M.C.A. SEMESTER-II (CBCS 2018) : SUMMER - 2019

SUBJECT: DATA STRUCTURES AND ALGORITHMS

Day: Monday
Date: 15/04/2019

S-2019-2154

Time: 10.00 AM TO 01.00 PM
Max. Marks: 60

N.B.:

1) Q 4 from Section I is COMPULSORY.
2) Answer ANY TWO questions from Q 1, 2, 3 in Section I.
3) Answer ANY TWO questions from Q 5, 6, 7 in Section II.
4) All questions CARRY EQUAL marks.
5) Answers to Both the sections to be written in SAME answer books.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)

a) What is data structure? Explain the operations on data structures.
b) Explain Double Link list with example.

Q.2) Answer the following: (6 Marks X 2 = 12)

a) Explain the implementation of recursion with the help of example.
b) What is file handling? Explain the difference between append and write mode.

Q.3) Explain the following: (6 Marks X 2 = 12)

a) What is set data structure? Explain the basic operations on Sets.
b) Explain Binary search algorithm.

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)

a) Abstract Data Type (ADT)
b) Infix to Postfix Conversion algorithm.
c) Depth First Traversals.
d) Balanced Trees.
e) Quick Sort.

SECTION - II

Q.5) Answer the following: (6 Marks X 2 = 12)

a) Write a C Program to Create a Linked List & Display the Elements in the List.
b) Write a C Program to Solve Tower-of-Hanoi Problem using Recursion.

Q.6) Answer the following: (6 Marks X 2 = 12)

a) Write a C program to copy number of bytes of from a specific offset to another file.
b) Write an algorithm to Search for a Particular Value in a Binary Search Tree.

Q.7) Explain the following: (6 Marks X 2 = 12)

a) Write a C program for binary search.
b) Write an algorithm to demonstrate Binary Heap Operations.

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