Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER • 2013

Subject Code: 710208N **Date: 06-01-2014**

Subject Name: Advanced Data Structure

Time: 10.30 am – 01.00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain the skew and split operations in AA-trees with suitable example.	**07**
	(b)	Explain random treaps. Explain how to analyze treaps.	**07**
Q.2	**(a)**	Define a k-d tree. List k-d tree operations and explain any one of the operations in detail.	**07**
	(b)	Explain multi-key indexing with example.	**07**
		OR	
	(b)	Explain grid files. Also explain the operations on grid files.	**07**
Q.3	**(a)**	Differentiate between internal and external sorting with suitable examples.	**07**
	(b)	Explain bitonic sorting with an example.	**07**
		OR	
Q.3	**(a)**	Explain multiway merge algorithm with example.	**07**
	(b)	Explain SR trees. Differentiate with SS trees.	**07**
Q.4	**(a)**	Explain priority queues. List the applications of it.	**07**
	(b)	Define R-tree and explain any one operation in detail.	**07**
		OR	
Q.4	**(a)**	Explain minimax principle. How it is useful in game playing.	**07**
	(b)	Explain the search techniques used by the search engines to make the searching faster.	**07**
Q.5	**(a)**	Explain nearly perfect hash family.	**07**
	(b)	What do you mean by dynamic equivalence problem?	**07**
		OR	
Q.5	**(a)**	How can you construct universal hash family? Explain.	**07**
	(b)	Explain D-heap with example.	**07**

****