COMPUTER SCIENCE – 2006

Paper-2

(PRACTICAL)

(Reading Time : 15 minutes

(Planning Session : 60 to 90 minutes)

(Examination Session: 90 t0 120 minutes)

(Maximum Marks: 80)

INSTRUCTIONS

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

(a) *Write an algorithm for the selected problem.*

(b) *Write a program in C++/Java. Document your program by using mnemonic names and comments.*

(c) *Test run the program on the computer using the given test data and get a print out (hard copy) in the format specified in the problem along with the program listing.*

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

Q1. A positive natural number, (for e.g 27) can be represented as follows-

2+3+4+5+6+7
8+9+10
13+14

where every row represents a combination of consecutive natural numbers, which add up to 27.

Write a program which inputs a positive natural number N and prints the possible consecutive number combinations, which when added give N.

Test your program for the following data and some random data..

SAMPLE DATA

INPUT
N = 9
OUTPUT
4 5
2 3 4
INPUT
N = 15

OUTPUT
7 8
1 2 3 4 5
4 5 6
INPUT
N = 21
OUTPUT
10 11
1 2 3 4 5 6
6 7 8

Q2. Write a program that inputs the names of people in to different arrays, A and B. Array a has N number of names while array B has M number of names, with no duplicates in either of them. Merge arrays A and B in to a single array C, such that the resulting array is stored alphabetically.

Display all the three arrays, A, B and C, stored alphabetically.

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

SAMPLE DATA
INPUT
Enter number of names in Array A, N = 2
Enter number of names in Array A, B = 2

First array: (A)
Suman
Anil

Second array: (B)
Usha
Sachin
John

OUTPUT

Stored Merged array: (C)
Anil
John
Sachin
Suman
Usha

Stored First array: (A)
Anil
Suman

Stored second array: (B)
John
Sachin
Usha

Q3. A new advanced Operating System, incorporating the latest hi-tech features has been designed by Opera Computer System.

The task of generating copy protection codes to prevent software piracy has been entrusted to the Security Department.

The security department has decided to have codes containing a jumbled combination of alternate uppercase letters of the alphabet starting from A upto K (namely among A,C,E,G,I,K). The codes may or may not be in the consecutive series of alphabets.

Write a program to input a code and its length. At the first instance of an error display "Invalid!" stating the appropriate reason. In case of no error, display the message "Valid!"

Test your program for the following data and some random data.

SAMPLE DATA

INPUT
N = 4
ABCE

OUTPUT
Invalid! Only alternate letters permitted!

INPUT
N = 4
AcIK

OUTPUT
Invalid! Only upper case letters permitted!

INPUT
N = 4
AAKE

OUTPUT
Invalid! Repetition of characters not permitted!

INPUT
N = 7

OUTPUT
Error! Length of string should not exceed 6 characters!

INPUT
N = 4
AEGIK

OUTPUT
Invalid! String length not the same as specified!

INPUT
N = 3
ACE

OUTPUT
Valid!

INPUT
N = 5
GEAIK

OUTPUT
Valid!

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