Roll No. : .....

Total No. of Questions : **11**] [Total No. of Printed Pages : **3**

BFMS–470

M.Sc. (Final) Examination, 2023

INFORMATION TECHNOLOGY

Paper - MIT-201

(Data and File Structure Using C/C++)

*Time : **3** Hours*] [*Maximum Marks : **50***

Section–A **(Marks : 2 × 10 = 20)**

Note :– Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

Section–B **(Marks : 3 × 5 = 15)**

Note :– Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **3** marks.

Section–C **(Marks : 5 × 3 = 15)**

Note :– Answer any *three* questions out of five (Answer limit **500** words). Each question carries **5** marks.

Section–A

1. (i) Define Algorithm.

   (ii) List various data types available in C++.

   (iii) What is the advantage of Union over structure ?

(iv) What do you understand by pointer to pointer ?

(v) Why are data structures important ?

(vi) Explain representation of a multi-dimensional array.

(vii) How many types of complexities of an algorithm can be analyzed ?

(viii) Define Back-tracking.

(ix) Define Adjacy matrix.

(x) Differentiate Tree and Graph.

Section–B

2. Explain meaning of various symbols in flowchart.

Or

Explain do while loop with suitable example.

3. Explain how one can open and write contents in a text file in C++. Give code.

Or

Write a program to find Row wise sum of a two dimentional array.

4. Differentiate column and row major matrix using example.

Or

Explain various notations for algorithm analysis.

5. Explain priority queue in detail. Use suitable example.

Or

Explain Tower of Hanoi. How is this implemented ?

6. Differentiate BFS and DFS. Which is best suitable and when ?

Or

Write a program in C++ for binary search.

Section–C

7. Explain various control statements available in C++.

8. What is a Function ? How is it declared and defined in C++ ? Also give advantages of using a function in a program.

9. (i) Write difference between linear and circular linked list.

   (ii) Write algorithm to insert a node at the end of a linked list.

10. Write a program to implement stack using array. Also give a list of application of stack.

11. Write detailed notes on the following :

    (i) Spainning tree

    (ii) AVL Tree