Roll No. : .....

Total No. of Questions : **10**] [Total No. of Printed Pages : **2**

BFMS–440

M.Sc. (Final) Examination, 2023

COMPUTER SCIENCE

(For due and Imp.)

Paper - MCS–201

(Data and File Structure)

*Time : **3** Hours*] [*Maximum Marks : **100***

Note :– Answer *five* questions in all, selecting *one* question from each Unit. All questions carry equal marks.

Unit–I

1. (a) Explain the concept of basic operations on circular linked lists.

   (b) How do you find out time complexity of an algorithm ? Explain with a suitable example.

2. (a) Taking a suitable example, explain how Abstract Data Type is different from a Simple Data Type.

   (b) Describe the applications of linked lists.

Unit–II

3. (a) Explain the concept of postfix notation in stacks with a suitable example.

   (b) Explain the concept of Priority Queue.

4. Provide the code implementation for linked representation of queue and primitive operations.

Unit–III

5. Explain how insertion sort may be used to sort the following data :

   13, 10, 11, 7, 9, 2

6. Describe how Quick Sort may be used to sort the following data :

   7, 9, 1, 12, 2, 1

Unit–IV

7. Explain AVL tree and its operations with a suitable example.

8. Give in-order and post-order traversal for given preorder, following data. Also draw the corresponding trees.

   A B D H I E C F J G K L

Unit–V

9. Can you convert a given depth first traversal into breadth first traversal ? Justify your answer with a suitable example.

10. Describe, how index sequential and multikey file organization are implement, in content of file organization ?