ICSE SEMESTER 2 EXAMINATION

SAMPLE PAPER - 4

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) The output of "VIDYALAYA."substring(2,5) will result in _____.

(a) DYA (b) DYAL (c) YAL (d) None of these

(ii) The replace() function requires at least _____ parameters.

(a) 1 (b) 2 (c) 3 (d) 0

(iii) _____ and _____ are the numeric wrapper classes in java.

(a) String and Integer (c) Byte and Short

(b) STRING and INTEGER (d) Int and Byte

(iv) The statement that converts the string object s="400" to integer "s_int" is _____.

(a) s_int=Integer.parse(s); (c) s_int=Integer.parseInt(s);

(b) s_int=Integer.Int(s); (d) s_int=integer.parseInt(s);

(v) The trim() function removes spaces from :

(a) Left of a string (c) Both sides of a string

(b) Right of a string (d) Middle of a string

(vi) The function that checks whether a character is a tab space or not.

(a) isTabSpace() (c) isWhiteSpace()

(b) isSpace() (d) isWHITESpace()

(v) Given an array ar[]={10,20,30,40,50}, the statement ar[3]-1 will return:

(a) 30 (b) 40 (c) 39 (d) 10

(vi) To add a value 5 to each element of an array myarr the expression myarr+5 is correct.

(a) True (b) False

(vii) Which of the following functions has a different nature?

(a) isLowerCase() (c) isUpperCase()

(b) isDigit() (d) toUpperCase()

(viii) The maximum arguments that the indexOf() function can be provided with is :

(a) 1 (b) 2 (c) 3 (d) 4

Section-B (Attempt any four questions)

Question 2.

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 3.

Write a program in Java to accept a String in upper case and replace all the vowels present in the String with Asterisk (*) sign.

Sample Input: "RELIANCE INDUSTRIES"

Sample output: R*L**NC* *ND*STR**S

Question 4.

Write a program in Java to enter a sentence. Frame a word by joining all the first characters of each word of the sentence. Display the word.

Sample Input: INDIAN SPACE AGENCY

Sample Output: ISA

Question 5.

Write a program to accept a list of 20 integers. Sort the first 10 numbers in ascending order and next the 10 numbers in descending order by using 'Bubble Sort' technique. Finally, print the complete list of integers.

Question 6.

Write a program in Java to accept 20 numbers in a single dimensional array arr[20]. Transfer and store all the even numbers in an array even[ ] and all the odd numbers in another array odd[ ]. Finally, print the elements of both the arrays.

Question 7.

Write a program to store 20 numbers in a Single Dimensional Array . Now, display only those numbers that are perfect squares.

n[0]	n[1]	n[2]	n[3]	n[4]	n[5]	...	n[16]	n[17]	n[18]	n[19]
12	45	49	78	64	77	...	81	99	45	33

Sample Output: 49, 64, 81

Answers

Section-A

Answer 1.

(i) (a) DYA

Explanation :

substring(2,5) returns characters from index 2 to 4.

(ii) (b) 2

Explanation :

The replace() function requires at least 2 parameters , the character to be replaced and the replacement character.

(iii) (c) Byte, Short

Explanation :

The numeric wrapper classes in Java are Byte, Short, Integer, Long, Float, Double.

(iv) (c) s_int=Integer.parseInt(s);

Explanation :

The Integer class's parseInt() method converts a string to integer.

(v) (c) Both sides of a string

Explanation :

The trim() function removes extra spaces from both sides of a string.

(vi) (c) isWhiteSpace()

Explanation :

The isWhiteSpace() function checks whether a character carries a tab or a white space.

(vii) (c) 39

Explanation :

ar[3] returns 40 , so ar[3]-1 will return 39

(viii) (b) False

Explanation :

In java, values cannot be added to array like this , we need a loop here.

(ix) (d) toUpperCase()

Explanation :

All the other functions check a value and return in Boolean True or False. toUpperCase() returns a char.

(x) (a) 1

Explanation :

The indexOf() function takes only 1 argument that is the character whose index is to be found.

Section-B

Answer 2.

```
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++;
                }
                /*
                * Number of words in a sentence are one more than
                * the number of spaces so incrementing wCount by 1
                */
                wCount++;

                System.out.println("No. of words = " + wCount);
                System.out.println("No. of letters = " + lCount);
            }
        }
```

Answer 3.

```
import java.util.Scanner;
public class VowelReplace
{
    public static void main(String args[])
    {
        Scanner in = new Scanner(System.in);
        System.out.println("Enter a string in uppercase:");
        String str = in.nextLine();
        String newStr = "";
        int len = str.length();
```

```
                for (int i = 0; i < len; i++)
                {
                    char ch = str.charAt(i);
                    if (ch == 'A' ||
                    ch == 'E' ||
                    ch == 'I' ||
                    ch == 'O' ||
                    ch == 'U')
                    {
                        newStr = newStr + '*';
                    }
                    else
                    {
                        newStr = newStr + ch;
                    }
                }
                    System.out.println(newStr);
            }
        }
```

Answer 4.

```
    import java.util.Scanner;
    public class FrameWord
    {
        public static void main(String args[])
        {
            Scanner in = new Scanner(System.in);
            System.out.println("Enter a sentence:");
            String str = in.nextLine();
            String word = "" + str.charAt(0);
            int len = str.length();

            for (int i = 0; i < len; i++)
            {
                char ch = str.charAt(i);
                if (ch == ' ')
                    word += str.charAt(i + 1);
            }

            System.out.println(word);
        }
    }
```

Answer 5.

```
    import java.util.Scanner;
    public class BubbleSort
    {
        public static void main(String args[])
        {
            Scanner in = new Scanner(System.in);
            int arr[] = new int[20];
            System.out.println("Enter 20 numbers:");
```

```
                    for (int i = 0; i < arr.length; i++)
                    {
                        arr[i] = in.nextInt();
                    }

                    //Sort first half in ascending order
                    for (int i = 0; i < arr.length / 2 - 1; i++)
                    {
                        for (int j = 0; j < arr.length / 2 - i - 1; j++)
                        {
                            if (arr[j] > arr[j + 1])
                            {
                                int t = arr[j + 1];

                                arr[j + 1] = arr[j];
                                arr[j] = t;
                            }
                        }
                    }
                    //Sort second half in descending order
                    for (int i = 0; i < arr.length / 2 - 1; i++)
                    {
                        for (int j = arr.length / 2; j < arr.length - i - 1; j++)
                        {
                            if (arr[j] < arr[j + 1])
                            {
                                int t = arr[j + 1];
                                arr[j + 1] = arr[j];
                                arr[j] = t;
                            }
                        }
                    }

                //Print the final sorted array System.out.println("\nSorted Array:");
                for (int i = 0; i < arr.length; i++)
                {
                    System.out.print(arr[i] + " ");
                }
            }
        }
```

Answer 6.

```
        import java.util.Scanner;
        public class EvenOddProgs
        {
            public static void main(String args[])
            {
                final int NUM_COUNT = 20;
                Scanner in = new Scanner(System.in);
                int i = 0;
```

```
                int arr[] = new int[NUM_COUNT];
                int even[] = new int[NUM_COUNT];
                int odd[] = new int[NUM_COUNT];

                System.out.println("Enter 20 numbers:");
                for (i = 0; i < NUM_COUNT; i++)
                {
                    arr[i] = in.nextInt();
                }

                int eldx = 0, oldx = 0;
                for (i = 0; i < NUM_COUNT; i++)

                {
                    if (arr[i] % 2 == 0)
                    even[eldx++] = arr[i];
                else
                    odd[oldx++] = arr[i];
                }

                System.out.println("Even Numbers:");
                for (i = 0; i < eldx; i++)
                {
                    System.out.print(even[i] + " ");
                }

                System.out.println("\nOdd Numbers:");
                for (i = 0; i < oIdx; i++)
                {
                    System.out.print(odd[i] + " ");
                }
            }
        }
```

Answer 7.

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

                System.out.println("Enter 20 numbers");
                for (int i = 0; i < arr.length; i++)
                {
                    arr[i] = in.nextInt();
                }
```

```
        System.out.println("Enter 20 numbers");
        for (int i = 0; i < arr.length; i++)
        {
            arr[i] = in.nextInt();
        }

        System.out.println("Perfect Squares are:");
        for (int i = 0; i < arr.length; i++)
        {
            double sr = Math.sqrt(arr[i]);
            if ((sr - Math.floor(sr)) == 0)
            System.out.print(arr[i] + ", ");
        }
    }
}
```

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