ADAMAS UNIVERSITY

END SEMESTER EXAMINATION

(Academic Session: 2020 – 21)

Name of the Program:	MSc. Tech	**Semester:**	II
Paper Title:	Data Structure and Algorithm Design	**Paper Code:**	CSE21741
Maximum Marks:	50	**Time Duration:**	3 Hrs
Total No. of Questions:	**17**	**Total No of Pages:**	2
(Any other information for the student may be mentioned here)	**1.** At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam. **2.** All parts of a Question should be answered consecutively. Each Answer should start from a fresh page. **3.** Assumptions made if any, should be stated clearly at the beginning of your answer.		

Group A **Answer All the Questions (5 x 1 = 5)**			
1	Define Data Structure.	**U**	**CO1**
2	Give examples of Linear Data Structure.	**U**	**CO2**
3	Give examples of Non Linear Data Structure	**R**	**CO3**
4	State the difference between Data Structure and Database.	**Ap**	**CO4**
5	State the difference between constant and variable in C language.	**An**	**CO5**
Group B **Answer All the Questions (5 x 2 = 10)**			
6 a)	i) Define Pre-processor Directive in C language. ii) Give examples of Pre-processor Directive in C language	**Ap**	**CO1**
	(OR)		
6 b)	i) State the difference between array and pointer. ii) State the similarity between array and pointer.	**R**	**CO1**
7 a)	Define Abstract Data Type (ADT).	**U**	**CO2**
	(OR)		
7 b)	Define Structure Array in C language.	**R**	**CO2**
8 a)	Define Structure Pointer in C language.	**R**	**CO3**
	(OR)		
8 b)	Mention the operations that are possible over integer array.	**An**	**CO3**
9 a)	Define Linear Search Algorithm	**U**	**CO4**
	(OR)		
9 b)	Define Binary Search Algorithm	**U**	**CO4**
10 a)	Define Last In First Out Algorithm.	**R**	**CO5**
	(OR)		
10 b)	Define First In First Out Algorithm.	**R**	**CO5**
Group C **Answer All the Questions (7 x 5 = 35)**			
11 a)	i) Write a C program to implement Linear Search Algorithm using integer array. ii) State the drawback of Linear Search Algorithm.	**An**	**CO1**
	(OR)		
11 b)	i) Write a C program to implement Binary Search Algorithm	**An**	**CO1**

	using integer array ii) State the advantage of Binary Search Algorithm.		
12 a)	Define Circular Queue.	**U**	**CO2**
(OR)			
12 b)	State the difference between Queue and Circular Queue.	**An**	**CO2**
13 a)	Write a C program to implement Circular Queue using integer array.	**An**	**CO3**
(OR)			
13 b)	Write a C program to implement Linked List using integer pointer.	**An**	**CO3**
14 a)	Write a C program to implement Bubble Sort Algorithm over integer array	**An**	**CO4**
(OR)			
14 b)	Explain Dynamic Memory Allocation with suitable example.	**U**	**CO4**
15 a)	Explain the feature of ***sizeof*** operator	**U**	**CO4**
(OR)			
15 b)	Explain the feature of ***fflush(stdin)***	**R**	**CO4**
16 a)	Explain the feature of ***fflush(stdout)***	**R**	**CO5**
(OR)			
16 b)	State the difference between 0 (i.e. Zero) and NULL	**Ap**	**CO5**
17 a)	Explain Root node in tree data structure.	**Ap**	**CO5**
(OR)			
17 b)	Explain Leaf node in tree data structure.	**U**	**CO5**

Note: The Sample prepared by assuming 5 COs in a course, considering one CO for one Module.

i) If the COs are higher in numbers that can be managed by equating sub-divisional questions

ii) If the COs are lower in numbers, the questions can be increased by equating the number of COs