

Roll No.

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 : $8 \times 2 = 16$

- (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 n-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

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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

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