LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – **NOVEMBER 2012**

# CS 3203 - NUMERICAL METHODS USING C

Date : 09/11/2012 Dept. No. Max. : 100 Marks

Time : 9:00 - 12:00

**PART – A**

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

1. List out any four header files in C.
2. Give the syntax for conditional operator.
3. What is the use of switch case statement?
4. What is file?
5. What is the use of Power method?
6. Find out the determinant of the given matrix.

5 6 1

3 2 3

5 5 5

1. Give the formula for Simpson’s 3/8 rule
2. What is the use of Newton’s Interpolation Method?
3. State the formula for Newton Raphson Method.
4. List out any two methods used to find out the roots of the non-linear equation.

**PART – B**

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

1. a) Write short notes on operators used in C.

(Or)

b) Explain scanf() statement with suitable example.

12.a) Write a C program to find out whether the given number is even or odd.

(Or)

b) What is meant by recursion? Write a C program to find out factorial of n numbers using recursion.

13.a) Solve the system of equation using Gauss Elimination method.

X + Y + Z = 6

2X – Y = 3Z = 4

4X +5Y – 10Z = 13

(Or)

b) Write a C program to find out Eigen value and Eigen vector.

14. a) Write a C program to implement Simpson’s 1/3 rule .

(or)

b) Write a C program to implement Lagrange’s Interpolation Method.

1. a) Evaluate the following integral using trapezoidal rule.

dx/1+x2 with n = 4

(Or)

b) Write a C program to implement Runge – kutta IInd order method.

**PART – C**

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

16. a) Write a C program to find out sum and average of n numbers.

b) Explain the looping statements in C with suitable example

17. a) Write a C program to solve the system of equation using Gauss Jordan method.

b) Estimate the value of Cos θ at θ =1.15 using Newton forward interpolation formula with the help of the following table.

|  |  |  |  |
| --- | --- | --- | --- |
| Θ | 1.0 | 1.1 | 1.2 |
| Cos θ | 0.5403 | 0.4536 | 0.3624 |

18. a) Write a C program to find out transpose of a given matrix.

b) Compute the root of the given equation using Bisection method.

X2 – 4X -10 = 0 with the initial value -1 & -2

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