

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – STATISTICS

THIRD SEMESTER – NOVEMBER 2013

CS 3203 - NUMERICAL METHODS USING C

Date : 13/11/2013
Time : 9:00 - 12:00

Dept. No.

Max. : 100 Marks

Part – A

Answer all the questions:

10 X 2=20

1. List the categories of characters grouped in C.
2. Define the term Constant.
3. Differentiate while and do-while.
4. What is a Recursion?
5. Find the Trace of the matrix $A = \begin{bmatrix} 2 & 3 \\ 5 & -8 \end{bmatrix}$.
6. Find the characteristic equation of $A = \begin{bmatrix} 7 & -2 \\ 4 & 3 \end{bmatrix}$
7. Write down the Formulae of equal and unequal interpolation.
8. What is a numerical integration?
9. Find the root of the following equations:
 - a) $x^3 - 3x^2 + 20x - 40 = 0$.
 - b) $x^3 - 5x - 7 = 0$
10. List down the Methods of algebraic equations

Part – B

Answer all the questions:

5 X 8=40

11. a) Write short note about C language.
(OR)
b) Draw and explain about the basic structure of C.
12. a) Explain in brief about any two decision making statements.
(OR)
b) Give a brief note on exit controlled loop.
13. a) Write a program on Gauss Elimination method.
(Or)
b. Solve the system of equations $x + 2y + z = 3$, $2x + 3y + 3z = 10$, $3x - y + 2z = 13$ by Gauss Elimination method
14. a. Write a program for Lagrange's method.
(Or)
b. Write program for Gauss Jordan method.
15. a) Apply the fourth order Runge-Kutta method to find $y(0.2)$ given $y' = x + y$, $y(0) = 1$ by taking $h = 0.1$
(Or)
b) Write a program for Bisection interval method.

Part – C

Answer any two questions:

2 X 20=40

- 16 a. Discuss in detail about string handling functions with examples.
- b. What is an Array? Explain in detail about the categories of arrays.
- 17.a. Write a program to illustrate the Simpson's 1/3 method with an example.
- b. Evaluate $\int_0^1 \frac{dx}{1+x}$ using trapezoidal rule, taking h=0.5.
- 18a. Write a program for Euler's method.
- b. Write a program for Newton Raphson method.
