ICSE SEMESTER 2 EXAMINATION

SAMPLE PAPER - 1

COMPUTER APPLICATIONS

Maximum Marks: 50

Time allowed: One and a half hours

Answers to this Paper must be written on the paper provided separately.

You will not be allowed to write during the first 10 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

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*Attempt **all** questions from **Section A** and **any four** questions from **Section B.***

SECTION A

*(Attempt **all** questions.)*

Section-A (Attempt all questions)

Question 1.

Choose the correct answers to the questions from the given options. (Do not copy the question, write the correct answer only)

(i) Which of these is a super class of wrappers Long, Character and Integer?

(a) Long (b) Digits (c) Float (d) Number

(ii) Which of the following statements are incorrect?

(a) String is a class

(b) Strings in java are mutable

(c) Every string is an object of class String

(d) Java defines a peer class of String, called StringBuffer, which allows string to be altered

(iii) What will be the output of the following Java program?

```
class string_Term2
{
    public static void main(String args[])
    {
        String obj = "I" + "like" + "Java";
        System.out.println(obj);
    }
}
```

(a) I (b) like (c) Java (d) IlikeJava

(iv) Which of these is a wrapper for simple data type char?

(a) Float (b) Character (c) String (d) Integer

(v) Non static functions can access :

(a) Static data members (c) Both (a) and (b)

(b) Non static data members (d) None of these

(vi) Given a string str="FilmFestival2021";

The statement str.substring(4,12).toUpperCase() will produce :

(a) Film (b) Fest (c) Festival (d) FESTIVAL

(vii) Which among the following best describes encapsulation?

(a) It is a way of combining various data members into a single unit.

(b) It is a way of combining various member functions into a single unit.

(c) It is a way of combining various data members and member functions into a single unit which can operate on any data.

(d) It is a way of combining various data members and member functions that operate on those data members into a single unit.

(viii) The most strict access specifier is :

(a) Private (b) Public (c) Protected (d) Default

(ix) Consider the following two statements :

int x = 25;

Integer y = new Integer(33);

What is the difference between these two statements?

(a) Primitive data types

(b) Primitive data type and an object of a wrapper class

(c) Wrapper class

(d) None of the above

(x) Void is not a wrapper class

(a) True (b) False

Section-B (Attempt any four questions)

Question 2.

Write a program in Java to store 20 temperatures in °F in a Single Dimensional Array (SDA) and display all the temperatures after converting them into °C.

Hint: (c/5) = (f - 32) / 9

Question 3.

Write a program to input a sentence. Find and display the following:

(i) Number of words present in the sentence

(ii) Number of letters present in the sentence

Assume that the sentence has neither include any digit nor a special character.

Question 4.

Write a program to accept name and total marks of N number of students in two single subscript arrays name[ ] and totalmarks[ ].

Calculate and print:

(i) The average of the total marks obtained by N number of students.

[average = (sum of total marks of all the students)/N]

(ii) Deviation of each student's total marks with the average.

[deviation = total marks of a student - average]

Question 5.

Write a program in Java to accept a name(Containing three words) and Display only the initials (i.e., first letter of each word).

Sample Input: NARAYAN KUMAR DEY

Sample Output: N K D

Question 6.

Write a program in Java to accept a name containing three words and display the surname first, followed by the first and middle names.

Sample Input: LALA MOHENDAR AMARNATH

Sample Output: AMARNATH LALA MOHENDAR

Question 7.

Write a program in Java to enter a String/Sentence and display the longest word and the length of the longest word present in the String.

Sample Input: "SOURAV GANGULY IS THE PRESIDENT OF BCCI"

Sample Output: The longest word: PRESIDENT: The length of the word: 9

Section-A

Answer 1.

(i) (d) Number

Explanation :

Number is an abstract class containing subclasses Double, Float, Byte, Short, Integer and Long.

(ii) (b) Strings in java are mutable

Explanation :

Strings in Java are immutable that is they can not be modified.

(iii) (d) IlikeJava

Explanation :

Java defines an operator +, it is used to concatenate strings.

(iv) (b) Character

Explanation :

In Java Character is wrapper class for char type.

(v) (c) Both (a) and (b)

Explanation :

In java, non static functions can access both static data members and non static data members.

(vi) (d) FESTIVAL

Explanation :

str.substring(4,12) retunrs characters from index 4 to 11 , that is "Festival" and toUpperCase() converts it to FESTIVAL.

(vii) (d) Encapsulation

Explanation :

It is a way of combining both data members and member functions, which operate on those data members, into a single unit. We call it a class in OOPs generally.

(viii) (a) Private

Explanation :

The Private access specifier is most strict as private members can be accessed only in the class where they are defined.

(ix) (b) Primitive data type and an object of a wrapper class

Explanation :

Here the variable x is of primitive data type. Whereas Integer y is an object of Integer wrapper class.

(x) (a) True

Explanation :

Unlike the other wrappers Void class doesn't store a value of type void in itself and hence is not a wrapper in true essence. - The Void class according to javadoc exists because of the fact that some time we may need to represent the void keyword as an object.

Section-B

Answer 2.

```
import java.util.Scanner;
public class Temperature
{
    public static void main(String args[])
    {
        Scanner in = new Scanner(System.in);
        double arr[] = new double[20];

        System.out.println("Enter 20 temperatures in degree Fahrenheit");
        for (int i = 0; i < arr.length; i++)
        {
            arr[i] = in.nextDouble();
        }

        System.out.println("Temperatures in degree Celsius");
        for (int i = 0; i < arr.length; i++)
        {
            double tc = 5 * ((arr[i] - 32) / 9);
            System.out.println(tc);
        }
    }
}
```

Answer 3.

```
import java.util.Scanner;
public class WordsNLetters
{
    public static void main(String args[])
    {
        Scanner in = new Scanner(System.in);
        System.out.println("Enter a sentence:");
        String str = in.nextLine();

        int wCount = 0, lCount = 0;

            int len = str.length();
            for (int i = 0; i < len; i++)
            {
                char ch = str.charAt(i);
                if (ch == ' ')
                    wCount++;
                else
                    lCount++;
            }
            wCount++;
            System.out.println("No. of words = " + wCount);
            System.out.println("No. of letters = " + lCount);
        }
    }
```

Answer 4.

```
import java.util.Scanner;
public class ArrayProcessing
{
    public static void main(String args[])
    {
        Scanner in = new Scanner(System.in);
        System.out.print("Enter number of students: ");
        int n = in.nextInt();

        String name[] = new String[n];
        int totalmarks[] = new int[n];
        int grandTotal = 0;

        for (int i = 0; i < n; i++)
        {
            in.nextLine();
            System.out.print("Enter name of student " + (i+1) + ": ");
            name[i] = in.nextLine();
            System.out.print("Enter total marks of student " + (i+1) + ": ");
            totalmarks[i] = in.nextInt();
            grandTotal += totalmarks[i];
        }
```

```
            double avg = grandTotal / (double)n;
            System.out.println("Average = " + avg);

            for (int i = 0; i < n; i++)
            {
                System.out.println("Deviation for " + name[i] + " = " + (totalmarks[i] - avg));
            }
        }
}
```

Answer 5.

```
import java.util.Scanner;
public class NameInitials
{
    public static void main(String args[])
    {
        Scanner in = new Scanner(System.in);
        System.out.println("Enter a name of 3 or more words:");
        String str = in.nextLine();
        int len = str.length();

        System.out.print(str.charAt(0) + " ");
        for (int i = 1; i < len; i++)
        {
            char ch = str.charAt(i);
            if (ch == ' ')
            {
                char ch2 = str.charAt(i + 1);
                System.out.print(ch2 + " ");
            }
        }
    }
}
```

Answer 6.

```
import java.util.Scanner;
public class SurnameFirst
{
    public static void main(String args[])
    {
        Scanner in = new Scanner(System.in);
        System.out.println("Enter a name of 3 words:");
        String name = in.nextLine();
```

```
            int lastSpaceIdx = name.lastIndexOf(' ');

            String surname = name.substring(lastSpaceIdx + 1);
            String initialName = name.substring(0, lastSpaceIdx);

            System.out.println(surname + " " + initialName);
        }
    }
```

Answer 7.

```
import java.util.Scanner;
public class LongestWord
{
    public static void main(String args[])
    {
        Scanner in = new Scanner(System.in);
        System.out.println("Enter a word or sentence:");
        String str = in.nextLine();

        str += " "; //Add space at end of string
        String word = "", lWord = "";
        int len = str.length();

        for (int i = 0; i < len; i++)
        {
            char ch = str.charAt(i);
            if (ch == ' ')
            {

                if (word.length() > lWord.length())
                lWord = word;

                word = "";
            }
            else
            {
                word += ch;
            }
        }
        System.out.println("The longest word: " + lWord +
        ": The length of the word: " + lWord.length());
    }
}
```

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