Printed page: 2 Subject Code:ACSE0301

Roll No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B. Tech (CSE)

(SEM:3rd, SESSIONAL EXAMINATION –II) (2021-2022)

Subject Name: Data Structures

Time: 1.15Hours [Set A] Max. Marks:30

General Instructions:

- All questions are compulsory. Answers should be brief and to the point.
- It comprises of three Sections, A, B, and C. You are to attempt all the sections.
- Section A -Question No- 1 is objective type questions carrying 1 mark each, Question No- 2 is very short answer type carrying 2 mark each. You are expected to answer them as directed.
- Section B -Question No-3 is short answer type questions carrying 5 marks each. You need to attempt any two out of three questions given.
- Section C -Question No. 4 &5are Long answer type (within unit choice) questions carrying 6marks each. You need to attempt anyone-partaorb.
- Students are instructed to cross the blank sheets before handing over the answer sheet to the invigilator.
- No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

		SECTION – A	[8]	
1.	Attempt all parts		(4×1=4)	CO
	a.	Process of removing an element from stack is called _____ a) Create b) Push c) Evaluation d) Pop	(1)	CO2
	b.	Pushing an element into stack already having five elements and stack size of 5, then stack becomes a) Overflow b) Crash c) Underflow d) User flow	(1)	CO2
	c.	Recursion is similar to which of the following? a) Switch Case b) Loop c) If-else d) if elif else	(1)	CO2
	d.	If the elements "A", "B", "C" and "D" are placed in a queue and are deleted one at a time, in what order will they be removed? a) ABCD b) DCBA c) DCAB	(1)	CO2

		d) ABDC		
2.	Attempt all parts		(2×2=4)	CO
	a.	Write a program in python for Fibonacci series using recursion.	(2)	CO2
	b.	Define priority queue, With example.	(2)	CO2
		SECTION – B		
3.	Answer any twoof the following-		[2×5=10]	CO
	a.	Write an algorithm for infix to postfix expression. Convert the following infix expression into postfix expression: B-C/D+A*(F-G/H).	(5)	CO2
	b.	Explain Tower of Hanoi problem and write a recursive algorithm to solve it. Draw its flowchart.	(5)	CO2
	c.	What arethe difference between recursion and iteration?	(5)	CO2
		SECTION – C		
4	Answer any one of the following- (Anyone can be applicative if applicable)		[2×6=12]	CO
	a.	What do you mean by Circular queue? Write an algorithm for insertion in circular queue.	(6)	CO2
	b.	What do you mean by recursion? Write a program in Python for binary search using recursion.	(6)	CO2
5.	Answer any one of the following-			
	a.	What is stack? Write an algorithm for inserting an element in stack. What are the operations? Write its application?	(6)	CO2
	b.	What is an Expression? What are the types? Convert this into prefix: Infix – A*(B+D)/E-F*(G+H/K)	(6)	CO2