97674

BCA 4th Semester

Examination – July, 2021

DATA STRUCTURE-II

Paper : BCA-207

Time : Three hours] *[Maximum Marks : 80*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions by selecting ***one*** question from each Unit. Question No. **1** is ***compulsory***. All questions carry equal marks.

1. Answer the following questions briefly : 8 × 2 = 16

(a) Explain the complexity of Insertion sort in few lines.

(b) Write advantages of direct files.

(c) Describe two applications of binary trees.

(d) Discuss major features of B+ trees.

(e) Explain variable and fixed length records.

(f) Describe complexity of Quick sort.

(g) Explain classification of files.

(h) Discuss graphs and their applications

UNIT – I

2. (a) What is m-way search tree ? How is it useful and used ? Discuss with examples. 8

(b) Discuss uses and advantages of binary search trees with suitable examples. 8

3. Explain the following briefly with suitable examples :

(i) AVL and B+ trees and their relative merits/demerits

(ii) Role and advantages of threads in Binary search trees 12, 4

UNIT – II

4. (a) What is Warshall's algorithm ? How is it useful and used ? Explain with suitable examples. 10

(b) Discuss graph traversal and its advantages with suitable examples. 6

5. Describe the following with examples : 16

(a) Major applications of graphs in Computer Science

(b) Dijkstra algorithm, its applications

UNIT – III

6. (a) What is Heap sort ? How is it used and useful ? Explain its complexity also with suitable examples. 12

   (b) Differentiate between Internal and External sorting with examples. 4

7. Explain the following examples : 16

   (i) Radix sort and its complexity

   (ii) Differentiate between linear and binary search with their relative merits/demerits

UNIT – IV

8. (a) Define collisions ? How these are harmful and resolved ? Discuss its techniques with examples. 8

   (b) Explain Indexed sequential files, their uses and advantages. 8

9. Explain the following with examples :

   (a) Random access file, its uses and advantages 8

   (b) Four Hashing techniques and their relative merits/demerits. 8