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Total No. of Questions : 08

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M.Tech. (CSE Engg.) (2018 Batch) (Sem.-1) ADVANCED DATA STRUCTURES

Subject Code : MTCS-102-18

M.Code: 75154

Time: 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES : 1.Attempt any FIVE questions out of EIGHT questions. 2.Each question carries TWELVE marks.

- 1. Write a C program or algorithm to :
 - a. Create a BST.
 - b. Display the node values in ascending order
 - c. Traverse from left to right crossing each level
 - d. Count the number of terminals and non terminals Explain how is a binary tree is represented in memory?
- 2. a. What are recursive techniques and what are their disadvantages? How do various compilers implement them internally? From where is memory allocated to recursive algorithms?
 - b. How are recursive algorithms reformulated/converted into non recursive routines?
- 3. What is a hash function? How many hash functions are there that map from a source set of size n to the integers from 1 to m? How many bits does it take to represent them? What if the source set consists of character strings of length up to 20? Assume there are 100 possible characters.
- 4. What is a B+ tree? Consider a B+-tree in which the maximum number of keys in a node is 7. What is the minimum number of keys in any non-root node?
- 5. Write Short notes on
 - a. Standard and compressed tries
 - b. Strings operations
- 6. Write pseudo code for insertion, searching and deletion from a separate chaining hash table. Explain with the help of example.
- 7. What is an expression tree? Write a program to create and evaluate an expression tree.
- 8. What are the recent trends in hashing? Explain with examples.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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