

Course Code: 20MCA105

Course Name: ADVANCED DATA STRUCTURES

Max. Marks: 60

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

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|----|--|-----|
| 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

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

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| 12 | Explain collision resolution techniques. | (6) |
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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

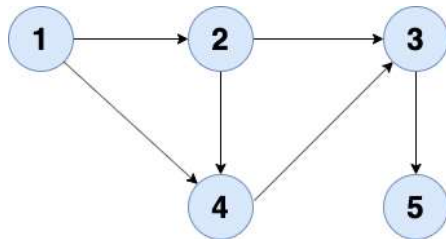
- 15 Explain how the Union operation is performed on Binomial Heaps (6)

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)
