



Iqra National University
Department of Computer Science
Data Structures and Algorithms

Summer 2020, Final-Semester

Instructor: **Muhammad Adil** Asst. Prof. Time: **120 minutes** Total Marks: **80**

- Attempt All Questions

Q	Part	Question	Marks
1		Draw a Tree and explain each of the following terms with reference to your designed tree. i. Left Child Node ii. Child Node iii. Forest iv. Branch v. Binary Tree	 04 04 04 04 04
2		Convert the following M. E. into their equivalent Pre-Fix and Post-Fix Notation. i. $(A * B) + (B * T) / (H + P)$	 10+10
3	a	Design a Map to elaborate several different types of Data Structures.	10
	b	Construct a Binary Tree of the given List of numbers and then verify it. 40, 30, 30, 15, 25, 12, 23, 30, 22, 20, 35	10
4	A	Sort the given list using Insertion Sort. 16, 14, 16, 20, 5	10
	B	How would you be defining Data Structures?	10