LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRDSEMESTER – APRIL 2018

CS 3203- NUMERICAL METHODS USING C

Date: 04-05-2018 Dept. No. Max. : 100 Marks
Time: 01:00-04:00

Part-A

Answer all the questions 2x10=20

1. Define the term constant.
2. What is a variable?
3. What is recursion?
4. List the string handling functions.
5. Find the characteristic equation of the given matrix A= $\begin{bmatrix} 3 & -5 \\ -2 & 4 \end{bmatrix}$
6. List the linear algebraic equations method.
7. What is interpolation?
8. Write down the numerical integration methods.
9. Find the positive root of the equation $3x^3+5x-40$.
10. Write the formulae of Newton raphson method

Part-B3

Answer all the questions 5x8=40

11. a) Explain the structure of C in brief.

(OR)

b.Write about any four string handling functions with examples.

12. a)) What is array? Explain the types of array

(OR)

b)Explain recursion with an example.

13. a) Write a program to solve a problem on gauss elimination method

(OR)

b) write a program to solve system of linear equation by gauss jordan method.

14. a)Using the data of the following table, compute the integrals $\int_{0.5}^{1.1} x2ydx$ using trapezoidal rule.

(OR)

b). Write a program on Simpson‘s 1/3 rd method.

15. a) Solve the equation $\frac{dy}{dx} = 1/x + y$, y(0)=1 for y(0.1) using runge kutta method of the fourth order.

(OR)

b) Find the root of the equation x3-5x-7=0 that lies between 2 and 3 correct to 4 places of decimals, using the method of false position.

Part-C

Answer any two questions: 2x20=40

16. a)Write in detail about the types of operators with examples.

b)Explain in detail about functions with example.

17. a)Discuss in detail control flow statements.

b) What is a file? Explain in detail with examples.

18. a) Write a program in equal interpolation method.

b)Find the first and second derivatives of y=f'(x) at x=1.5 from the data. Also f'(x) at x=3.5 in two ways.

x	1.5	2.0	2.5	3.0	3.5	4.0
y	3.375	7.0	13.625	24.0	38.875	59.0

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