

Seat No.

[5668]-188

S.E. (Computer) (Second Semester) EXAMINATION, 2019

ADVANCED DATA STRUCTURES

(2015 PATTERN)

Time : Two Hours**Maximum Marks : 50****N.B. :—** (i) Answer question Nos. 1 or 2, 3 or 4, 5 or 6, 7 or 8.

(ii) Neat diagrams must be drawn wherever necessary.

(iii) Figures to the right indicate full marks.

(iv) Assume suitable data, if necessary.

1. (a) The inorder and postorder traversal of a tree are given below :

Inorder : EICFJBGDKHL postorder : IEJFCGKLHDB

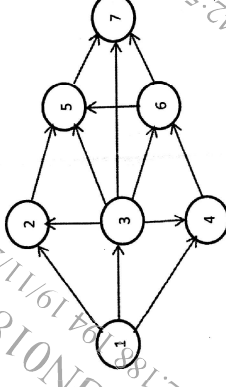
Draw the binary tree and write preorder traversal.

- (b) Explain different types of Graph storage structure and give example of each.

P.T.O.

Or

2. (a) What is topological ordering ? List their applications. Find the topological sorting of a given graph. [6]



- (b) Write a function for deletion of an element from threaded binary search tree. [6]

3. (a) Write a pseudo C/C++ code for LR and RL rotation in AVL Tree. [7]

- (b) Assume the size of hash table as 8. The hash function to be used to calculate the hash value of the data X is : $X \% 8$. Insert the following values in hash table : 10, 12, 20, 18, 15. What is the average search cost of linear probing without replacement for handling collision ? [5]

Or

4. (a) What is B tree ? Explain the delete operation in B tree with example. [7]

- (b) Construct the AVL tree for the following data by inserting each of the following data item one at a time : [5]

10, 20, 15, 12, 25, 30, 14, 22, 35, 40.

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5. (a) Construct B+ tree of order 4 for the following data : [6]
C, N, G, A, H, E, K, Q, M, F, W, L, T, Z, D, P, R, X, Y
 - (b) Explain the following trees using suitable example : [6]
 - (i) Red-black tree
 - (ii) Splay tree.
- Or
6. (a) Sort the data in ascending order using heap sort : 15, 19, 10, 7, 17, 16. Show the sorting stepwise. [6]
 - (b) Create the min-heap for given data : [6]
25, 12, 27, 30, 5, 10, 17, 29, 40, 3.
- Or
7. (a) Explain the various modes of opening the file in C/C++. Enlist out basic file operations in C. [7]
 - (b) Explain linked organization with respect to inverted files. [7]
- Or
8. (a) Define sequential file operations and state its advantages and disadvantages. [7]
 - (b) Explain advantages of indexing over sequential file. Enlist types of indices. Explain any *two*. [7]