LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – **APRIL 2012**

# CS 3203 - NUMERICAL METHODS USING C

Date : 02-05-2012 Dept. No. Max. : 100 Marks

Time : 9:00 - 12:00

**PART – A**

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

1. What is meant by identifier?
2. Give the syntax for conditional operator in C.
3. How will you declare a variable in C?
4. List out any four built in functions in C.
5. Write a transpose of a given matrix.

15 16 17

13 15 16

15 15 18

1. State the formula for Newton’s backward interpolation.
2. Differentiate the equation 5X5+2X 4+ 2X3 + 14X +45.
3. What is the use of Newton- Raphson method?
4. Give the formula for Simpson 3/8 rule.
5. What is the use of power method?

**PART – B**

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

1. a) Explain all types of if statements in C with suitable example.

(Or)

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

12. a) Write a C program to find out factorial of n numbers using recursion.

(Or)

b) Discuss about all the operators used in C.

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

2x + 4y - 6z = -8

x + 3y + z = 10

2x - 4y - 2z = -12

(Or)

b) Write a C program to solve the system of equation using Gauss elimination

method.

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

(or)

b). Evaluate the following integral using trapezoidal rule.

F(x) = 1/ (1+x2) with n = 10 on the interval [0-1].

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

(Or)

b) Estimate theg given equation u’ = -2tu2 with h = 0.2 on the interval [0-1] using

Euler’s method.

**PART – C**

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

16. a) Explain scanf() and printf() statement in C with suitable example.

b) Illustrate the use of user defined function in C.

17. a) Write a C program to find out biggest of any three given numbers .

b) Estimate the value of y at x = 6 using Newton’s forward interpolation formula with the help of

the following table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | 3 | 7 | 9 | 10 |
| Y | 168 | 120 | 72 | 63 |

18. a) Write a C program to implement Runge –kutta IVth order method.

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

X3 – 5X + 1 = 0 with the initial value a0 =0 and b0 =0

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