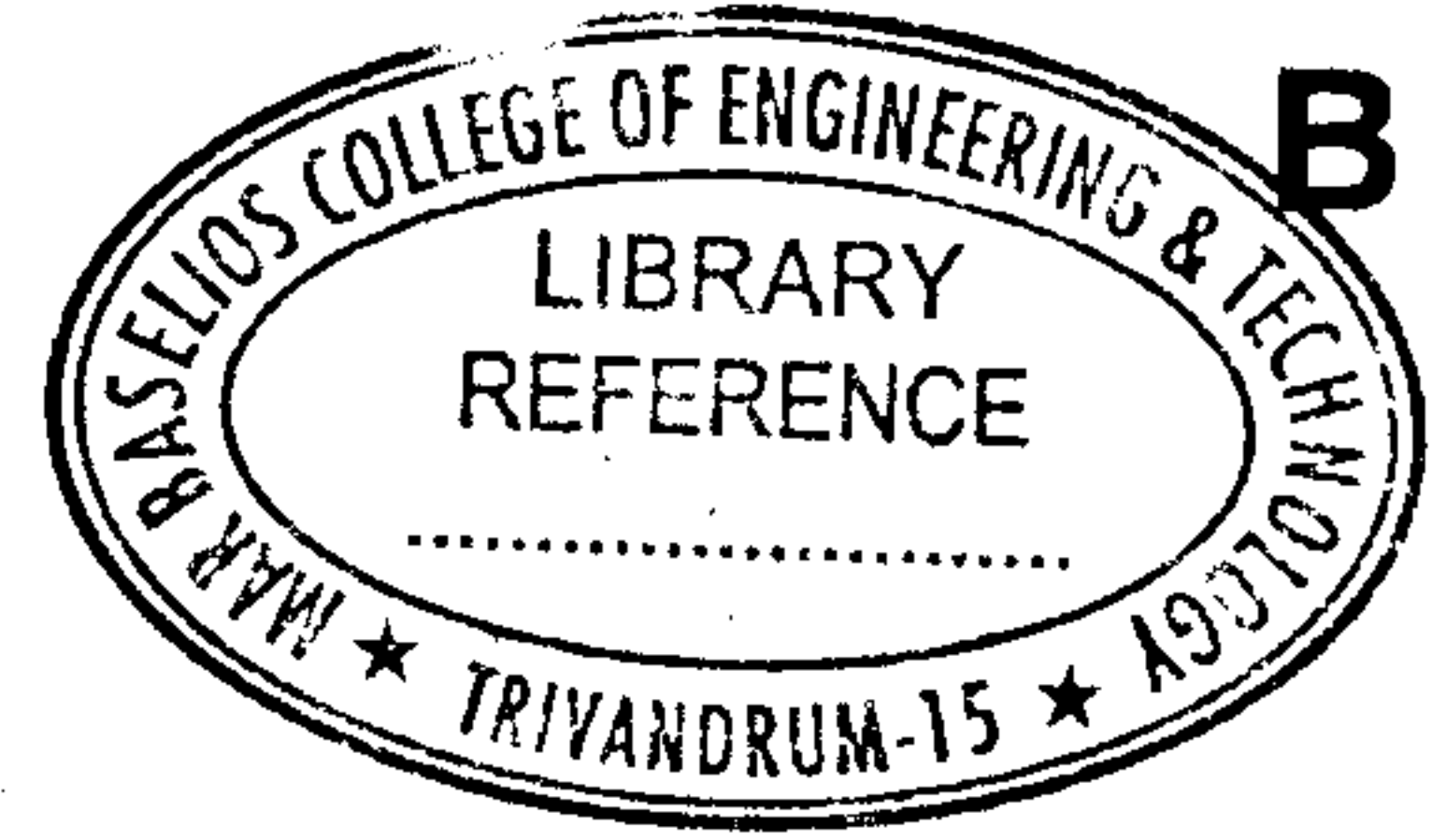




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B – 5563

Reg. No. :

Name :

**Sixth Semester B.Tech. Degree Examination, March 2017
(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. What is a reference variable ? What is its major use ?
2. Explain the need for pointer variables in programming languages.
3. Explain the relevance of switch-case statement.
4. Explain in what sequence 'break' and 'continue' statements used in programming languages.
5. What is the need for dynamic memory allocation ? How it can be achieved ?
6. Write the input and output file handling streams in C programming language.
7. The recursive functions are really necessary in programming languages. Explain the relevance.
8. Explain the practical application for finding the Eigen values of a matrix.
9. Explain how the Euler's and Runge-Kutta methods differs in finding the numerical solution of ordinary differential equation.
10. List the various sources of errors in numerical computing. **(10×4=40 Marks)**

PART – B

Answer **one full** question from **each** Module. **Each full** question carries **20** marks.

Module – I

11. a) Write a program to find the sum of $1 + \left(\frac{1}{2}\right)^2 + \left(\frac{1}{3}\right)^3 + \left(\frac{1}{4}\right)^4$ to a good accuracy. **10**
- b) Explain the relational and logical operators with the help of suitable examples. **10**

OR

P.T.O.



12. a) Describe briefly the features, structure and union with the help of suitable examples. 10
- b) Write a program to find the largest number of a given set of 10 numbers using C programming language. 10

Module – II

13. Write a program to find the product of two 3×3 matrices using function. Use dynamic memory allocation to initialize the matrix variable. 20

OR

14. a) Write a function power () to raise a number m to power n. The function takes a double value for m and integer value for 'n' and return the result correctly. 10
- b) Write a program to display the Fibonacci series using a recursive function. 10

Module – III

15. a) Applying Gauss-Jordan methods to solve the equation
 $x + y + z = 9, 2x - 3y + 4z = 13, 3x + 4y + 5z = 40$ 10
- b) Implement a C program for the above problem. 10

OR

16. Solve by relaxation method, the Laplace equation $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$, inside the square bounded by the lines $x = 0, x = 4, y = 0, y = 4$ given that $u = x^2y^2$ on the boundary. 20
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