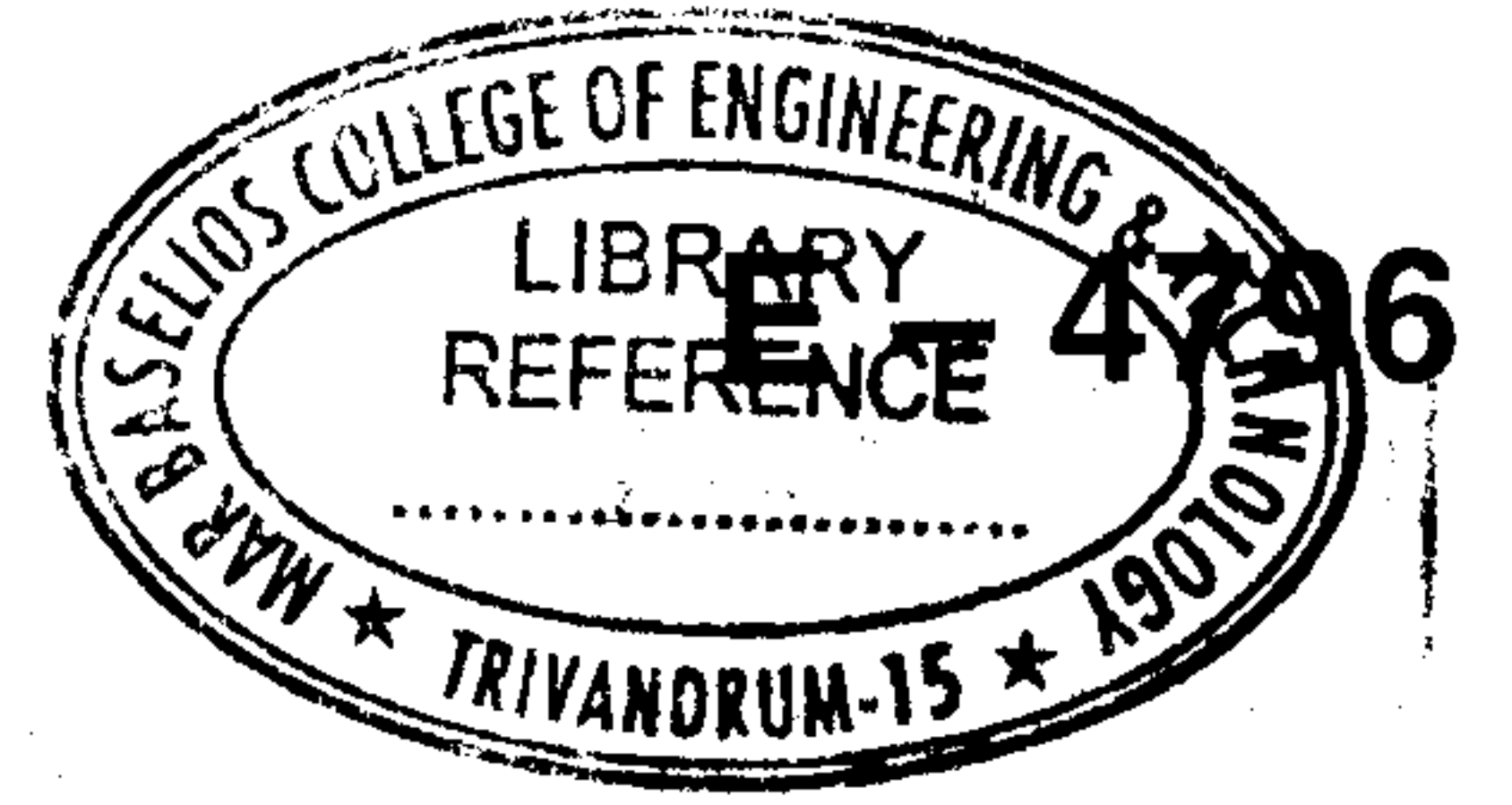




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Reg. No. :

Name :

Fourth Semester B.Tech. Degree Examination, September 2018

(2008 Scheme)

08.405 : DATA STRUCTURES AND ALGORITHMS (R F)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions.

1. State any two linear data structures. What values are automatically stored for the array elements which are not explicitly initialised ?
2. State the operations on binary trees. What is the maximum number of nodes in a binary tree at level 4 ?
3. What are the different ways of representing a graph ?
4. What are the features of an efficient algorithm ?
5. Write the difference between a tree and graphs.
6. Define time complexity. What is asymptotic notation ?
7. What is Garbage collection ?
8. What is internal and external fragmentation ?
9. What are the two main classifications of sorting based on the source of data ?
10. Define Compaction. **(10×4=40 Marks)**

P.T.O.



PART – B

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

Module – I

11. a) A stack is to be implemented using arrays. Give the appropriate declarations and the statements for push and pop operations. **12**
b) Write short notes on analysis of an algorithm. **8**

OR

12. a) Explain how queues can be implemented using arrays. **12**
b) Write a discussion on applications of stacks with examples. **8**

Module – II

13. a) Write an algorithm to convert infix to postfix expression and explain it with an example. **12**
b) What is the boundary tag method ? Explain. **8**

OR

14. a) Write a complete discussion on operations of binary trees with examples. **10**
b) What is an almost complete binary tree ? Explain with examples. **10**

Module – III

15. a) Explain how external sorting is done with tapes. **10**
b) What is hashing ? Explain. **10**

OR

16. Explain the following with examples:
i) Partition exchange sorting. **10**
ii) Merge sort. **10**
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