55825 Seat No. _____

First Year B. C. A. Examination

April / May – 2003

Computer Fundamentals & Programming in 'C'
(BCA - 102)

Time : Hours] [Total Marks : **50**

Instructions : (1) Make and state necessary assumptions.

(2) Figures to the **right** indicate **full** marks.

1 Answer the following : (any **ten**) **10**

(1) Define Byte.

(2) What is bar code ?

(3) Explain the duality principle.

(4) What is time sharing system ?

(5) Find the value of X

$(23)_{10} = (X)_2$

(6) Define seek time.

(7) List various logical operators with symbol.

(8) What is nesting of loop ?

(9) What is variable ?

(10) Differentiate between Entry control loop and exit control loop.

(11) Find value of A if $X = 10$ and $Y = 5$ where $A = (X>Y)$? $X*Y:X/Y$.

(12) Differentiate between structure and union.
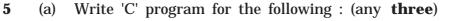
2 Answer the following : (any **three**) **9**

(1) Explain seven segment display with necessary diagram and truth table.

(2) Discuss the Unix operating system.

(3) Write short note on CDROM.

(4) Explain direct memory access interface in detail.

(5) Discuss various classification of computers.

3 (a) Answer the following : **6**
   (1) Explain serial printer in detail.
   (2) Add the following binary numbers
       1011011111 + 10101101010.
   (3) Draw the diagram for parallel adder and serial adder.

OR

3 (a) Answer the following : **6**
   (1) List and explain various types of buses.
   (2) Subtract following binary numbers :
       101011010–10001001.
   (3) Prove Demorgan's law $(\overline{A + B} = \overline{A} \cdot \overline{B})$ using truth table.

   (b) Write the algorithm and draw the flowchart : (any **two**)   **6**
   (1) Find reverse of the given number.
   (2) To generate Fibonacci series.
   (3) To count the total number of odd and even values
       within 1 to 10.
   (4) To find factorial of N.

4 (a) Answer the following : (any **three**)   **9**
   (1) Explain various types of link list.
   (2) What are the various categories of function and
       explain any one category with example.
   (3) Explain fpritnf( ), fseek( ) and fclose( ) functions.
   (4) Nesting of if....else structure with suitable example.
   (5) List various storage classes of C and explain any
       two storage classes.

   (b) Do as directed : (any **two**)   **4**
   (1) Find out the output of the following :

```
............
i = 2;
sum = 0;
do
{
    sum = sum + i;
    i = i + 2;
}
while (sum < 50 || i < 20);
printf("%d %d", i, sum);
```

(2) Find out the output of the following

```
main ( )
{
    int i, j, k, a;
    i = 2;
    j = 5;
    k = (++i) * (j- -);
    a = k + (i++) - (++j);
    printf("%d %d", k, a);
}
```

(3) Find out the errors from the following :

```
main ( )
{
    int i, j;
    for (i = 1, i < = 2, i + +)
    {
        if (i = = 2 && j = = 2);
                goto abc;
        else
            printf("%c %c", i, j);
    }
    abc;
    printf("Best of Luck");
}
```

(4) Find out errors from the following :

```
#define a = 20;
#define c = 20;
main ( );
{
    int i = 1;
    switch(i);
    {
        case 0:
                printf ("%d", a * c)
    }
}
```

5 (a) Write 'C' program for the following : (any **three**)   **3**

   (1) To generate and print the following triangle :

```
*
* * *
* * * * *
     ⋮
     ⋮
```

   (2) To generate and display the following output

$$1 * 1 = 1$$
$$2 * 2 = 4$$
$$\vdots$$
$$10 * 10 = 100$$

   (3) To find minimum from the given array.

   (4) Find the average of user entered five numbers.

   (5) Read a number from the keyboard and point whether it is +ve, −ve or zero.

(b) Write 'C' program for the following : (any **one**)   **3**

   (1) To sort an array of numbers in descending order with function.

   (2) To create a structure called 'Student' having following members.

   RollNo, Name, Marks.

   Find the student getting maximum marks assuming there are 60 students.

_____