Roll No. | | | | | | | | | |

B. TECH.

FIRST SEMESTER EXAMINATION, 2012-13

FUNDAMENTALS OF INFORMATION TECHNOLOGY

Time : **3 Hours**   Total Marks : **100**

Note : (i) Attempt **ALL** questions.
      (ii) Choices are given in each question set.

1. Attempt any **Four** of the following: **5 x 4 = 20**

    (a) How do algorithms and flowchart help in depicting the state of a Program? State the properties of an algorithm in detail?

    (b) What do you understand by Data types? What range of values they represent?

    (c) What do you understand by type conversion in C? Explain implicit and explicit type conversion with suitable example.

    (d) What do you understand by Operator Precedence and Operator Associativity? Give conversion hierarchies used in Precedence and Associativity.

    (e) What do you understand by efficiency of an algorithm? Discuss the basic notations used to represent the efficiency of an algorithm.

    (f) Explain Numeric operators, logical operators and rational operators with the help of example.

2. Attempt any **Two** of the following: **10 x 2 = 20**

    (a) Write a program in C to scan a matrix of 4x4 order and find the sum of all the elements in left diagonal and right diagonal.

    (b) An electricity board charges the following rates for the use of electricity :

For the first 200 units; 80 paisa/ unit

For the next 100 units; 90 paisa/unit

Beyond 300 units; 90 paisa/unit

All the users are charged a minimum of Rs. 100 as meter charge. Write a program to read the names of user and units consumed and print the total charges.

(c) Write a program to print all Armstrong numbers between 100 to 999.

3. Attempt any **Two** of the following: **10 x 2 = 20**

(a) Declare a structure which contains the following members and write a program in C to list all students who scored more than 75 marks.

"Roll no, name, father's name, age, city, marks"

(b) What are pointers? Why are they needed? Explain with suitable example. Discuss the application of pointers.

(c) Write a program in C to multiply two matrices of order nxm and mxn.

4. Attempt any **Two** of the following: **10 x 2 = 20**

(a) Write a program in C to input a positive number through the keyboard and find the sum of its digits reducing it to one digit. (For e.g. If number entered is 546, then its sum is 5+4+6=15, reduce 15 to single digit by addition 1+5=6).

(b) Write a program in C to print the following pattern using loops:

```
6
6  5
6  5  4
6  5  4  3
6  5  4  3  2
6  5  4  3  2  1
```

(c) The cost of one type of mobile service is Rs. 250 plus Rs. 1.25 for each call made over and above 100 calls. Write a program to read customer code and calls made and print the bill of each customer. **10**

5. Attempt any **Four** of the following: **5 x 4 = 20**

(a) Static memory allocation and Dynamic memory allocation.

(b) Call by value and Call by reference.

(c) Internet and Intranet

(d) DNS and WWW

(e) Primary and Secondary memory

(f) Complier and interpreters