PG – 670

I Semester M.C.A. (Two Years Course) Examination, May/June 2026
(CBCS) (2020 – 2021 and Onwards)
COMPUTER SCIENCE
1MCA6 : Data Structures

Time : 3 Hours Max. Marks : 70

Instructions : *1) Answer **any five** questions from Section – **A**.*
*2) Answer **any four** questions from Section – **B**.*

SECTION – A

Answer **any five** questions **each** carries **six** marks. **(5×6=30)**

1. What is a Data Structure ? List out the areas in which data structures are applied extensively.
2. Explain Abstract Data Types (ADT) with suitable examples.
3. Explain stack operations using array representation.
4. Explain the insertion operation in linked list. How nodes are inserted after a specified node ?
5. What is Binary Tree ? Explain Binary tree traversal with example.
6. Write a program to evaluate a postfix expression 5 3 + 82–*.
7. Explain the addition and deletion operations performed on a queue with necessary algorithms.
8. Define Graph. Discuss the different types and different ways of representing a graph.

SECTION – B

Answer **any four** questions **each** carries **ten** marks. **(4×10=40)**

9. List out the different sorting algorithms. Which sorting algorithm is easily adaptable to singly linked lists ? Why ?
10. Explain data structures and their operations in detail with examples.

P.T.O.

11. Explain different types of Linked list with an example.
12. Write an algorithm to implement radix sort with suitable example.
13. Create a binary search tree for the following numbers start from an empty binary search tree. 45, 26, 10, 60, 70, 30, 40 Delete keys 10, 60 and 45 one after the other and show the trees at each stage.
14. Explain the various representation of graph with example in detail and discuss the various applications of Graphs.