Roll No ....

CS-223-CBCS

B.E., III Semester

Examination, June 2020

Choice Based Credit System (CBCS)

Data Structures - II

Time : Three Hours

Maximum Marks : 60

Note: i)   Attempt any five questions.

ii)   All questions carry equal marks.

iii)   Assume data suitably.

1. a)   What do you understand by Asymptotic notation? Explain each notation with example and diagram.

   b)   Explain different non primitive data structure and the operation associated with them.

2. a)   Explain various algorithm used in data structure.

   b)   Provide the solution for the following recurrences:

   $$T(n) = 2T\left(\frac{n}{2}\right) + n\log n$$

3. Explain the AVL tree insert method and explain. Why its insertion time complexity is still of the same order as binary tree?

4. a)   Construct an AVL search tree by inserting the following element in order of their occurrence

   64, 1, 44, 26, 13, 110, 98, 85

   b)   Explain analysis of Heap operation with example.

CS-223-CBCS   PTO

5. a) What is a stable sorting algorithm? Also prove counting sort is stable.

    b) Explain outline and offline algorithm.

6. Suppose the elements in the array are A = < 2, 13, 5, 18, 14, 20 > Does this array can be represent in INSERTION SORTING justify your answer with all the steps.

7. a) What do you understand by data structure maintenance? Explain.

    b) Explain Augmentation strategy with example.

8. a) Write short note on Internal trees. Explain with example.

    b) Explain retrieving an element with a given rank.

******

CS-223-CBCS