

S.D.E.

M.C.A. Sem – II (CBCS - 2018 Course) : SUMMER - 2019
SUBJECT : DATA STRUCTURES & ALGORITHMS

Day : Thursday
Date : 02/05/2019

Time : 02.00 P.M. TO 05.00 P.M.
Max. Marks : 70

S-2019-5245

N.B.:

- 1) Attempt **ANY FOUR** questions from Section – I and **ANY TWO** questions from Section – II.
- 2) Answers to both the section should be written in **SAME** answer book.
- 3) Figures to the right indicate **FULL** marks.

SECTION – I

- Q.1 a)** Define Data Structure. What are different types of Data Structures? [05]
- b)** Differentiate between built-in Data Structure and User Defined Data Structure. [05]
- Q.2** What are advantages of Link List data structure? Explain how an element can be inserted at the beginning of a Link List. [10]
- Q.3** Why STACK is called LIFO data structure? Explain algorithm to implement STACK with the help of an array. [10]
- Q.4** Define Circular Queue. Explain algorithm to implement Circular Queue. [10]
- Q.5** Explain the difference between prefix and postfix expression with the help of an example. Convert the following expression into postfix:
$$A + (B * C - (D / E \wedge F) * G) * H$$
 [10]
- Q.6** Write short note on **ANY TWO** of the following: [10]
- a) Balanced Trees
 - b) Binary Search Tree
 - c) B – Tree Indexing

SECTION – II

- Q.7** Suppose we have following data elements: [15]
20, 11, 8, 9, 12, 30, 35.
Write algorithm for Bubble Sort. Sort the above data using Bubble Sort.
- Q.8** What is the importance of tree data structure? Explain Breadth First Search and Depth First Search in detail. [15]
- Q.9** What are advantages and disadvantages of file data structure? Write an algorithm to find a given pattern in a file. [15]

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