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MIT(CS)-401

Data Structure

M.Sc. Cyber Security (MSCCS-18/21)

4th Semester Examination, 2021 (Winter)

Time : 2 Hours] **Max. Marks : 80**

Note : This paper is of Eighty (80) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

SECTION–A

(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Twenty (20) marks each. Learners are required to answer any Two (02) questions only.

(2×20=40)

1. What is data structure? Explain the types of data structure with the help of an example.

2. What is Dynamic Memory Allocation? What are the dynamic memory allocation functions. Explain with the help of an example.

3. What is B-tree? Explain the basic operations performed on B-Tree.

4. Define Queue. Explain the operations which can be performed on a queue.

5. What is Hashing? Explain the Methods Dealing with Hash Clash.

SECTION–B

(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Ten (10) marks each. Learners are required to answer any Four (04) questions only. (4×10=40)

1. What is data and information? Explain with the help of example.

2. What is a stack? What different operations can be performed on stacks?

3. Differentiate between linear search and binary search.

4. What is searching? What are the advantages and disadvantages of sequential search technique?

5. What is AVL Tree? Who invented AVL Tree? Giving an example, how can we determine the balance factor of AVL tree?

6. Define the following terms in brief :

(a) Time Complexity.

(b) Space Complexity.

(c) Big O notation.

(d) Asymptotic notation.

7. What is a doubly linked list? What are its applications?

8. What do you mean by abstract data type? Explain.