Program: B.E. Information Technology Engineering
Curriculum Scheme: Rev. 2016
Examination: Second Year – Semester III
Course Code: ITC303 **Course Name:** Data Structure & Analysis
Time: 1 hour **Max. Marks:** 50
Note to the students: All the Questions are compulsory and carry equal marks.

Question No.	Question Statement	Options			
		A:	B:	C:	D:
1	Stack is a	LIFO	FIFO	FILO	LILO
2	Which function places an element on the stack?	Pop()	Push()	Peek()	isEmpty()
3	The following sequence of operations is performed on a stack push(1), push(2), pop, push(1), push(2), pop, pop, pop, push(2), pop. The sequence of the popped out values is	2, 2, 1, 1, 2	2, 2, 1, 2, 2	2, 1, 2, 2, 1	2, 1, 2, 2, 2
4	Which is the postfix expression for the following infix expression? A + B *(C + D)/F + D *E	AB + CD + *F/D + E*	ABCD +*F/+ DE*+	A * B + CD/F*DE++	A +*BCD/F * DE++
5	The prefix form of A - B/(C*D$E) is	-1*$ACBDE	-ABCD*$DE	-A/B*C$DE	-A/BC*$DE
6	The initial configuration of a queue is a, b, c, d (a is at the front end). To get the configuration d, c, b, a, one needs a minimum of	2 deletions and 3 additions	3 deletions and 2 additions	3 deletions and 3 additions	3 deletions and 4 additions
7	A linear list of elements in which deletion can be done from one end (front) and insertion can take place only at the other end is known as	queue	stack	tree	branch

8	n elements of a queue are to be reversed using another queue. The number of add and remove operations required to do so is	2 * n	4 * n	n	The task cannot be accomplished.
9	The end at which a new element gets added to a queue is called the	front	rear	top	bottom
10	The end from which an element gets deleted from a queue is called the	front	rear	top	bottom
11	Which of the following operations is performed more efficiently by a doubly linked list than by a linear linked list?	Deleting nodes whose location is given	Searching an unsorted list for a given item	Inserting a node after the node with a given location	Traversing the list to process each node
12	Consider the linked list of n elements. What is the time taken to insert an element after an element pointed by some pointer?	O(1)	O(log2n)	O(n)	O(nlog2n)
13	Which type of linked list can have four pointers per node?	Circular doubly linked list	Multi-linked list	Header linked list	Doubly linked list
14	A basic algorithm that arranges data according to their values is known as	inquiry	sorting	searching	Recursion
15	The order of an algorithm that finds whether a given Boolean function of n variables produces an output of 1 is	constant	linear	logarithmic	Exponential
16	A pictorial representation of an algorithm is called	a flow chart	a structure chart	a pseudocode	an algorithm
17	Which data structure is	Arrays	Linked lists	Trees	Graphs

	defined as a collection of similar data elements?				
18	The data structure used in hierarchical data model is	Array	Linked list	Tree	Graph
19	The number of swappings needed to sort the numbers 8, 22, 7, 9, 31, 19, 5, 13 in ascending order using bubble sort is	11	12	13	14
20	Which of the following sorting algorithms has a worst case running time of O(n2)?	Insertion sort	Merge sort	Quick sort	Bubble sort
21	A binary tree has a height of 5. What is the minimum number of nodes it can have?	31	15	5	1
22	A binary tree is generated by inserting an inorder as 50, 15, 62, 5, 20, 58, 91, 3, 8, 37, 60, 24. The number of nodes in the left and right subtree, respectively is given by	(4, 7)	(7, 4)	(8, 3)	(3, 8)
23	Degree of a leaf node is _____.	0	1	3	2
24	Pre-order traversal is also called _____.	Depth first	Breadth first	Level order	In-order
25	A card game player arranges his cards and picks them one by one. With which sorting technique can you compare this example?	Bubble sort	Selection sort	Merge sort	Insertion sort