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B.Sc./3rd Sem (H)/COMP/22(CBCS)

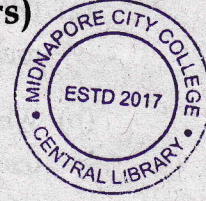
2022

**COMPUTER SCIENCE (Honours)**

**Paper : C 5-T**

**(Data Structure)**

**[CBCS]**



Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.  
Candidates are required to give their answers  
in their own words as far as practicable.*

**Group - A**

1. Answer any *five* questions : 2×5=10

- (a) What do you mean by multi-dimensional array?
- (b) What is dequeue?
- (c) Define sparse matrix.
- (d) What is non-linear data structure? Give one example.
- (e) Describe complete binary tree.
- (f) Briefly describe one application of queue.
- (g) What is AVL tree?
- (h) What is the significance of hash function?

P.T.O.

**Group - B**

2. Answer any *four* questions : 5×4=20

- (a) Differentiate between linked list and array. Write a routine to push an element into a stack. 2+3
- (b) What is recursive function? How can we calculate fractorial of a number using recursion? 2+3
- (c) Explain the concept of priority queue with suitable example. 5
- (d) How will be your programming approach to delete a specific element from any array? You may write a C program to describe. 1+4
- (e) Convert infix expression to postfix expression.  
(a + b \* c ^ d) \* (e + f / g). 5
- (f) Explain binary search technique with an example. 5

**Group - C**

3. Answer any *one* question : 10×1=10

- (a) What is linked list? What is the advantage of it?  
How can we reverse a singly linked list? 2+3+5
- (b) Write short notes on the following topics (any two) : 5+5
  - (i) BFS
  - (ii) Topological sorting
  - (iii) B-Tree

