PAPER CODE-54006

University Institute of Engineering & Technology

(Recognised Under Section 2(f) and 12B of UGC)

Kurukshetra University, Kurukshetra

Roll No. -

THEORY EXAMINATION – MAY 2019	
B.TECH - ECE	SEMESTER – IV

TIME – 3 Hrs.

M.M. - 75

COURSE NO. - ECE-202	COURSE TITLE - Data Structures and Algorithms

Note: All questions in Part-A and Part-B are compulsory. Attempt any four questions from Part-C selecting at least one from each unit.

PART-A (15 Marks)

Q. No. – 1 Answer the following questions. **15x1=15**

(i)	Declare and initialize Rollno's of your class.
(ii)	Declare and initialize today's date using structure.
(iii)	Declare doubly linked list node.
(iv)	Declare function to add two integers.
(v)	Declare and initialize data structure to store your name.
(vi)	List five valid and five invalid identifiers in 'C'.
(vii)	The postfix notation of (A+B)/(C*D)-E ?
(viii)	The output after 3rd pass of bubble sort in ascending order of 11,10,1,0,8,5,14,6,9 is
(ix)	Differentiate between Undirected and Directed Graphs.
(x)	Write the enum declaration for months of the year.
(xi)	Evaluate the postfix expression ABC/- where A = 10, B = 6, C = 6
(xii)	Declare and initialize a pointer to an integer and store value 5 using pointer.
(xiii)	Define basic structure for a linked list.
(xiv)	Draw Binary Tree for expression A(B(D,$),C(E,F($,G)).
(xv)	Differentiate between Complete and Full Binary Tree.

PART-B (20 Marks)

	UNIT-I	
2	Write a program to traverse and print the array of your class rollno.	5
	UNIT-II	
3	Explain Selection Sort algorithm stepwise with suitable example of 10 random integers.	5
	UNIT-III	
4	Explain the creation of a new node and insertion of it in between two nodes of a linked list.	5
	UNIT-IV	
5	Explain Binary Search Tree and create BST for 25,12,34,11,10,54,65,8,7,22.	5

PART-C (40 Marks)

	UNIT-I	
6	Write a program in C to find Less Than, Greater Than and Equal between two integers.	10
7	Discuss various types of operators in C with examples.	10
	UNIT-II	
8	Explain Linear Search and Binary Search Algorithm in detail. Implement both search to find 14 in: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15 and compare no. of comparison.	10
9	Use a stack to evaluate the following postfix expression. Show the changing status of the stack in tabular form. Q = ABC+*D/E- for A=5,B=3,C=4,D=5,E=8	10
	UNIT-III	
10	Explain Dynamic Allocation in C. Write an algorithm to create a link list of 5 integer elements.	10
11	Explain the Push and Pop Operation in detail of Stack using Linked List.	10
	UNIT-IV	
12	Draw and Do PreOrder, InOrder and PostOrder Traversal of Binary Tree A(B(C(D,E),F),G(H($,I),J(K,$)))	10
13	Describe various representation of all types of Graphs in C.	10