IT 3|3|20 (SY. B+) (DSF)

Total No. of Questions – [06]

Total No. of Printed Pages: 01

G.R. No.	

MARCH 2020 INSEM (T1)
S. Y. B.TECH. (INFORMATION TECHNOLOGY) (SEMESTER – IV)
COURSE NAME: DATA STRUCTURES AND FILES
COURSE CODE: ITUA22182

(PATTERN 2018)

Time: [1 Hour]

[Max. Marks: 20]

(*) Instructions to candidates:

1. Attempt Q.1 **OR** Q.2, Q.3 **OR** Q.4, Q.5 **OR** Q.6
2. Figures to the right indicate full marks.
3. Use of scientific calculator is allowed.
4. Assume suitable data wherever required.
5. Write suitable examples and draw suitable diagrams wherever necessary.

Q. 1) Write and explain non-recursive preorder traversal function in C/C++ of [8] Binary Tree with example. Write and explain any 4 applications of tree data structures.

OR

Q. 2) Construct an expression tree from postfix expression (Show steps): ABC*+D- [8] EF/+.
Explain the memory representation of threaded binary tree with example. Write advantages and disadvantages of TBT.

Q. 3) Represent the given graph using adjacency matrix and adjacency list. [8] Perform depth first traversal and breadth first traversal for the same. (Show steps with all processing of required structures.)
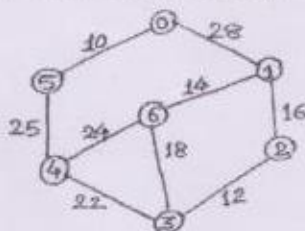
OR

Q. 4) Write algorithm to find minimum spanning tree using Prim's method. [8] Find MST of given graph using Priml's algorithm. (Show steps with all processing of required structures.)
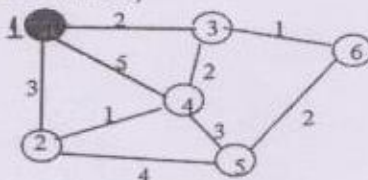
Q. 5) Explain what is hash function and characteristics of good hash function. [4] Explain any two hashing techniques with example.

OR

Q. 6) Create a hash table and resolve collision using linear probing without [4] replacement: 9, 45, 13, 59, 12, 75, 88, 11, 105, 46
Table size:10, Hash function: Key%10