



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – STATISTICS

THIRD SEMESTER – NOVEMBER 2017

CS 3203 - NUMERICAL METHODS USING C

Date: 15-11-2017
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

PART – A (10 X 2 =20)

Answer all the questions

1. Define the term : keyword
2. Give the syntax for printf () statement.
3. What is the use of switch statement?
4. What is meant by recursion?
5. Determine the determinant of the given matrix.
$$\begin{vmatrix} 24 & 5 \\ 20 & 3 \end{vmatrix}$$
6. State the formula for Newton's backward interpolation.
7. Differentiate the equation $X^9 + 6X^6 + 2X^4 + 4X + 5$
8. What is called pivotal element?
9. Give the formula for Runge-Kutta IVth order method.
10. How would you decide the two initial values that are required for using the bisection method?

PART – B (5 X 8 =40)

Answer all the questions

11. a) Differentiate while with do..While statement in C. Explain it with an example.
(Or)
b) Explain one dimensional array with a suitable example.
- 12.a) Write a C program to find out the sum and average of n numbers using function.
(Or)
b) Write short notes on input statements in C.
- 13.a) Solve the system of equation using Gauss Jordan method.

$$\begin{aligned} 2y + z &= 4 \\ x + y + 2z &= 6 \\ 2x + y + z &= 7 \end{aligned}$$

(Or)

- b) Write a C program to find out eigen value and eigen vector using power method.

14. a) Write a C program to implement the trapezoidal rule.

(or)

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

15. a) Evaluate the following integral with the interval value 2 to 3 using Simpson's 1/3 rule.
 $\int dx/1+x$ with $n = 4$

(Or)

b) Write a C program to find out the root of the equation using Regula – Falsi method.

PART – C (2 X 20 =40)

Answer any two questions

16. a) Explain the branching statements in C with a suitable example.

b) Write a C program to solve the system of equation using Gauss Elimination method.

17. a) Explain all types of operators used in C.

b) Estimate the value of Sin at $x = 25$ using Newton forward interpolation formula with the help of the following table.

	10	20	30	40	50
Sin	0.1736	0.3420	0.5000	0.6428	0.7660

18. a) Write a C program to add two given matrices.

b) Compute the root of the given equation using Newton-Raphson method.

$$X^3 - X^2 - 10X - 8 = 0 \text{ with the initial value } x_0 = 4$$
