

**B.Sc. 5th Semester (Programme) Examination, 2019-20****MATHEMATICS****Course ID : 52110****Course Code : SPMTH-504-SEC-3****Course Title : Programming Using C****Time: 2 Hours****Full Marks: 40***The figures in the right hand side margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.**Notations and Symbols have their usual meaning.***1. Answer any five of the following: 2×5=10**

- (a) Write down two differences between compiler and interpreter.
- (b) Express the following expression as valid C expression:  $x^3 + \sqrt{x} + \sin x + e^{x^2+x+1}$ .
- (c) Write a short note on relational operators in C.
- (d) Which of the following are invalid variables and why?  
2019\_PDAY, Christian\_College, # 420, INTEGER
- (e) Find the difference between = and == symbol in C programming.
- (f) What will be the output of  $4 + 2\% - 8$  ?
- (g) What do you mean by  $!(y < 10)$  ?
- (h) Find the output of the following:

```
int i=1; while (i<=10)
{
    printf ("%d\n", i);
    i=i++
}
```

**2. Answer any four questions from the following: 5×4=20**

- (a) What is the machine language? State its difficulties and explain how we can get rid of these difficulties. 1+2+2=5
- (b) Write a complete C program to determine the area of a triangle using the formula:  
Area =  $\sqrt{s(s-a)(s-b)(s-c)}$  where  $s = \frac{a+b+c}{2}$ , and  $a$ ,  $b$  and  $c$  are the sides of the triangle. 5
- (c) Define function subprograms in C, with a suitable example. Explain the use of 'return' statement in connection with the functions. 2+1+2=5
- (d) Abhijit's basic salary is input through keyboard. His DA is 30% of basic salary and HRA is 12% of basic salary. Write a program to calculate his gross salary. 5

(e) If a three digit number is input through keyboard, write a program to obtain the sum of the first and last digit of this number.

(f) (i) What will be the output of the following:

```
int x=3, y=5; if(x==3)
    printf ("%d\n",x);
    else;
    printf("%d\n",y);
```

(ii) Define source and object programs.

2+3=5

3. Answer *any one* question from the following:

10×1=10

(a) (i) What will be the output of the following:

```
printf ("aa\n\n aaa\n");
printf("aaa/n/n a");
```

(ii) Find the value of  $!(a > 5 \ \&\& \ c)$

(iii) Write a program to find factorial of a number.

2+2+6=10

(b) (i) Write short notes on:

(I) Assignment operators

(II) Logical operators

(ii) Write a C program to find the sum up to  $n$  terms of the series:  $1 + x + x^2 + x^3 + \dots$ .

(3+3)+4=10

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