B. TECH. SEM - III (INF. TECH.) (2014 COURSE) (CBCS) :
SUMMER - 2018
SUBJECT: DATA STRUCTURES & FILES

Day: **Thursday** Time: **02.30 PM TO 05.30 PM**
Date: **24/05/2018** **S-2018-2252** Max. Marks: 60

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat labelled diagrams **WHEREVER** necessary.
4) Assume suitable data if necessary.

Q.1 Explain best, average and worst case complexity with an example. **(10)**

OR

Q.1 Explain following terms with suitable example: **(10)**
i) ADT ii) Pseudocode
iii) Data structure iv) Data object
v) Algorithm

Q.2 What is sequential organization? Explain different operations on stack using sequential organization. **(10)**

OR

Q.2 Explain any one application of queue with code snippet. **(10)**

Q.3 Explain insertion operation on double linked list(consider all possible cases). **(10)**

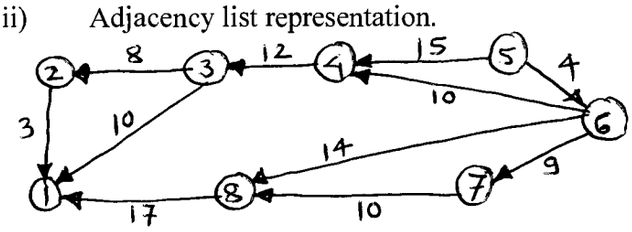
OR

Q.3 Compare and contrast static memory allocation and dynamic memory allocation. **(10)**

Q.4 What is AVL Tree? Enlist applications of AVL tree. Construct the AVL tree for the following data by inserting each data item one at a time. **(10)**
1, 3, 2, 4, 5, 7, 6, 12, 13, 14.

OR

Q.4 Explain the following terms of the below given graph: **(10)**
i) In degree of and out degree of each vertex.
ii) Adjacency list representation.



Also list and explain different searching algorithms used in graph.

Q.5 List all searching techniques. Explain which searching techniques is better using suitable example. **(10)**

OR

Q.5 Explain Quick sort and Merge sort algorithm with suitable example. **(10)**

Q.6 Explain sequential, indexed and random files organization in detail. **(10)**

OR

Q.6 What is collision with respect to hash function? List and explain different collision resolution techniques with suitable example. **(10)**

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