APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

First Semester MCA (Two Years) Degree (S,FE) Examination May 2024

Course Code: 20MCA105

Course Name: ADVANCED DATA STRUCTURES

Max. Marks: 60   Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.   Marks

1	How to represent a Set Data Structure?	(3)
2	What is meant by Hashing?	(3)
3	Illustrate the properties of Red-Black Tree with example.	(3)
4	What is meant by Suffix Tree?	(3)
5	Write note on Fibonacci Heap.	(3)
6	Explain Find-Min () operation of Binomial heap with example.	(3)
7	What is meant by Strongly Connected Components? Illustrate with an example	(3)
8	What do you mean by Minimum Costs Spanning Tree?	(3)
9	What is meant by Block Chaining?	(3)
10	What is Contract Data?	(3)

PART B

Answer any one question from each module. Each question carries 6 marks.

Module I

11   How do you perform Amortised Analysis using Accounting method? Illustrate   (6)
with Multipop Stack example.

OR

12   Explain collision resolution techniques.   (6)

Module II

13   Explain how deletion is done in a Red Black Tree.   (6)

OR

14   Explain B-Tree insertion and Deletion operations with example.   (6)
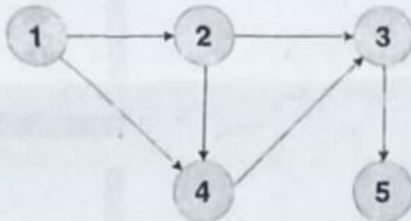
Module III

15   Explain how the Union operation is performed on Binomial Heaps   (6)

OR

16   Describe how the Delete-Key operation is performed in a Fibonacci heap?   (6)
Illustrate with an example.

Module IV

17   What do you mean by Topological Sorting? Apply Topological Sorting to the   (6)
given graph.

OR

18   Explain the Dijkstra's Shortest path algorithm with an example.   (6)

Module V

19   Explain the Blockchain architecture in detail.   (6)

OR

20   Explain the problems to be solved in Blockchain Data Analysis   (6)

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