PRE BOARD EXAMINATION
COMPUTER SCIENCE
Paper – 2
(PRACTICAL)

(Reading Time : 15 minutes)
(Planning Session and Examination Session : 90 minutes)
(Maximum Marks : 30)

INSTRUCTIONS :

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

1. *Write an algorithm for the selected problem.*   *[3]*

2. *Write a program in Java.*   *[5]*

3. *Document your program by using mnemonic names and comments.*   *[2]*

4. *Code/Type the program on the computer and get print out (hard copy). Tpyically, this should be program that compiles and run currectly.*   *[2]*

5. *Test run the program on the computer using the given sample data and get a print out of the output in the format specified in the problem.*   *[5]*

6. *Viva-voce on the <u>selected problem</u>.*   *[3]*

7. *The practical file of the candidate containing the practical work related to programming assignments done during the year.*   *[10]*

Solve any <u>one</u> of the following problems.

Question 1

Write a program tha accepts and inserts each number in a single dimensional array at appropriate location so that the array is arranged in ascending order at every step. Show the contents of the array at every step. If the numbers accepted are 45, 9, 81, 18, 63 then these numbers are store on an array, in five steps as given below. Do not use another array.

```
      0   1   2   3   4
    [45][  ][  ][  ][  ]
    [ 9][45][  ][  ][  ]
    [ 9][45][81][  ][  ]
    [ 9][18][45][81][  ]
    [ 9][18][45][63][81]
```

Question 2

Write a program that accepts a number n (where n is an odd number) and arranges the numbers from 1 to n^2 shown below :

Sample input : Enter number : 5

Output

1	13	12	11	8
15	2	10	7	25
16	14	9	22	24
17	6	18	3	23
5	19	20	21	4

Sample input : Enter the number : 7

Output :

1	22	21	20	19	18	12
27	2	17	16	15	11	49
28	24	3	14	10	44	48
29	25	23	13	41	43	47
30	26	9	32	4	42	46
31	8	33	34	35	5	45
7	35	37	38	39	40	6

Question 3

The computer department of the Agency of International Espionage is trying to decode intercepted messages. The agency's spies have determined that the enemy encoded messages by first converting all characters to their ASCII values and then reversing the string.

For example, consider A_z (the underscope is just to highlight the space). The ASCII values of A, <space>, z are 65, 32, 122 respectively. Concatenate them to get 6532122, then reverse this to get 2212356 as the coded message.

Write a program which reads a coded message and decodes it. The coded message will not exceed 200 characters. It will contain only alphabets (A...Z, and a....z) and spaces. ASCII values of A....Z are 65....90 and those of a....z are 97....122. Test your program for the following data and some random data.

Sample Data Input :   Encoded Message :
                      231217986231019950187237923101811792
7

Output :   THE DECODED MESSAGE : Have a Nice Day

Input :   Encoded Message :
                      235110115017823511121799 11801562340161171141148

Output :   THE DECODED MESSAGE : Truth Always Wins

2016-ISC