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Reg. No. :

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Question Paper Code : 75482

5 Year M.Sc. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Third Semester

Software Engineering

ESE 031 — DATA STRUCTURES

(Regulation 2010)

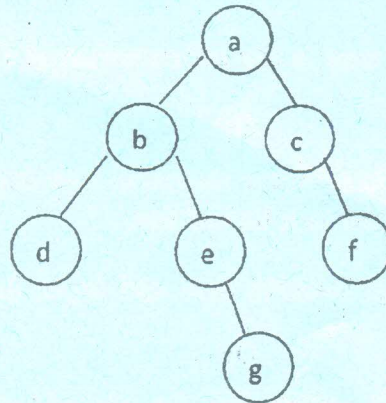
Time : Three hours

Maximum : 100 marks

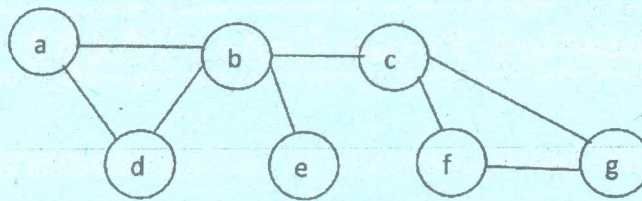
Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Mention the need for modular programming.
2. Write an algorithm to print the 3rd element in a stack of 10 elements.
3. Give 2 real world applications for a circular queue.
4. Write an algorithm to combine 2 given linked lists (Start1 and Start2) into a single linked list.
5. Construct the binary tree for the arithmetic expression : $(a + b)/(c - d) * e$.
6. Perform inorder and converse inorder on the following tree.



7. Write the adjacency matrix and adjacency list of the following graph.



8. What is the importance of the Warshalls technique?
9. How does the buddy system allocate space to a requesting process?
10. What are the advantages of using an indexed sequential file?

PART B — (5 × 16 = 80 marks)

11. (a) Write an algorithm to convert an infix expression to the Polish notation. Trace the algorithm and translate the infix expression $a + b * c / d * e - f + g$.

Or

- (b) Write short notes on the following :
- (i) Storage structure for arrays
 - (ii) Structures end arrays of structures.
12. (a) Write an algorithm to perform insertion and deletion in a priority queue when it is viewed as a set of queues.

Or

- (b) Represent a polynomial as a linked list and write an algorithm to add two polynomials that are represented as linked lists with suitable explanation.
13. (a) Explain the role of a tree in the construction of a symbol table.

Or

- (b) Write an algorithm to perform insertion and deletion on a binary search tree that is represented as a linked list.
14. (a) Compare and contrast breadth first and depth first traversal in detail.

Or

- (b) Write a note on PERT and explain its related techniques.

15. (a) Write an algorithm to allocate space, using the first fit technique and perform garbage collection when necessary.

Or

- (b) With suitable diagrams write about the features and operation of external storage devices.
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