

(c) Write the output of the following program segment :

```
main( )
{
    int x[5];
    int k;
    for (k=0, k< 5; k++)
    {
        n[k] = 2*k + 3;
    }
    x[2] = x[2] + x[3];
    x[4] = x[2] + x[1];
    for (k=0; k<5; k++)
    printf("%3d\n", x[k])
}
```

6. (a) Write a program in C to find all numbers divisible by 7 between 1 to 100 using functions. **10**
- (b) Explain parameter passing mechanisms using appropriate examples. **10**

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M. Sc. EXAMINATION, Dec. 2017

(First Semester)

(Main & Re-appear)

MATHEMATICS

MAT-509-B

Programming in C

Time : 3 Hours

[Maximum Marks : 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Find the output of the following program by explaining the various steps :

```
main ( )  
{  
    int x = 2, y = 3, s1, s2;  
    s1 = x + (++y);  
    s2 = ++x + y++;  
    printf("%d,%d\n",s1,s2);  
}
```

- (b) What are logical operators ? Explain with examples. **10**
2. (a) What is a data type ? Explain the four basic data type of C. **10**
- (b) What are bitwise operators ? Explain with suitable examples. **10**

Unit II

3. (a) Write a program in C that accepts two numbers and checks whether they are equal or unequal using If-Else statement. **10**

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- (b) Explain the following in brief :

- (i) GO TO statement
(ii) Break statement
(iii) Continue statement
(iv) Switch statement. **10**

4. (a) Write a program in C which computes the factorial of a given number using appropriate control statements. **10**
- (b) What is the difference between the while and do-while loop statements ? **5**
- (c) Illustrate the use of For statement. **5**

Unit III

5. (a) Give the number of elements and size in memory of the following : **5**
- (i) int marks [20]
(ii) int matrix [4] [3].
- (b) Write a program in C that reads two $m \times n$ matrices and finds the addition of these matrices. **10**

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Unit IV

7. (a) How do you declare a pointer variable ?
Explain with examples. **5**
- (b) Distinguish between the address operator
and the dereferencing operator. **5**
- (c) Write a program in C which interchange
the value of two variables using pointers.
10
8. (a) What is Union ? How does it differ from
a structure ? **10**
- (b) Write a program in C which accepts
different goods with the number, price
and date of purchase and display them.
10

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