Branch: CSE,IT,CE,EEE,ETC

Time 1 Hour 30 Minutes

Max Marks: 30

Answer all questions.

The figures in the right-hand margin indicate marks

1. A)   [1x5=5]

    i.   What do you understand by pass by value and pass by reference? Explain with examples.
    ii.   What is method overloading? Give an example of ambiguous method overloading?
    iii. In which type of memory array is created?
    iv.   If there are two arrays list1 and list2 of same type and following code is written list2=list1, then what happens to the array previously pointed by list2.
    v.   What is the output of the following code.

```java
public class Test {
    public static void main(String[] args) {
        int i = 1;
        while (i <= 6) {
            method1(i, 2);
            i++;
        }
    }
    public static void method1(int i, int num) {
        for (int j = 1; j <= i; j++) {
            System.out.print(num + " ");
            num *= 2;
        }
        System.out.println();
    }
}
```

B) (Eliminate duplicates) Write a method that returns a new array by eliminating the duplicate values in the array using the following method header:
public static int[] eliminateDuplicates(int[] list)
Write a test program that reads in ten integers, invokes the method, and displays the result. Here is the sample run of the program.

```
Enter ten numbers: 1 2 3 2 1 6 3 4 5 2 ↵Enter
The distinct numbers are: 1 2 3 6 4 5|
```

                                                                                        [5 marks]

2.

A) Write a Java program to print palindrome numbers present in the single-dimensional array of Size 10. Where the numbers in the array are entered by the user.

[3 marks]

B) Write a Java program to check whether a number is perfect or not. A perfect number is a number whose sum of factors (excluding the number itself) is equal to the number itself.

[2 marks]

C) Describe JDK, JVM, JRE perspective to Java Programming

[2 Marks]

D) What do you mean by Object and Class? Describe various features of Object-Oriented Programming.

[1 + 2 Marks]

3.

A) Explain the role of variables in a Java program and how they contribute to the execution of a program. Provide a brief example to illustrate the declaration and assignment of variables of different data types. How variable scope plays a significant role in a program. Explain.

[2x1]

B) Write a Java program that calculates the sum of two numbers entered by the user through the console. Declare two variables to store the numbers, read them from the console, calculate their sum, and display the result.

[2x1]

C) Write a Java program to calculate and display the area of a rectangle. The program should:

I. Declare and initialize two named constants, LENGTH and WIDTH, with values 5.0 and 7.0, respectively.

II. Declare two variables, area, and perimeter, of an appropriate numeric data type.

III. Calculate the area and perimeter of the rectangle using appropriate assignment expressions.

IV. Display the calculated area and perimeter with meaningful messages.

[3x1]

D) What is type conversion? Discuss about various type conversion and their significance in Java. Why Java is called strongly typed language? Explain through example, how to read a character data through console input.

[3x1]