97674

BCA 4th Semester 3 Year

Examination, May-2026

Data Structure-II

Paper :BCA-207

Time allowed : 3 Hours] *[Maximum marks : 80*

Note : *There shall be 9 questions.* ***Question Number 1 will be compulsory*** *and in addition to the compulsory question, students have to attempt four more question selecting* ***one*** *from each unit. All questions shall carry equal marks.*

1. (a) What is m-way tree?

(b) What is Huffman's algorithm?

(c) What is Header Node?

(d) What is Shortest Path?

(e) What is Tournament Tree?

(f) What is Serial File?

(g) What is Sequential File?

(h) What is Multi list File?

8×2=16

Unit-I

2. What is a tree in data structures? How does a Binary Search Tree (BST) function? Explain its working with a suitable example. 16

3. Explain the following with Insertion and Deletion operation : 8+8

   (a) B+ Tree

   (b) B- Tree

Unit-II

4. What do you understand by a graph in data structures? Explain the use of Warshall's algorithm in computing shortest paths in a graph. Support your explanation with a relevant example. 16

5. (a) How does Dijkstra's algorithm work for finding the shortest path in a graph? Explain the algorithm step-by-step with a practical example. 10

   (b) What do you mean by graph traversal? Explain Topological sorting with a suitable example. 6

Unit-III

6. What are the different types of sorting and searching algorithms used in data structures. Describe the working of Quick Sort, Merge Sort, and Radix Sort with suitable examples. 16

7. What is Binary Search in data structures? How does it work, and under what conditions it work? Explain with example. 16

Unit-IV

8. What is a file in terms of data storage and organization? What are the various types of files used in computer systems? Explain Sequential, Indexed-Sequential, and Random-Access files with relevant examples. 16

9. What is hashing in data structures, and why is it important? List different types of hashing functions. Explain one method of resolving collisions with an example. 16