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## ISC Specimen 2011 Computer Science Paper 2 (Practical)

**Answer key / correct responses on:**

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# COMPUTER SCIENCE

## Paper – 2

### (PRACTICAL)

(Reading Time : 15 minutes)

(Planning Session AND Examination Session : Three Hours)

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*The total time to be spent on the Planning session 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 for the Planning Session.*

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

*(Maximum Marks : 80 )*

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**As it is a practical examination the candidate is 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 computable ) [10]
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. [10]
6. Viva-Voce on the **Selected Problem** . [20]

Solve any one of the following Problems.

### Question 1

Design a program which inputs a date in six digit number format i.e. 141296 . Test the validity of the date and print the date in full form . If date is invalid then print a message as “ Invalid Date”

1. Example :

**INPUT** : 141296  
**OUTPUT** : 14<sup>th</sup> December , 96  
 : VALID DATE

2. Example :

**INPUT** : 230488  
**OUTPUT** : 23<sup>rd</sup> April , 88  
 : VALID DATE

3. Example :

**INPUT** : 300284  
**OUTPUT** : INVALID DATE

### Question 2

Write a program to fill in a two dimensional array in a circular fashion with natural numbers from 1 to  $N^2$ , given N as input.

Example : if  $N = 4$ ,  $N^2 = 16$ , then the array will be :

1	2	3	4
12	13	14	5
11	16	15	6
10	9	8	7

### Question 3

Accept a paragraph of text consisting of sentences that are terminated by either “.”, “,”, “!” or a “?” followed by a space. Assume that there can be a maximum of 05 sentences in a paragraph.

Design a program to perform the following :

- Arrange the sentences in alphabetical order of words, sentence by sentence.
- Separate the words which begin with a vowel.

Sample data 1:

**INPUT:** HELLO ! HOW ARE YOU ? WHEN ARE YOU COMING ? HOPE TO SEE YOU SOON.

**OUTPUT:** HELLO ! ARE HOW YOU ? ARE COMING WHEN YOU ? HOPE SEE SOON TO YOU.

**VOWELS:** ARE

Sample data 2 :

**INPUT :** THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG.

**OUTPUT :** BROWN DOG FOX JUMPED LAZY OVER QUICK THE THE.

**VOWELS:** OVER