

Hall Ticket Number:

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II/IV B.Tech (Supplementary) DEGREE EXAMINATION**April, 2017****Third Semester****Time:** Three Hours**Common for CSE & IT****Data Structures****Maximum : 60 Marks***Answer Question No.1 compulsorily.***(1X12 = 12 Marks)***Answer ONE question from each unit.***(4X12=48 Marks)****(1X12=12 Marks)**

1. Answer all questions
 - a) Define Data Structure?
 - b) Difference between SLL and DLL?
 - c) List out the applications of linked list?
 - d) What is stack?
 - e) To Convert given infix to postfix $((a + b) * (c + d))$?
 - f) Write steps of shell sort?
 - g) What is binary tree?
 - h) Define Balancing Factor?
 - i) Mention name of different routines in AVL Trees?
 - j) Define hash function?
 - k) Write names of different graph traversal algorithms?
 - l) Define min and max heaps?

UNIT I

2. a) Explain different performance measures of computer program? **7M**
- b) Describe different classifications of data structures? **5M**

(OR)

3. a) Explain different routines of SLL with the help of examples? **8M**
- b) Construct DLL for different locations of insertions with neat diagrams? **4M**

UNIT II

4. a) Define stack? Explain all stack operations with the help of examples? **9M**
- b) Describe different applications of stacks? **3M**

(OR)

5. Write an algorithm for merge sort? To sort the given elements using merge sort technique? **12M**
5, 20, 3, 15, 30, 25, 10, 12, 28, 52, 35, 2.

UNIT III

6. a) Construct the BST for the following elements? **6M**
3, 2, 1, 6, 5, 4, 7, 9, 8, 12, 10
- b) Construct and explain the procedure for expression tree for the given expression **6M**
 $(a + b) / (c + d) * (e - f)$

(OR)

7. Write and Explain AVL tree single and double rotations? **12M**

UNIT IV

8. a) Define Heap sort? Explain heap sort technique for the following elements? **9M**
5, 20, 10, 15, 25, 35, 18, 22, 32, 2
- b) Explain linear probing? **3M**

(OR)

9. Explain different graph traversal techniques with the help of example? **12M**