Total No. of Questions—**8**] [Total No. of Printed Pages—**3**

Seat No.	

[5668]-188

S.E. (Comptuer) (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 : [6]

Inorder : EICFJBGDKHL postorder : IEJFCGKLHDB

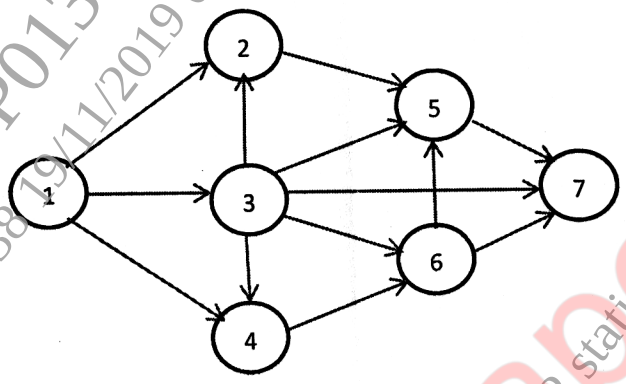
Draw the binary tree and write preoreder traversal.

(*b*) Explain different types of Graph storage structure and give example of each. [6]

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.

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.

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]