Code No: R05211201 **R05** **Set No. 2**

**II B.Tech I Semester Examinations,May/June 2012**
**ADVANCED DATA STRUCTURES AND ALGORITHMS**
**Common to Information Technology, Computer Science And Systems Engineering**

**Time: 3 hours** **Max Marks: 80**

**Answer any FIVE Questions**
**All Questions carry equal marks**

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1. Write an algorithm for transposing a given matrix of n × m size and determine the time complexity of the algorithm by using frequency method. [16]

2. Develop a class for hash table using linear probing and neverUsed concept to handle an erase operation. Write complete C++ code for all the methods. Include a method to reorganize the table when (say) 60% of the empty buckets have never used equal to false. The reorganization should move pairs around as necessary and leave a properly configured hash table in which neverUsed is true for every empty bucket. [16]

3. Create a program that opens a file (the first argument on the command line) and searches it for any one of a set of words (the remaining arguments on the command line). Read the input a line at a time, and print out the lines (with line numbers) that match. [16]

4. (a) Explain the need for OOP? and also explain the principles of Object Oriented Programming?
   (b) Explain the differences between procedural languages and Object Oriented languages. [8+8]

5. (a) What is the princple of partitioning in quick sort? Write an algorithm of quick sort.
   (b) Explain:
      i. Articulation point
      ii. Biconnected graph. [10+6]

6. (a) What is the specificity of overloading sizeof, typeid, new and delete operators?
   (b) Compare distinctive features of overload of operations "( )" and "[ ]". [8+8]

7. Show that Prim's algorithm can be implemented like Kruskal's algorithm using heap. Show that it then takes a time in $\theta$(alogn). [16]

8. (a) State the conditions under which insertion of a vertex in a Red-Black tree will result in a sequence of recolouring steps that terminate with the root changing colour.
   (b) Will the root of a Red-Black tree always be black after performing a deletion operation? Justify with an example. [8+8]

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Code No: R05211201 **R05** **Set No. 4**

**II B.Tech I Semester Examinations,May/June 2012**
**ADVANCED DATA STRUCTURES AND ALGORITHMS**
**Common to Information Technology, Computer Science And Systems Engineering**

**Time: 3 hours** **Max Marks: 80**

**Answer any FIVE Questions**
**All Questions carry equal marks**

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      ii. Biconnected graph. [10+6]

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   (b) Explain the differences between procedural languages and Object Oriented languages. [8+8]

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Code No: R05211201 **R05** **Set No. 1**

**II B.Tech I Semester Examinations,May/June 2012**
**ADVANCED DATA STRUCTURES AND ALGORITHMS**
**Common to Information Technology, Computer Science And Systems Engineering**

**Time: 3 hours** **Max Marks: 80**

**Answer any FIVE Questions**
**All Questions carry equal marks**

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Code No: R05211201 **R05** **Set No. 3**

**II B.Tech I Semester Examinations,May/June 2012**
**ADVANCED DATA STRUCTURES AND ALGORITHMS**
**Common to Information Technology, Computer Science And Systems Engineering**

**Time: 3 hours** **Max Marks: 80**

**Answer any FIVE Questions**
**All Questions carry equal marks**

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