Total No. of Questions – [   ]   Total No. of Printed Pages

G.R. No.	

paper code: U228-135 (REff)

MAY 2019/ENDSEM REEXAM

S. Y. B. TECH. (E&TC) (SEMESTER - II)

COURSE NAME: Data Structures   **COURSE CODE: ETUA22175**

(PATTERN 2017)

Time: [2 Hours]   [Max. Marks: 50]

(*) Instructions to candidates:
1) Answer Q.1, Q.2, Q.3, Q.4, Q.5 OR Q.6, Q.7 OR Q.8
2) Figures to the right indicate full marks.
3) Use of scientific calculator is allowed
4) Use suitable data where ever required

Q. 1   a)   What is an algorithm? Explain with example how algorithm is   [6]
              analyzed.

                                        OR

        b)   What is a pointer? What are the advantages of using pointer?   [6]
              Explain pointer declaration and initialization with example.

Q. 2   a)   Write a C function to implement binary search   [6]

                                        OR

        b)   Write C function to implement insertion sort.   [6]

Q. 3   a)   Explain doubly linked list. Differentiate between SLL and DLL. [6]

                                        OR

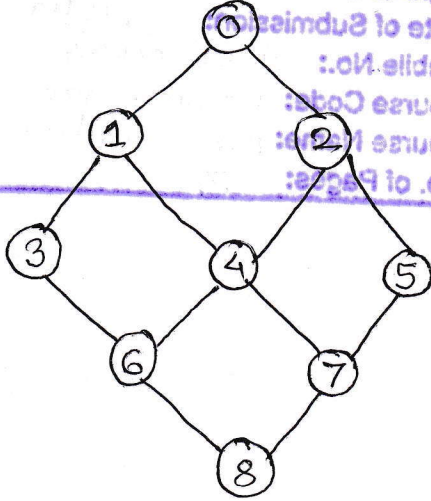   b)   Write a C function to add head and delete head in linked list. [6]

Q. 4   a)   Convert following infix expression to postfix form   [4]
              (A+B/C)*(D-E)

                                        OR

        b)   Define stack and write a function for PUSH operation in stack [4]
              using array.

Q. 5   a)   Write following tree traversals for given tree.   [6]
              1) Pre-order(2)In-order(3)Post-order

	b)	Create expression tree from given expression. Infix: (8-5) * ((4+2) / 3) Postfix: 85 – 42 + 3 / *	[4]
	c)	Write a recursive for in-order traversal of BST. function	[4]

<center>OR</center>

Q. 6	a)	Explain memory representation of binary tree with suitable example.	[6]
	b)	Write a recursive for pre-order traversal of BST. function	[4]
	c)	Construct a binary tree using following tree traversals Post-order: D,F,E,B,G,L,J,K,H,C,A In-order: D,B,F,E,A,G,C,L,J,H,K	[4]

Q. 7	a)	Write a C function for implementing depth first search for a graph.	[6]
	b)	Find minimum spanning tree for the given graph using kruskal algorithm.	[4]

	c)	Construct adjacency list for given graph write its advantages and dis advantages.	[4]

		OR	
Q. 8	a)	Define with example 　　1) connected graph 　　2) path 　　3) spanning tree	[6]
	b)	Write Breadth first traversal for given graph. 	[4]
	c)	Write a C function for outdegree of a vertex	[4]