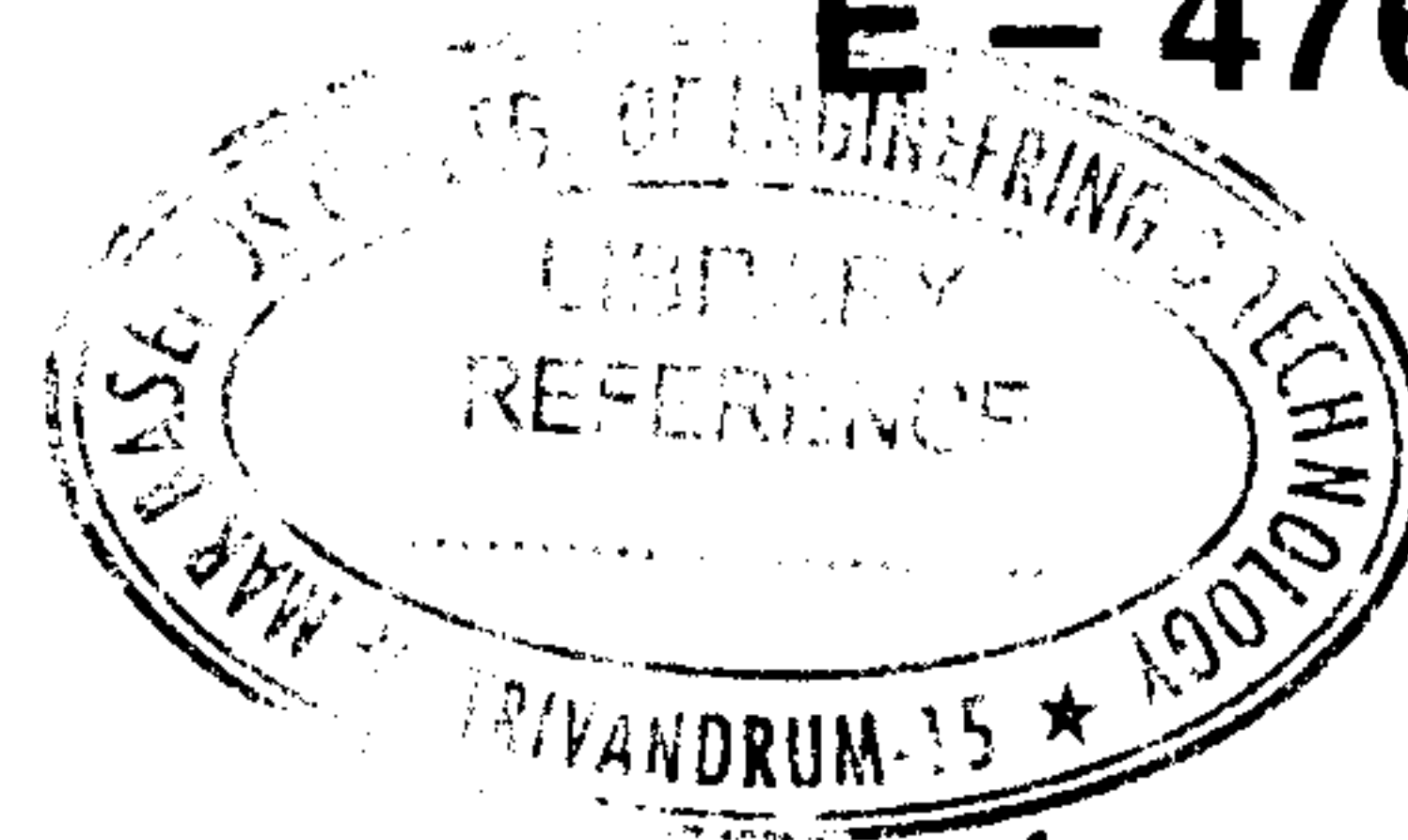




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Reg. No. :

Name :

**Fourth Semester B.Tech. Degree Examination, September 2018
(2008 Scheme)**

Branch : MECHANICAL ENGINEERING

08.402 : Computer Programming and Numerical Methods (MNPU)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions.

1. Differentiate between flow chart and algorithm.
2. How object oriented programming differ from procedure oriented programming ?
3. What are pointers ? Explain with a simple example.
4. Explain the concept of function overloading.
5. What is the difference between a private and public member functions ?
6. What is the use of 'protected' data with private inheritance ?
7. Describe two methods of opening of file.
8. Give the classification of partial differential equations with examples.
9. What is the use of curve fitting in engineering ?
10. Write an expression for $\frac{\partial u}{\partial x}$ using forward difference and backward difference methods. **(10×4=40 Marks)**

PART – B

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

Module – I

11. a) Explain one dimensional and two dimensional arrays. Write a program to read the elements of the array from keyboard. **10**
- b) Write a program to sort the elements of an integer array in the ascending order. **10**

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12. a) What are the different methods for passing arguments to the functions ? Explain with examples. 10
- b) Write a program to display alphabets A to Z using a while loop. (ASCII value of A is 65). 10

Module – II

13. a) Write a program to declare a class with private data members. Accept data through constructor and display the data with destructor. 10
- b) Explain the uses of private and public keywords. How are they different from each other ? 10
14. a) Write a program to open a file and write numbers from 1 to 100 in that file and display the contents of the file. 10
- b) Discuss various types of inheritance with suitable examples. 10

Module – III

15. a) Write a C++ Program for Lagrange's inverse interpolation. 10
- b) Certain corresponding values of x and $\log_{10}x$ are given below. Find $\log_{10}310$ using Aitken's interpolation. 10

x	300	304	305	307
$\log_{10}x$	2.4771	2.4829	2.4843	2.4871

16. a) Find the coefficient of correlation and predict the association of the variables.

X	75	83	85	85	92	97	99
Y	16	20	25	27	32	48	48

- b) Solve the Laplace equation for the square mesh shown with the boundary conditions given below. 10

