[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 Questions:** **(5×1=5)**
   a) Compare static allocation and dynamic allocation.
   b) How skip list is superior than linked list?
   c) Compare Red black tree and AVL tree.
   d) What is minimum cost spanning tree.
   e) Define suffix tree.

Section-B

Answer the following: **(5×5=25)**

UNIT-I

2. Define priority queue. Write heap sort algorithm and Apply heap sort for the following set of numbers by creating min heap.
   12,45,3,45,7,89,34,23,14,41,88,76,99.

OR

3. Demonstrate your understanding of double ended queue. Write algorithms for both insertion and deletion from both the ends

UNIT-II

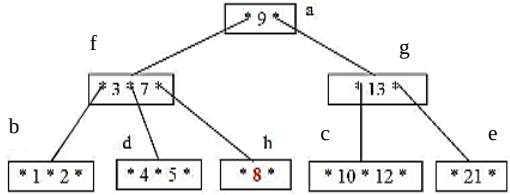
4. Apply hashing for the following set of numbers 3,2,9,6,11,13,7,12 with hash table size is 10. First hash function is 2k+3 and 2nd hash function are 3k+1. Use division remainder method and double hashing as collision resolution.

OR

5. Explain how extendible hashing. Apply extendable hashing for the fallowing set of numbers 16,4,6,22,24,10,3,17,9,20,26. bucket size is 3. Hash function: If global depth is x then hash function should return x LSB's

UNIT-III

6. List all B-Tree properties. Show the step-by-step process to insert keys 6, 15,17,18 in the given B-tree.

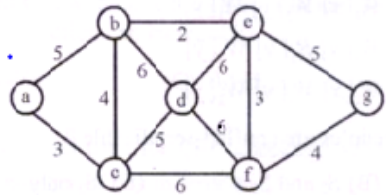


OR

7. List out BST properties. Explain step by step process to construct AVL tree with the fallowing identifiers.
3,2,1,4,5,6,7,15,14,13,12,11,10,9,8.

UNIT-IV

8. Write prims algorithm. Apply prims algorithm for the following graph to find minimum cost spanning tree.



OR

9. Compare internal sorting and external sorting. Explain K-way merge and Polyphase merge with your own examples.

UNIT-V

10. Show step by step operations of representation of suffix tree for the string "xabxac".

OR

11. Explain various pattern matching algorithms with relevant examples.