



Reg. No. :

Name :

**Sixth Semester B.Tech. Degree Examination, May 2012
(2008 Scheme)**

08.603 – NUMERICAL TECHNIQUES AND COMPUTER PROGRAMMING (E)

Time: 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.

1. Write about various input output functions defined in C for handling characters and strings.
2. What is meant by explicit type casting ? When it is useful ?
3. Write a C program, to reverse a given integer number.
4. Differentiate between “pass by value” and “pass by reference”.
5. Write a program to find the sum of elements of an array using pointers and functions.
6. Write a program that will generate and print first n Fibonacci numbers using recursion.
7. Explain the significance of command line arguments.
8. Compare static array and dynamically created array with the help of examples and point out its advantages and disadvantages.
9. Write an algorithm for numerical integration using trapezoidal rule.
10. Write a program to find the value of ‘y’ corresponding to $x = 1$ in $\frac{dy}{dx} = (x + y)$, using Eulers method. Given that $y = 1$, when $x = 0$.





PART – B

Answer **any one** question from **each** Module.

Module – I

11. a) Write a program to sum up the following series

$$e = 1 + \frac{1}{2!} + \frac{1}{3!} + \frac{1}{4!} + \frac{1}{5!} + \dots$$

8

- b) Write a menu driven 'C' program to find (a) Maximum element (b) Minimum element (c) Sort (d) Search for an element in an integer array.

12

OR

12. a) Explain how array of structures are created ? Also explain how type-dof is useful in the case of structures.

5

- b) Define a structure to store a complex number. Using the above structure write a 'C' program to add and subtract two complex numbers.

15

Module – II

13. a) What is meant by storage class specifier ? Explain with the help of examples.

8

- b) Write a complete C program to implement insert and delete operations of Queue data structure using pointers.

12

OR

14. a) Illustrate the benefits of using pointers.

8

- b) Define a structure to store employee details such as employee-id, name and salary and write a C program to write and retrieve these employee records from a file.

12



Module – III

15. Write a menu-driven C program to implement the following functions on matrices

- a) Inverse of matrix
- b) Addition of two matrices
- c) Eigen value and eigen vectors of matrix.

20

OR

16. a) Write a program using bisection method to find root of the equation

$$f(x) = 3x - \sqrt{1 + \sin x} = 0.$$

10

- b) Write an algorithm for solving differential equation using Runge-kutta method.
Also draw the flowchart.

10

