A10.1/B2.51-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 Candidate :**
कृपया प्रश्न-पुस्तिका, ओएमआर शीट एवं उत्तर-पुस्तिका में दिये गए निर्देशों को ध्यानपूर्वक 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 सकते हैं।	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 का है और इसके कुल अंक 60 है।	**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 पश्चात् 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** to the Invigilator.
परीक्षार्थी, उपस्थिति-पत्रिका पर हस्ताक्षर किए बिना एवं अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हॉल/कमरा नहीं छोड़ सकते हैं। ऐसा नहीं 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/her 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 पश्चात् एवं उत्तर लिखना आरम्भ करने से पहले उम्मीदवार जाँच कर यह सुनिश्चित कर लें कि प्रश्न-पुस्तिका प्रत्येक दृष्टि से संपूर्ण है।	After receiving the instruction to open the booklet and before starting to answer 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.

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. **(1x10=10)**

1.1 When Overloading does not occur ?

(A) More than one method with same name but different method signature and different number or type of parameters

(B) More than one method with same name, same signature but different number of signature

(C) More than one method with same name, same signature, same number of parameters but different type

(D) More than one method with same name, same number of parameters and type but different signature

1.2 Multiple inheritance means :

(A) One class inheriting from more super classes

(B) More classes inheriting from one super class

(C) More classes inheriting from more super classes

(D) None of the above

1.3 Analyze the following code :

```
public class Test {
public static void main(String[] args) {
int[] x = new int[5];
int i;
for (i = 0; i < x.length; i++)
x[i] = i;
System.out.println(x[i]);
}}
```

(A) The program displays 0 1 2 3 4

(B) The program displays 4

(C) The program has a runtime error

(D) None of the above

1.4 Package of drawstring() method is :

(A) java.applet

(B) java.io

(C) javax.swing

(D) java.awt

1.5 Select the exception class from among the following which is part of the java.lang package :

(A) EOF Exception

(B) Mal Formed URL Exception

(C) Run Time Exception

(D) IO Exception

1.6 What is multiplicity for an association in UML ?

(A) The multiplicity at the target class end of an association is the number of instances that can be associated with a single instance of source class.

(B) The multiplicity at the target class end of an association is the number of instances that can be associated with a number instance of source class.

(C) All the mentioned.

(D) None of the mentioned.

1.7 In UML diagrams, relationship between object and component parts is represented by :

(A) Ordination

(B) Aggregation

(C) Segregation

(D) Increment

1.8 What is it called if an object has its own lifecycle and there is no owner ?

(A) Aggregation

(B) Composition

(C) Encapsulation

(D) Association

1.9 Use the following declarations and initializations to evaluate the Java expressions:

(initially i=3, j=7, k=11 (all integer))

++k - i + i + i++

(A) 16

(B) 14

(C) 13

(D) 15

1.10 A top level class may have which one of the following access modifiers :

(A) Package

(B) Private

(C) Public

(D) Protected

2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "OMR" answer sheet supplied with the question paper, following instructions therein. **(1x10=10)**

2.1 A protected member of a class can be accessed from its derived class.

2.2 An abstract class cannot have non-abstract methods.

2.3 A class which is implementing an interface must implement all the methods of the interface.

2.4 A finally block can be executed before the catch block but after the try block.

2.5 Can 8-byte long data type be automatically type cast to 4 byte float data type.

2.6 Private constructor ensures multiple instances of a class exist at any point of time.

2.7 Garbage Collection is manual process in Java.

2.8 Applets are executed by the console-based java run-time interpreter.

2.9 Cohesion is the degree to which one class is connected to or relies upon other classes.

2.10 groupCount reports total number of Capturing groups.

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. **(1x10=10)**

	X		Y
3.1	Diagram depicts the life cycle of a single object	**A.**	Enumeration interface
3.2	A dialogue box is an example of a	**B.**	Finally
3.3	If your method overrides one of its superclass's methods, you can invoke the overridden method through the use of the keyword	**C.**	State diagram
3.4	All objects have a toString() method which is inherited from	**D.**	this
3.5	Panel is the immediate superclass of	**E.**	Component diagram
3.6	It is used for garbage collection	**F.**	finalize
3.7	Class that is used to create multicast socket is	**G.**	collections of objects
3.8	In order to provide access to the tokens contained within a string StringTokenizer class implements	**H.**	super
3.9	The List interface provides support for ordered	**I.**	DatagramSocket
3.10	The block will execute even whether or not an Exception is thrown is done through	**J.**	interface class
		K.	Destructor
		L.	Object class
		M.	Applet class

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 "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10=10)

A.	Classes	**B.**	This	**C.**	Polymorphism
D.	Java.awt	**E.**	Interaction	**F.**	Applets
G.	Static	**H.**	Objects	**I.**	Vector
J.	Exception	**K.**	False	**L.**	Null
M.	Comments				

4.1 _____ are used to document a program and improve its readability.

4.2 Wrapped classes are classes that allow primitive types to be accessed as _____.

4.3 Sequence diagrams and collaboration diagrams are known collectively as _____ diagrams.

4.4 _____ is an object that is generated when a run time error occurs.

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

4.6 The _____ class provides the capability to implement a growable array of objects.

4.7 Button, Checkbox and Label are sub-classes of _____ class.

4.8 The most common reason for using the _____ keyword is because a field is shadowed by a method or constructor parameter.

4.9 _____ are java programs, which are specifically made to run in a java enabled web browser.

4.10 The default value of a boolean type is _____.

PART TWO

(Answer any FOUR questions.)

5. (a) Write a Java Applet and classes to find maximum number out of three numbers entered by keyboard.

(b) What is exception ? Explain different kinds of exceptions in java.

(c) What do you mean by constructors and destructors in Java ?

(6+5+4=15)

6. (a) Write a java program to print factorial of numbers between 1 to n. (n is entered by keyboard).

(b) What is the difference between method overloading and overriding in java ? Give examples in support of your answer.

(7+8=15)

7. (a) What is the purpose of JDBC drivers ? Explain the different types of JDBC drivers ?

(b) Differentiate between Sequence Diagram and Collaboration Diagram using examples.

(c) In context of UML, define and differentiate between Aggregation and composition. **(5+5+5=15)**

8. (a) Distinguish between Abstract class and Interface with example.

(b) Explain, how inter thread communication is possible in java multithreaded environments ?

(c) What is Applet ? What is the main difference between reloading and restarting an applet ?

(5+5+5=15)

9. Explain **any three** of the following :

(a) Vector class

(b) Garbage collection

(c) Access modifiers public, private, protected

(d) JVM and JIT

(5+5+5=15)

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SPACE FOR ROUGH WORK

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