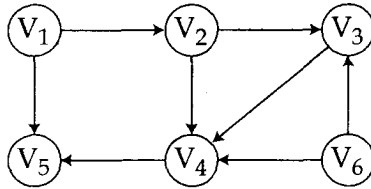


**BACHELOR OF COMPUTER
APPLICATIONS (PRE-REVISED)****Term-End Examination****December, 2013****CS-62 : 'C' PROGRAMMING AND DATA
STRUCTURES***Time : 2 hours**Maximum Marks : 60*

Note : *Question number 1 is Compulsory. Answer any three questions from the rest. All algorithms should be written nearer to 'C' language.*

1. (a) Explain the concept of LISTS. Mention their advantages and disadvantages. 8
- (b) What are Binary trees ? Mention their properties. Also define the term "Complete Binary Tree". Give an example of Complete Binary Tree. 6
- (c) Explain various stack operations. Also, write Algorithm for Array implementation of stacks. 9
- (d) Write an algorithm to implement the linear search algorithm. 7
2. (a) Write an algorithm to count the number of occurrences of a substring in a given input string. 5
- (b) Write a short note on file handling in 'C' language. 5

3. (a) Explain the Depth First Search algorithm of graph traversal. 7
- (b) Run the DFS algorithm on the following graph. 3



List the sequence in which vertices are visited.

4. (a) What are B - Trees ? Construct a B - Tree of degree '3' from the following data : 7
- 1, 5, 6, 2, 8, 14, 13, 4, 18
- (b) Evaluate the following post fix expression using stack. 3
- 9 2 3 + * 5 / 3 +
- Show each step for the same.
5. Write a short notes on the following : 10
- (a) Sparse Matrix
- (b) Merge Sort
- (c) Height Balanced Tree
- (d) Adjacency Matrix