

97670

BCA 3rd Semester (Full & Re-appear)

Examination, December-2024

DATA STRUCTURE-I

Paper : BCA-202

Time allowed : 3 hours]

[Maximum marks : 80

Note : Attempt five questions in all. Question No. 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each unit. All questions carry equal marks.

1. Explain the following : 8×2=16
- (a) Data Structure
 - (b) String
 - (c) Parallel arrays
 - (d) Threaded lists
 - (e) Deques
 - (f) Uses of trees in data structure
 - (g) Graph theory
 - (h) Define Tree.

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[P.T.O.]

Unit-I

1. Explain the following in detail : $2 \times 8 = 16$

(a) Categories of Data structures

(b) Applications of data structures

Explain the concept of storing strings, string operations and Pattern matching algorithms in detail. 16

Unit-II

What is Linked list? What are the advantages and disadvantages of representing a group of items as an array versus a linear linked list? 16

Explain the following in detail :

(a) Linear arrays and Representation of linear array in memory 8

(b) Header linked list and circular linked list with example. 8

Unit-III

6. (a) What is Stack? Explain the different operations on stacks in detail. 8
- (b) Explain the applications of stack in detail. 8
7. What is Queues? Explain the concept of priority queues in detail. Also explain the applications of queues in detail. 16

Unit-IV

8. Explain the following in detail : $2 \times 8 = 16$
- (a) Traversing binary trees
- (b) Traversal algorithms using stacks
9. What is Graph? Explain Sequential and Linked representation of graphs in detail. 16