LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **MATHEMATICS, STATISTICS**

THIRD SEMESTER – NOVEMBER 2016

CS 3203 - NUMERICAL METHODS USING C

Date: 10-11-2016   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

SECTION-A

ANSWER ALL THE QUESTIONS: **(10*2=20)**

1. What are the character set allowed in c?

2 Write the syntax of Scanf( ), Printf( ) functions.

3. Write the syntax for While loop.

4. List out any four mathematical library functions

5. Write the augmented matrix for the following equation.

$$-5x+2y+3z=1$$

$$2x-3y+z=2$$

$$-3x+5y-8z=3$$

6. Find the determinant of the matrix

     5 1

     2 4

7. Write the formulae of Regula falsi method.

8. Define: Numerical Integration.

9. Write the formulae for Runge- Kutta 2nd and 4th Order.

10. Define: Bisection method.

SECTION-B

ANSWER ALL THE QUESTIONS: **(5*8=40)**

11. a. Write a C program to check whether a given number is odd or even.
              (Or)
    b. Give a short note on String handling functions.

12. a. Explain the Decision Making concept in C.
              (Or)
    b. Write the different Categories of functions in C.

13. a. Write a c program for Eigen values and vectors.

(Or)

b. Solve the following: 4x+8y+4z=8

2x+1y-4z=7

3x-1y+2z=22   using gauss elimination method.

14. a. Write a C program for trapezoidal, Simpson's 1/3, 3/8 rule.

(Or)

b. Using Lag range's interpolation method to find the value of y when x=10, if the value

of x and y are given as follows:

x	5	6	9	11
Y	12	13	14	10

15. a. Solve the following using Euler's method: Y' +2y =2-e-4t.

(Or)

b. Write a C program for Runge-Kutta 2nd order.

SECTION-C

ANSWER ANY TWO: **(2*20=40)**

16. a. Explain the different operators in C with an example.

b. Discuss the different types of an array with an example.

17. a. Write a C program for Gauss Elimination.

b. Apply Newton's backward problem for interpolation.

X(year)	1991	2001	2011	2021	2031
Y(population)	46	66	81	93	101

Estimate the population for the year 2025.

18. a. Write a C program for Runge- Kutta 4th order.

b. Find the real root of the equation x3-2x-5=0 using bisection method.

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