ROLL NO. _____

Code: CS11 Subject: COMP. PROG. & PROBLEM SOLVING THROUGH C

ALCCS – OLD SCHEME

Time: 3 Hours **FEBRUARY 2013** **Max. Marks: 100**

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE:

- **Question 1 is compulsory and carries 28 marks. Answer any FOUR questions from the rest. Marks are indicated against each question.**
- **Parts of a question should be answered at the same place.**

Q.1 a. Consider the C program shown below:

```
#include<stdio.h>
main()
{
        int x=5, m, k=1,n;
        float y= 2.5;
        m= x * 1000 + y * 10;
        k= m/1000 + x;
        n= (x= =y)? k : m;
        printf("%d /n %d /n %d", m, k, n);
}
```

Write the output of the above program.

b. What is the difference between a linker and a loader? Explain.

c. Briefly describe: malloc, calloc, realloc, free.

d. What is Identifier? Explain. List the rules required to form variable names in C.

e. What is importance of C standard library?

f. Can you have pointers to a function? If yes, illustrate using a C code.

g. What does following functions do?
ftell(), ferror(), feof(), fseek() **(7×4)**

Q.2 a. Write a program to read a positive integer and print its binary equivalent. **(6)**

b. An electric power distribution company charges its domestic consumers as follows:

Units Consumed	Rate of Charge
0 – 200	Rs. 0.50 per unit
201 – 400	Rs 100 plus Rs 0.65 per unit excess of 200
401 – 600	Rs 230 plus Rs 0.80 per unit excess of 400
601 & above	Rs. 390 plus Rs 1.00 per unit excess of 600

Write a C program using nested if statements to read in customer number and power consumed and print out the amount to be paid by customer. **(7)**

c. What are the restrictions to ternary operators? **(5)**

Q.3 a. Write a program to check whether an array is ordered. If ordered print a suitable message as "Ascending" or "Descending". Otherwise "not ordered". **(9)**

b. Discuss features of a static variable. Write a C program to illustrate the properties of static variable. **(9)**

Q.4 a. Write a C program to delete a node from a singly linked list. Accommodate all the cases of deletion in your program. **(9)**

b. Write a program which will read a string and rewrite it in the alphabetical order. For example, the word STRING should be written as GINRST. **(9)**

Q.5 a. Write a C program to find transpose of a matrix. **(10)**

b. What do you mean by recursion? What conditions should be mandatory for writing a recursive function? Explain using a suitable C program. **(8)**

Q.6 a. What is Insertion Sort? Write a program in C to sort the list of integers using insertion sort. Discuss efficiency of this sort. **(10)**

b. Write a program that reads a file containing integers and appends at its end the sum of all the integers. **(8)**

Q.7 a. Discuss Basic path testing giving suitable example. **(5)**

b. What precautions should be taken while constructing statements in C language? **(4)**

c. Explain different types of pre-processor directives with examples. **(9)**