

**BACHELOR OF COMPUTER  
APPLICATIONS (PRE-REVISED)**

**Term-End Examination**

**June, 2013**

**CS-62 : 'C' PROGRAMMING AND DATA  
STRUCTURES**

*Time : 2 hours*

*Maximum Marks : 60*

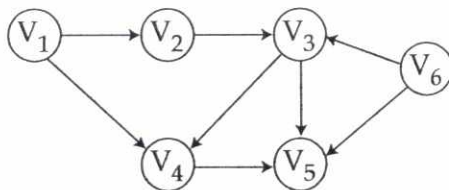
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*Note : Question number 1 is Compulsory. Answer any three questions from the rest. All algorithms should be written nearer to 'C' language.*

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1. (a) What are the various methods to store arrays in the memory ? Explain their expressions using suitable examples. 8
- (b) Define the following terms : 6
- (i) Tree
  - (ii) Depth of a node
  - (iii) Height of a tree
  - (iv) Forest
- (c) Explain various basic Queue Operations. Also, describe the circular Array implementation of Queues. 9
- (d) What is Binary Search Technique ? Give its Algorithm. 7

2. (a) Write a program in 'C' to calculate the total number of words and vowels in a string given as input by the user. 5
- (b) Write a program in 'C' to take string inputs from the user and print them on a file "OUT.txt". 5
3. (a) Explain the Breadth First Search Algorithm with its importance. 7
- (b) Run the above mentioned BFS Algorithm on the following graph and list the nodes in the order of their visit. 3



4. (a) What is an AVL Tree ? Why is it also called a Height Balanced tree ? Construct an AVL tree by inserting following elements in the order of their occurrences. (Show all steps). 7
- 99, 89, 19, 101, 67, 65, 100.
- (b) Convert the following infix expression to postfix notation : 3
- $((a + b) + (c/d)) - 2.$

5. Write a short note on the following :

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- (a) Sparse Matrix
  - (b) DFS Algorithm
  - (c) Heapsort
  - (d) B-Trees
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