MCA-103

COMPUTER PROGRAMMING WITH C

Time Allotted: 3 Hours   Full Marks: 70

The questions are of equal value.
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. Answer all questions.   10×1 = 10

    (i) BCPL stands for _____

    (A) Basic Common Programming Language
    (B) Basic Combined Programming Language
    (C) Basic Common Procedural Language
    (D) Basic Combined Procedural Language

    (ii) _____ statement requires a label in order to identify the place where the place where the branch is to be made.

    (A) while   (B) if   (C) for   (D) goto

    (iii) Which of the following is not an entry control loop statement?

    (A) for   (B) do while   (C) while   (D) none of these

    (iv) What will be the output of the following program _____

```
main()
{
    int x = 20,i;
    for(i = 0; i<5; i++);
    x = i + 10;
    printf("\n%d",x);
}
```

    (A) 10   (B) 15   (C) 20   (D) 25

(v) What will be the output of the following program _____

```
main()
{
int x=20,i = 10;
i++;
x = x + i++;
printf("\n%d",x);
}
```

(A) 21   (B) 31   (C) 32   (D) 30

(vi) What will be the output of the following program _____

```
#define WELCOME WBUT
main()
{
printf("WELCOME");
}
```

(A) WBUT   (B) WELCOME
(C) WELCOME WBUT   (D) none of these.

(vii) A Linked list is _____ data structure

(A) static   (B) dynamic
(C) both (A) and (B)   (D) none of these

(viii) #ifdef

(A) defines a macro substitution

(B) tests whether a macro is not defined

(C) tests a compile-time condition

(D) tests for a macro definition

(ix) What will be output?

```
void main()
{
int a = 10;
printf("%d %d %d", a,a++,++a);
```

(A) 12 11 11   (B) 12 10 10   (C) 11 11 12   (D) 10 10 12

(x) Specify the 2 library functions to dynamically allocate memory.

(A) malloc() and memalloc()   (B) alloc() and memalloc()

(C) malloc() and calloc()   (D) memalloc() and faralloc()

GROUP B
(Short Answer Type Questions)

Answer any *three* questions.   3×5 = 15

2.   What is array? Write a program to create an array of *n* elements and   1+4
     then print maximum and minimum elements from that array.

3.   Write a C program to print the following pattern (till n rows, where n is   5
     taken as input).

                    1

                  2 3 2

                3 4 5 3 2

              4 5 6 7 6 5 4

4.   What is string? Write a program to input a string and check whether a   2+3
     string is palindrome or not.

5.   What do you mean by a function? Using recursive function write a   1+4
     program to calculate the factorial of a number.

6.   Explain difference between structure and union with examples.   5

GROUP C
(Long Answer Type Questions)

Answer any *three* questions.   3×15 = 45

7. What do you mean by library function? What are the advantages and   1+3+6+5
    disadvantages of using function. Write a program to print the terms of
    Fibonacci series. Given $F_1 = 1$, $F_2 = 1$. Write a C program to reverse the
    words of a sentence.

8. What is structure? Create a structure for BOOK (bookid, title, author,   3+6+6
    price, pages). Enter 3 book details. Print the book with highest price.

    Write a C program which will take input in a 2D array and then take one
    integer as input and search it is available or not, if it is available display
    the row and column of the integer.

9. Can a function return more than one value. What do you mean by   1+2+7+5
    recursion.
    Write a function to generate the Fibonacci series upto *n* terms using
    recursion. Differentiate between call by value and call by reference with
    an example.

10. Does if-then-else and switch-case statements are able to satisfy same   3+1+5+6
    requirements–justify with example. What is the significance of break
    keyword in switch-case? Write a C program to create an array of
    structure variables and display all the members of each variables. Write
    a C program to check a number is prime or not.

11. What do you mean by dynamic allocation? Discuss the difference   2+4+1
    between malloc() and calloc(). What is pointer? Write a C program to   +4+4
    find GCD of two numbers. Write a C program to print the following
    pattern (till *n* rows, where *n* is taken as input).

    1

    0 1

    0 1 0

    1 0 1 0

    1 0 1 0 1