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COMPUTER SCIENCE

Paper – 2

(PRACTICAL)

(Reading Time: 15 minutes)

(Planning Session AND Examination Session: Three Hours)

The total time to be spent on the Planning and the Examination Session is Three hours.

After completing the Planning Session, the candidate may begin with the Examination Session.

A maximum of 90 minutes is permitted to begin the Examination Session.

However, if candidates finish earlier, they are to be permitted to begin the Examination Session.

(Maximum Marks: 80)

As it is a practical examination the candidate is expected to do the following:

1. Write an algorithm for the selected problem. [10]
(Algorithm should be expressed clearly using any standard scheme such as pseudo code or in steps which are simple enough to be obviously computable.)
2. Write a program in **JAVA** language. The program should follow the algorithm and should be logically and syntactically correct. [20]
3. Document the program using mnemonic names / comments, identifying and clearly describing the choice of data types and meaning of variables. [10]
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. [10]
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. [20]
6. Viva-Voce on the **Selected Problem.** [20]

This Paper consists of 3 printed pages and 1 blank page.

Solve any **one** of the following Problems:

Question 1

Write a program to input a natural number less than 1000 and display it in words.

Test your program for the given sample data and some random data.

INPUT: 29
 OUTPUT: TWENTY NINE
 INPUT: 17001
 OUTPUT: OUT OF RANGE
 INPUT: 119
 OUTPUT: ONE HUNDRED AND NINETEEN
 INPUT: 500
 OUTPUT: FIVE HUNDRED

Question 2

Encryption is a technique of coding messages to maintain their secrecy. A String array of size 'n' where 'n' is greater than 1 and less than 10, stores single sentences (each sentence ends with a full stop) in each row of the array.

Write a program to accept the size of the array. Display an appropriate message if the size is not satisfying the given condition. Define a string array of the inputted size and fill it with sentences row-wise. Change the sentence of the odd rows with an encryption of two characters ahead of the original character. Also change the sentence of the even rows by storing the sentence in reverse order. Display the encrypted sentences as per the sample data given below:

Test your program on the sample data and some random data.

Example 1 :

INPUT: n = 4
 IT IS CLOUDY.
 IT MAY RAIN.
 THE WEATHER IS FINE.
 IT IS COOL.
 OUTPUT: KV KU ENQWFA.
 RAIN MAY IT.
 VJG YGCVJGT KU HKPG.
 COOL IS IT.

Example 2 :

INPUT: n = 13
 OUTPUT: INVALID ENTRY

Question 3

Design a program which accepts your date of birth in dd mm yyyy format. Check whether the date entered is valid or not. If it is valid, display “VALID DATE”, also compute and display the day number of the year for the date of birth. If it is invalid, display “INVALID DATE” and then terminate the program.

Test your program for the given sample data and some random data.

Example 1 :

INPUT: Enter your date of birth in dd mm yyyy format
 05
 01
 2010

OUTPUT: VALID DATE
 5

Example 2 :

INPUT: Enter your date of birth in dd mm yyyy format
 03
 04
 2010

OUTPUT: VALID DATE
 93

Example 3 :

INPUT: Enter your date of birth in dd mm yyyy format
 34
 06
 2010

OUTPUT: INVALID DATE

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