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- 2008-0-14 - Dec. 2021



(Pages : 3)

M – 6058

Reg. No.

Name :

Fourth Semester B.Tech. Degree Examination, December 2021

(2008 Scheme)

08.405 : DATA STRUCTURES AND ALGORITHMS (RF)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer all questions. Each question carries 4 marks.

1. How is a directed graph represented? Explain with examples.
2. Summarize the methods for analysis of algorithms.
3. Compare the basic data structures.
4. Write the pseudo code for the basic operations performed on linked lists.
5. Explain boundary tag method.
6. Mention the difference between Hashing and Extendible Hashing with examples.
7. Discuss the advantages and Disadvantages of collision resolution strategies.
8. Outline garbage collection.
9. Explain insertion sorting with an example.
10. Distinguish internal and external sorting.

(10 × 4 = 40 Marks)

P.T.O.



PART – B

Answer one full questions from each Module. Each carries 20 marks.

Module – I

11. Explain stack data structure with its operations and convert the given Infix expression to Postfix using stack. Expression $A + (B * C - (D / E * F) * E) * H$. 20

OR

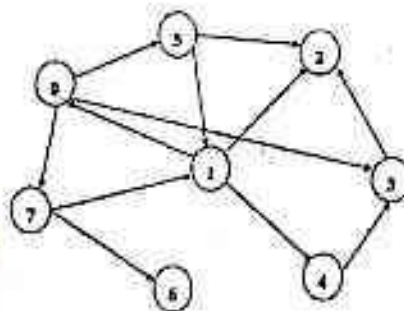
12. (a) Explain the operations of threaded binary tree. 10
(b) Summarize the applications of Graph. 10

Module – II

13. (a) Construct a Binary tree for the given data and perform all the traversals
Data: 78 26 94 23 43 97. 10
(b) Explain the methods for Physical Representation of Strings. 10

OR

14. Outline the breadth first traversal algorithm for a graph and apply the breadth first traversal algorithm to the following directed graph. Start with node 5 and illustrate the traversal process step by step. 20



Module – III

15. Given input {4371, 1323, 6173, 4199, 4344, 9679, 1989} and a hash function $h(x) = X \pmod{10}$, show the result of separate chaining hash table using linear probing and open addressing hash table using quadratic probing. **20**

OR

16. (a) Compare and contrast sequential search and binary search. By taking the same set of input data and explain how each of these searching techniques will find the search element from the input. **10**
- (b) Design an algorithm which works based on partition strategy. Illustrate the sorting process by using the following set of numbers 13, 81, 92, 43, 31, 65, 87, 26, and 75. **10**



(3 × 20 = 60 Marks)

