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

Seat No.	

[5152]-568

S.E. (Computer) (Second Semester) EXAMINATION, 2017

ADVANCED DATA STRUCTURES

(2015 PATTERN)

Time : Two Hours **Maximum Marks : 50**

N.B. :— (*i*) Answer *four* questions in all.

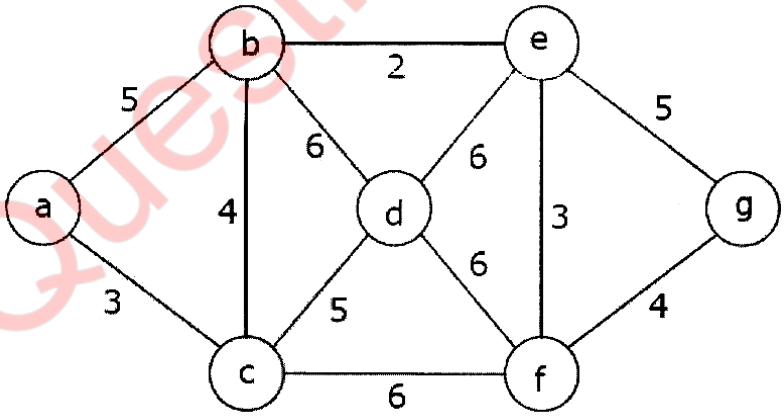
(*ii*) Neat diagrams must be drawn wherever necessary.

(*iii*) Figures to the right indicate full marks.

(*iv*) Assume suitable data, if necessary.

1. (A) Write a non-recursive pseudo for post order traversal of binary tree. [5]

(B) Consider the given graph and find the shortest path by using Dijkstra's algorithm from 'a' to 'g'. [7]



Or

2. (A) Construct a binary tree from given *two* traversals : [6]

Inorder Traversal—1 2 3 14 7 10 11 40 30

Postorder Traversal–1 3 2 7 10 40 30 11 14

(B) Write a short note on topological sorting. [6]

P.T.O.

3. (A) Write short note on skip list. [6]

(B) Build the AVL tree for the following data. Show the step by step construction 25, 12, 17, 30, 15, 14, 37, 27, 40, 29, 28 [6]

Or

4. (A) Write functions for LL and LR rotation with respect to AVL tree. [6]

(B) Construct hash table of size 10 using linear probing with replacement strategy for collision resolution. The hash function is $h(x) = x\%\ 10$. Calculate total numbers of comparisons required for searching. Consider slot per bucket is 1

25, 3, 21, 13, 1, 2, 7, 12, 4, 8 [6]

5. (A) Construct a B tree of order 3 for the following data : [7]

50, 30, 21, 90, 10, 13, 20, 70, 25, 92, 80

(B) What is max heap ? Write a function to insert an element in max heap. What is the time complexity of inserting an element in Max heap ? [7]

Or

6. (A) Write an algorithm to delete a node from B-tree. [7]

(B) Create min heap of given data 10, 20, 15, 12, 25, 30, 14, 2, 5, 4. After creation of min heap perform one delete operation on it and show the final min heap. [7]

7. (A) Explain sequential file, Random access file organization. [6]

(B) Explain linked organization with respect to file handling. [6]

Or

8. (A) Explain any *three* operations on sequential file organization with example. [6]

(B) Write a short note on external sort. [6]