

ANNUAL EXAMINATION : 2018-2019

Class - XI (ISC)

Subject - Computer Science Paper 2

(Maximum Marks : 30)

(Candidates are allowed an additional 15 minutes for only reading the paper. They must not start writing during this time.)

The total time to be spent on the Planning Session and the examination Session is three hours.

Planning Session : 90 minutes

Examination Session : 90 minutes

Note : Candidates are to be permitted to proceed to the Examination Session only after 90 minutes of the Planning session are over. This paper consists of three problems from which candidates are required to attempt any one problem.

Candidates are expected to do the following:

1. Write an algorithm for the selected problem. (Algorithm should be expressed clearly using any standard scheme such as pseudo code or in steps which are simple enough to be obviously compatible.) [3]
2. Write a program in JAVA language. The program should follow the algorithm and should be logically and syntactically correct. [5]
3. Document the program using mnemonic names/ comments, identifying and clearly describing the choice of data types and meaning of variables. [2]
4. Code /Type the program on the computer and get a printout (hard copy). Typically, this should be a program that compiles and runs correctly. [2]
5. Test run the program on the computer using the given sample data and get a printout of the output in the format specified in the problem. [5]
6. Viva - voce on the selected problem. [3]
7. Project File [10]

Solve any one of the following problems.

Question 1

Write a program to accept a string and print number of vowels present in each word of string. Also note that a string is considered valid if it does not contain any repeated spaces and string should end with either with '!', '!', '!'.

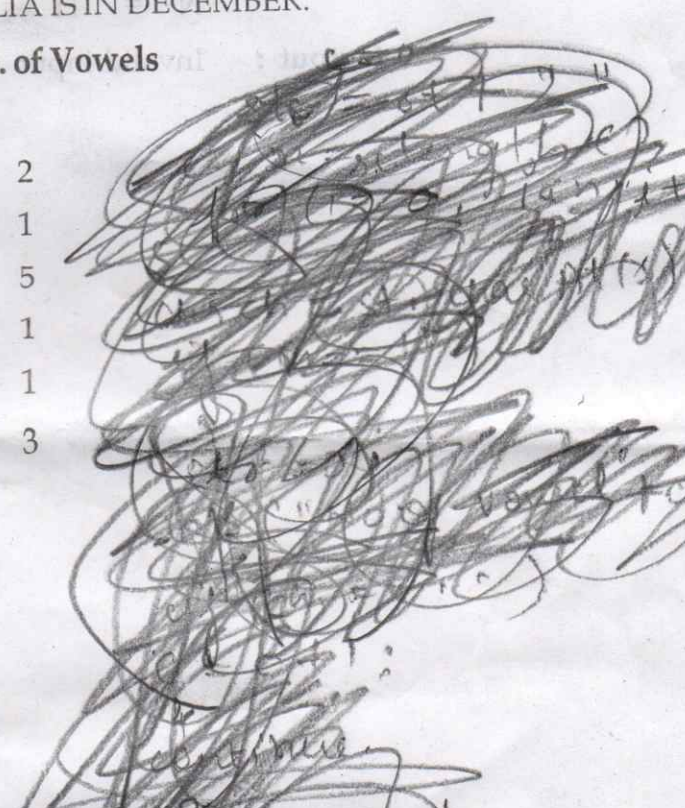
eg. Input 1 : "SUMMER IN AUSTRALIA IS IN DECEMBER."

Output 1 : Word No. of Vowels

SUMMER	2
IN	1
AUSTRALIA	5
IS	1
IN	1
DECEMBER	3

Input 2 : "WHERE DID IT GO"

Output 2 : String invalid



Question 2

Write a program to create a n^2 matrix and fill prime numbers then even numbers and then odd numbers from 1st to n^2 naturally.

Input : eg. $n = 4$

Input : 2 3 5 7
8 10 12 14
15 21 25 27
31 37 41 43

Question 3

Given two positive numbers M and N, such that M is between 100 and 10000 and N is less than 100. Find the smallest integer that is greater than M and whose digits add up to N.

For example, if $M = 100$ and $N = 11$ then the smallest integer greater than 100 whose digits add upto 11 is 119.

Write a program to accept the numbers M and N from the user and print the smallest required number whose sum of all its digits is equal to N. Also print the required number.

The program should check for the validity of inputs and display an appropriate message for an invalid input.

Test your program with the sample data and some random data :

Example 1 : Input : M = 1500
N = 25

Output : The required number = 1699
Total number of digits = 4

Example 2 : Input : M = 99
N = 11

Output : Invalid input

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