FACULTY OF INFORMATICS

B.E. 2/4 (IT) I – Semester (Main) Examination, November 2013

Subject : Data Structures

Time : 3 hours   **Max. Marks : 75**
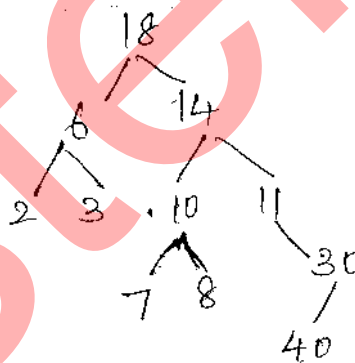
Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1. Compute the time complexity for the following function

```
float    RSum (float *a, const int n)
{
     If (n < 0) return 0 ;
     Ebe return (RSum (a, n – 1) + a[n – 1] );
}
```

2. Write a c++ function length to count the number of nodes in a chain.

3. For the following tree, what is the order of nodes visited using provider traversal.

4. Devise a linked representation for a list in which insertions and deletions can be made at either end in 0(1) time. Write functions to insert and delete at either end.

5. What is the advantage of using anay doubling technique while inserting an element into anay list.

6. Write a c++ function transpose ( ) which transposes a sparse matrix.

7. Suppose you have an order 5 B-tree. How many levels are required at minimum to hold 3000 keys.

8. Which sorting technique can be used to soft and data items that are partially satins?

9. Define a priority queue.

10. What is the pufix expression for the following infix expression?

$(A|B * C * D + E)$