[Apr-24]

GITAM (Deemed to be University)
[CSEN3151]

GST/GSS/GSB/GSHS Degree Examination
VI Semester

ADVANCED DATA STRUCTURES

(Effective from the admitted batch 2021–22)

Time: 2 Hours **Max.Marks: 30**

Instructions: All parts of the unit must be answered in one place only.

SECTION-A

1. **Answer all the questions.** **(5x1=5M)**

   a) Describe what a dynamic array is.

   b) Compare what is the difference between linear probing and quadratic probing.

   c) Describe what is meant by multiway search trees.

   d) What is an external sorting algorithm does and why it is necessary?

   e) Define pattern matching.

SECTION-B

Answer the following: **(5x5=25M)**

UNIT-I

2. Compare how low-level arrays differ from dynamic arrays in the context of memory allocation.

OR

3. Explain how sorting can be performed using a priority queue and why it might be beneficial compared to other sorting methods.

UNIT-II

4. Demonstrate what is double hashing is and how it attempts to reduce collision in a hash table.

OR

5. Explain how do dictionaries differ from general hash tables in terms of functionality.

UNIT-III

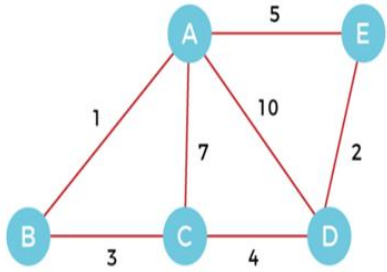
6. Examine splay trees with example how they function.

OR

7. Explain the significance of the 'order' (m) in a B-Tree with example.

UNIT-IV

8. Determine the minimum cost spanning tree for the following graph using Kruskal's algorithm



OR

9. Discuss what disjoint partitions are and how Union-Find structures manage these partitions?

UNIT-V

10. List the main differences between the brute force algorithm and the Boyer–Moore algorithm.

OR

11. If you have a list of words and want to check if the word "information" is among them, describe how you would insert and then find this word using a standard trie.