Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/MCA/SEM-1/MCA-103/2010-11

2010-11

COMPUTER PROGRAMMING WITH C

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$

i) The output of the following code is

```
void main()
{
    int arr[6]={20,25};
    clrscr();
    printf("%d %d %d", arr[2],arr[3],arr[4]);
}
```

a) 25 0 0 b) 10 0 25

c) 0 0 0 d) none of these.

ii) A pointer is

a) a value

b) a variable containing the address of a variable

c) a memory location

d) none of these.

iii) The output of the following code is

```
void main()
{
    int n = 5;
    fun(n);
    printf("%4d", n);
    getch ();
}
fun(int n)
{
    return ++n;
}
```

a) 6 b) 5

c) 4 d) none of these.

iv) File input/output programs would require which include file ?

a) stdlib.h b) conio.h

c) dos.h d) stdio.h

v) The union holds

a) one object at a time b) multiple objects

c) both (a) and (b) d) none of these.

vi) What will be the value of *i* and *m* after executing the following code segment ?

```
int i=5,m;
m=i++;
```

a) 5 and 6 b) 6 and 5

c) 5 and 5 d) 6 and 6.

vii) The output of the following code segment is

```
fact=1;
for(i=1;i<5;i++);
fact=fact*i;
```

a) 24 b) infinite loop

c) 5 d) none of these.

viii) The purpose of mode r+ is to

a) open for only reading

b) open for only writing

c) open for both reading and writing

d) none of these.

ix) The output of the following code is

```
void main()
{
    int i, j;
    for(i=0;j=5;i<j;i++;j++)
    {
        printf("%d %d", i,j);
    }
```

a) 32 b) 0 5 1 4 2 3

c) Infinite Loop d) 2

x) An array is a collection of

a) different data types scattered throughout memory

b) same data type scattered throughout memory

c) different data types placed next to each other in memory

d) same data type placed next to each other in memory.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What are the basic data types used in C language ? What are the user defined data types ? Explain briefly.

3. Compare the purpose of break statement with that of exit().

   When do we use continue statement ? 3 + 2

4. Differentiate between do-while and while statements with suitable example.

   Distinguish between i++ and ++i statements. 3 + 2

5. Write a C program to find the LCM of two positive integer numbers.

6. Write a C program to print :

```
        1
      1 0 1
    1 0 1 0 1
  1 0 1 0 1 0 1
```

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) Write a C program to print the prime numbers between 1 to 100.

   b) Why & is used in case of scanf() statement in C, though it is not used in printf() statement ?

   c) Write a C program to accept three integer numbers as the length of three sides of a traingle, test the validity of lengths and classify the triangle. 6 + 3 + 6

8. a) What is function ? Explain with an example.

   b) What are the differences between malloc() and calloc() functions ?

   c) What is C preprocessor ? What is its use ?

   d) What are the command line arguments ?

   e) What is the difference between arrays within a structure to the array of structure ? 5×3

9) a) Write down the differences between the following : $2\frac{1}{2} + 2\frac{1}{2}$

   i) Entry-controlled and Exit-controlled statements

   ii) Recursion and Iteration.

   b) What are call by value and call by reference ? Explain with examples. $2\frac{1}{2} + 2\frac{1}{2}$

   c) i) What is the difference between Compiler and Interpreter ?

   ii) Distinguish between i++ and ++i with suitable examples. $2\frac{1}{2} + 2\frac{1}{2}$

10. a) Write a recursive C program to multiple two 3×3 matrices. 5

   b) What is the difference between the following : $2\frac{1}{2} + 2\frac{1}{2}$

   i) Break and continue

   ii) Array and structure.

   c) Write a complete C program to convert a given temperature in Centigrade scale to its equivalent Fahrenheit scale. 5

11. a) Write a program to check whether a string is a palindrome or not.

b) Write a function to swap the value of 2 variables without using any additional variable. The change should be permanent.

c) Write down the difference between the following :

i) Global variable and static variable

ii) Macro and function. 6 + 5 + 4