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

Seat No.	

[5459]-208

S.E. (I.T.) (II Semester) EXAMINATION, 2018
DATA STRUCTURES AND FILES
(2015 PATTERN)

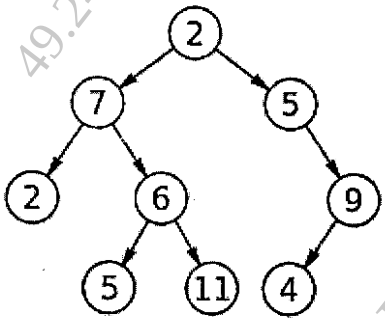
Time : 2 Hours **Maximum Marks : 50**

N.B. **:—** (*i*) Answer *four* questions.
(*ii*) Neat diagrams must be drawn wherever necessary.
(*iii*) Figures to the right indicate full marks.
(*iv*) Assume suitable data, if necessary.

1. (*a*) Convert the following expression from infix to Postfix and Prefix. Make use of appropriate data structure which can be used for conversion. [6]

a. 2 * 3 / (2 – 1) + 5 * 3

(*b*) Traverse a given tree in Preorder, Inorder and Postorder.[6]



Or

2. (*a*) Evaluate given expressions : [6]

(*i*) 2 3 * 2 1 – / 5 3 * +

(*ii*) + * 2 / 3 – 2 1 * 5 3

P.T.O.

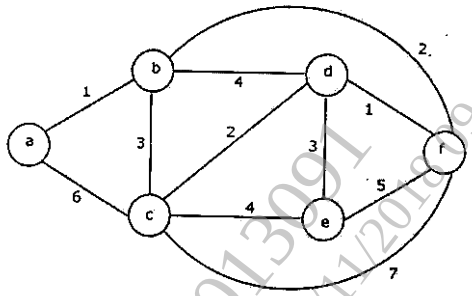
(*b*) Explain any *three* applications of stack with appropriate example. [6]

3. (*a*) What is Topological sorting ? Explain it with suitable example. [6]

(*b*) What is hashing ? What are characteristics of good hash function ? Where is hashing applicable ? [6]

Or

4. (*a*) Apply Kruskal's algorithm to find out Minimum Spanning Tree of given graph. [6]



(*b*) Apply max heap sorting technique to sort given data set : [6]

1, 12, 9, 5, 6, 10

5. (*a*) What are the benefits of AVL Tree over BST ? Explain with suitable example. [4]

(*b*) Compare AVL tree and RB tree with different parameters. [6]

(*c*) Write a short note on Splay Trees. [4]

Or

6. (*a*) What is TBT ? What is advancement in TBT over BT ? Draw any suitable in-ordered TBT and traverse it in Pre-order traversal. [8]

(*b*) Write short notes on : [6]

(*i*) B Tree

(*ii*) B+ Tree.

7. (*a*) What primary operations can be performed on files ? Explain all of them w.r.t. file handling. [6]

(*b*) Explain file opening function in C++ with different file opening modes. [6]

Or

8. (*a*) Explain prototype of the following function in C++ with example : [8]

(*i*) seekg

(*b*) seekp

(*c*) tellg

(*d*) tellp

(*b*) Differentiate Sequential, Index Sequential and Direct Access file. [4]