्यक्तिपरक" प्रकार है और इसके कुल अंक 60 हैं।	**PART ONE** is Objective type and carries 40 Marks. **PART TWO** is subjective type and carries 60 Marks.
भाग एक के उत्तर, इस प्रश्न-पत्र के साथ दी गई **ओएमआर उत्तर-पुस्तिका** पर, उसमें दिये गए अनुदेशों के अनुसार ही दिये जाने हैं। **भाग दो** की उत्तर-पुस्तिका में **भाग एक** के उत्तर **नहीं** दिये जाने चाहिए।	**PART ONE** is to be answered in the **OMR ANSWER SHEET** only, supplied with the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book for **PART TWO**.
भाग एक के लिए अधिकतम समय सीमा **एक घण्टा** निर्धारित की गई है। **भाग दो** की उत्तर-पुस्तिका, **भाग एक** की उत्तर-पुस्तिका जमा कराने के पश्चात दी जाएगी। तथापि, निर्धारित एक घंटे से पहले **भाग एक** पूरा करने वाले परीक्षार्थी **भाग एक** की उत्तर-पुस्तिका निरीक्षक को सौंपने के तुरंत बाद, **भाग दो** की उत्तर-पुस्तिका ले सकते हैं।	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.**
परीक्षार्थी, उपस्थिति-पत्रिका पर हस्ताक्षर किए बिना एवं अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हॉल /कमरा नहीं छोड़ सकते हैं। ऐसा नही करने पर, परीक्षार्थी को इस मॉड्यूल / पेपर में अयोग्य घोषित कर दिया जाएगा।	**Candidate cannot leave the examination hall/room without signing on the attendance sheet and handing over his Answer sheet to the invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.**
प्रश्न-पुस्तिका को खोलने के निर्देश मिलने के पश्चात एवं उत्तर लिखना आरम्भ करने से पहले उम्मीदवार यह जाँच कर सुनिश्चित कर लें कि प्रश्न-पुस्तिका प्रत्येक दृष्टि से संपूर्ण है।	After receiving the instruction to open the booklet and before answering the questions, the candidate should ensure that the Question booklet is complete in all respect.

जब तक आपसे कहा न जाए, तब तक प्रश्न-पुस्तिका न खोलें।

DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.

SPACE FOR ROUGH WORK

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 "OMR" answer sheet supplied with the question paper, following instructions therein.

(1×10)

1.1 In object oriented programming data and function bind together as

(A) Modules

(B) Encapsulation

(C) Class

(D) Abstraction

1.2 What is the range of data type byte in Java?

(A) -128 to 127

(B) -32768 to 32767

(C) -2147483648 to 2147483647

(D) None of the options

1.3 Which of these coding types is used for data type characters in Java?

(A) ASCII

(B) ISO-LATIN-1

(C) UNICODE

(D) None of the options

1.4 Which one is a valid declaration of a Boolean?

(A) boolean b1 = 1;

(B) boolean b2 = 'false';

(C) boolean b3 = false;

(D) boolean b4 = 'true'

1.5 If an expression contains double, int, float, long, then whole expression will promoted into which of these data types?

(A) double

(B) int

(C) long

(D) float

1.6 Which of these operators is used to allocate memory for an object?

(A) malloc

(B) alloc

(C) new

(D) give

1.7 Which of these statements is incorrect?

(A) Every class must contain a main() method.

(B) Applets do not require a main() method at all.

(C) main() method must be made public.

(D) There can be only one main() method in a program.

1.8 In UML diagram of a class

(A) state of object cannot be represented

(B) state is irrelevant

(C) state is represented as an attribute

(D) state is represented as a result of an operation

1.9 What is the return type of the hashCode() method in the Object class?

(A) String

(B) integer

(C) long

(D) Object

1.10 When the JVM runs out of memory, a _____ will be thrown.

(A) MemoryBoundException

(B) OutOfRangeException

(C) NullReferenceException

(D) OutOfMemoryException

2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1×10)

2.1 The equals sign = is used to test equality in if statement

2.2 Declarations must appear at the start of the body of a Java method.

2.3 The "switch" selection structure must end with the default case.

2.4 Objects of a subclass can be assigned to a super class reference.

2.5 The == operator can be used to compare two String objects. The result is always true if the two strings are identical.

2.6 All interface methods must be declared as public when implemented in a class.

2.7 A method in a class declared as static can only access static class members.

2.8 We can overload methods with differences only in their return type.

2.9 In a method or a constructor, "this" is a reference to the current object.

2.10 A class may be both abstract and final.

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 "OMR" answer sheet supplied with the question paper, following instructions therein. (1×10)

X		Y	
3.1	A final class cannot be	**A.**	final
3.2	Super class of all java classes	**B.**	Inherited
3.3	A class can be declared with the keyword abstract to indicate that it cannot be	**C.**	abstract
3.4	Default package imported to all .java files is	**D.**	Instantiated
3.5	Keyword used to define a constant	**E.**	Object
3.6	Diagrams emphasize the order in which things happen	**F.**	java.lang
3.7	A precompiled SQL statement	**G.**	Sequence diagram
3.8	super() can only occur as the first statement in a	**H.**	java.util
3.9	Exception is an error caused at	**I.**	PreparedStatement
3.10	A class containing one or more unimplemented method must be declared as	**J.**	CallableStatement
		K.	Constructor
		L.	Runtime
		M.	Compile time

4. **Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Choose the most appropriate option, enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein.** **(1×10)**

A.	Package	**B.**	Folder	**C.**	paint()
D.	Throwable	**E.**	Element	**F.**	notify()
G.	Activity	**H.**	JVM	**I.**	Byte code
J.	Object	**K.**	Garbage collection	**L.**	JRadioButton
M.	toString()				

4.1 A function used for string representation of object is _____.

4.2 When an applet output must be redrawn a _____ method is invoked.

4.3 _____ is an automatic process in Java.

4.4 RadioButtons are implemented in swing through the _____ class.

4.5 The output of the Java compiler is known as_____.

4.6 A _____ is a collection of classes and interfaces.

4.7 Super class of the Exception class is_____.

4.8 The output of the Java compiler is executed by the_____.

4.9 Based upon the events that occur, the _____ diagram shows how the object changes from start to finish.

4.10 In Java, Array is implemented as _____.

PART TWO

(Answer any FOUR questions)

5. (A) Explain the use of this and static keyword with proper example.

   (B) Explain about following diagrams in UML.

   (i) Class Diagram

   (ii) Use Case Diagram

(7+8)

6. (A) Explain the Swing MVC architecture in detail.

   (B) Explain private, protected, public and default access modifiers of Java in brief.

   (C) What kinds of relationship can be supported by use case diagrams? Draw use case diagrams for online item purchasing system for customers.

(4+4+7)

7. (A) Explain the difference between overloading and overriding of methods.

   (B) Explain the usage of final keyword with variable, method and class with suitable example.

   (C) Explain the two different ways of creating a new thread of execution. Which of this is the preferred and why?

(5+5+5)

8. (A) Explain about the Component class and AWT window hierarchy.

   (B) Explain the keywords try, catch, throw, throws and finally.

   (C) List the Wrapper classes. Explain autoboxing and unboxing conversions.

(5+5+5)

9. Differentiate between any **three** of the following:

   (A) Swing and Applet

   (B) Process and Thread

   (C) Abstract class and Interface

   (D) Object and Class

(3×5)

SPACE FOR ROUGH WORK