

Total number of printed pages-7

3 (Sem-2/CBCS) CSC HC 1

2022

COMPUTER SCIENCE

(Honours)

Paper : CSC-HC-2016

(Programming in Java)

Full Marks : 60

Time : Three hours

**The figures in the margin indicate
full marks for the questions.**

1. Answer **any seven** of the following questions : 1×7=7
 - (a) Java is a pure object-oriented programming language. (True/False)
 - (b) What is the difference between `int A[];` and `int []A;` statement in Java ?
 - (c) An object which has no reference is known as _____. (Fill in the blank)

Contd.

(d) Give the name of the package that contains the scanner class.

(e) What is the full form of JDBC ?

(f) Give the name of a swing component in Java.

(g) Find the error in the given Java program:

```
Class Test {  
    public static void main (string [ ] args) {  
        float x = 2.5;  
        System.out.println("The value of x is" +x);  
    }  
}
```

I. Answer any seven of the following

(h) Give the syntax to declare a 2-dimensional array in Java. (of type integer)

(i) Give the names of three access modifier in Java.

(j) Which is keyword used for inheritance in Java ?

2. Answer **any four** questions : 2×4=8

(a) What is type casting ? Explain with a suitable example.

(b) Why is string class considered as immutable class ?

(c) Differentiate between abstract class and concrete class.

(d) What is a wrapper class ? Give example of a wrapper class in Java.

(e) Give the name of the keywords used in exception handling.

(f) What are the benefits of swing components over AWT ?

(g) What makes char data type in Java different from char data type in C++ ?

(h) What can be done to make the members of a class inaccessible directly from outside the class ?

3. Short answer type questions : **(any three)**

5×3=15

- (a) Write a Java program to copy the contents of a file to another file.
- (b) Demonstrate a situation where we need to use string buffer class instead of string class.
- (c) Explain how database is accessed and manipulated using JDBC.
- (d) Why does object-oriented programming support inheritance ? Explain various types of inheritance with suitable diagram.
- (e) Give an overview of TCP/IP and datagram programming using Java.
- (f) Explain the process of autoboxing and unboxing.
- (g) What is an exception ? How are exceptions handled in Java programming ?

(h) Write a Java program to create a button using swing.

4. Answer **any three** questions : 10×3=30

- I. (a) Why is Java considered as a platform independent programming language ? Differentiate among JRE, JDK and JVM. 5
- (b) Write a Java program to find the factorial of a given number. 5
- II. (a) What is a jagged array in Java ? Explain the need of jagged array in programming. 5
- (b) Write a Java program to find the transpose of a given matrix. 5
- III. (a) Explain the basic principles of object-oriented programming. 5
- (b) What is a constructor ? Why do we overload a constructor ? Give suitable example of constructor overloading. 5

IV. (a) What is an interface in Java ? Can we achieve multiple inheritance in Java using interface ? Support your answer. 5

(b) What do you understand by method overriding ? State the rules to be followed for method overriding in Java. 5

V. Create a class calculator with two private member variables, x and y . The class should also contain two public methods for addition and subtraction. Further, create another class scientific calculator that inherits the properties of calculator class and add another method for finding maximum of two numbers. Use constructor to set value of the member variable.

VI. (a) Write a program to illustrate the use of multiple catch blocks for a try blocks. 5

(b) What are the uses of 'throw' and 'throws' clauses for exception handling ? 5

VII. What are the two ways of implementing thread in Java ? Give suitable example for each.

VIII. (a) Explain the life cycle of an applet. 5

(b) What are various layout managers used in Java ? 5