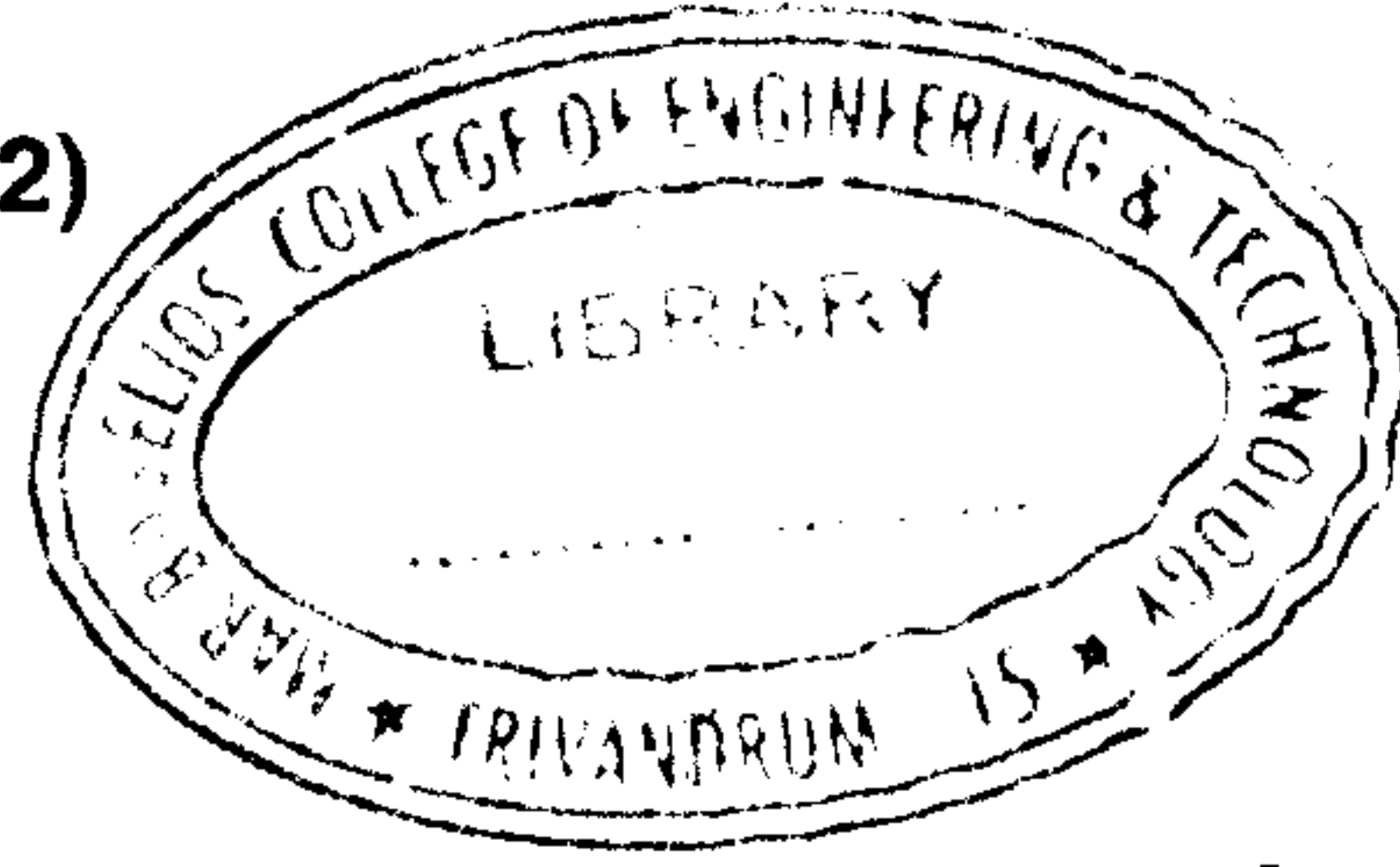




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F – 3157

Reg. No. :

Name :

**Sixth Semester B.Tech. Degree Examination, December 2018
(2013 Scheme)**

13.604 : NUMERICAL TECHNIQUES AND COMPUTER PROGRAMMING (E)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions.

1. Explain any four output functions in C.
2. Differentiate between while and do while statements with examples.
3. Differentiate between structure and union.
4. Differentiate between call by value and call by reference.
5. Explain the concept and uses of pointers.
6. Illustrate the concept of dynamic memory allocation.
7. Write a C program to find factorial of a number using recursion.
8. Write the algorithm for solution of transcendental equations using Bisection method.
9. What is meant by eigen value and eigen vector ?
10. Write an algorithm to find integral of a function using trapezoidal rule.

(10×2=20 Marks)

PART – B

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

Module – I

11. a) Write a C program to input a set of numbers and to sort them in descending order. 10
- b) Write a C program to check whether a character is a Vowel or not by using switch statement. 10

OR

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12. a) Write a C program to input a set of names and print them in alphabetical order. 12
 b) Write a program to create student structure to store and display the details of 10 number of students. 8

Module – II

13. a) What are the various file handling functions available in C ? Explain with the help of examples. 8
 b) Write a C program to append the contents of one files into another. 12

OR

14. a) Explain the library functions in C that is used for dynamically allocating memory. 10
 b) Write a program to implement stack using functions and pointers. 10

Module – III

15. a) Write a C program to multiply two matrices. Use functions. 10
 b) Write a C program to find inverse of a matrix. 10

OR

16. Solve and also write a C program to solve the equations given, by using Gauss elimination method.

$$\begin{aligned} x + y + z &= 9 \\ 2x - 3y + 4z &= 13 \\ 3x + 4y + 5z &= 40 \end{aligned}$$



20

Module – IV

17. a) Write a C program using Euler's method to find an approximate value of 'y' corresponding to $x = 1$ given that $\frac{dy}{dx} = x + y$ and $y = 1$ when $x = 0$. 10
 b) Write an algorithm to implement Simpsons 1/3rd rule. 10

OR

18. a) Obtain the roots of the non linear equation $x^2 - \cos(x) = 0$ using Newton – Raphson method. 10
 b) Write a C program to find solution of differential equation using Runge-Kutta method. 10