Roll No.:.....

National Institute of Technology, Delhi

Name of the Examination: B. Tech.

Branch: CSE/ECE/EEE

Semester: I

Title of the Course: Problem Solving and Computer Programming

Course Code: CSB101

Time: 2 Hours

Maximum Marks: 25

Q. 1. Write an algorithm to find the reverse of a 4 digit number without using the loop. Also draw the flowchart for the same. $[2^{1/2}+2^{1/2}]$

Q. 2. a) Write a program in C to find the factorial of a number. [2+3]

b) Explain the difference between continue and break statement with the help of an example.

Q. 3. Solve the following:- [1*5]

a) Subtract using 2's Compliment:- $(67)_{10} - (76)_{10}$

b) Convert $(37)_8$ into ($)_{16}$

c) Convert $(26.35)_{10}$ into ($)_2$ upto 4 decimal places

d) Add $(ABCDE)_{16}$ + $(ABCD)_{16}$

e) Subtract $(76543)_8 - (4567)_8$

Q. 4. a) Write the program using function where there is one way data communication between the function and its calling function. $[2^{1/2}+2^{1/2}]$

b) Write a program using nested if else for the following library rules:-

1. Fine of Rs. 1 if days<7
2. Fine of Rs. 5 if days between 7 and 14
3. Fine of Rs. 10 if days between 15 and 25
4. Membership cancelled if days exceeds 25

Note:[If days exceed 7 and less than 14, then fine will be 5 for all the days and same implies for all the cases]

Q. 5. a) What are the advantages and disadvantages of High Level Language over Machine Level Language? [2+2+1]

b) Write a program in C to print a sequence of squares of first five natural numbers using shorthand operator.

(Example of output : 1 ,4,9....)

c) Write the output of the code shown below:-

```
#include <stdio.h>
main()
{
        int y =200;
        printf ("%d /n ", 20 + y++);
        printf("%d /n", 20 + ++y );
}
```