Name: -_____

Roll no:-_____

Ziauddin University Faculty of Engineering Science and Technology
Department of Software Engineering, BS Data Science
Mid Term Exam (Sep 2020)– Batch 2019 (SE)

Subject Code : CS-103	**Subject : Discrete Structures**
Date : 7th-Sep-2020	**Timing : 6 pm Monday - 06 pm Tuesday**
Max Marks : 20	**Duration : 24 Hours**
Instructor : Engr. Mohsin Khan	

1. **Please read ALL questions CAREFULLY before answering.**
2. **Attempt all questions.**
3. **Write description of your logic where required.**
4. **Clearly label the diagrams. Attach question paper with answer sheet.**

Questions		Marks
Q#1	Define discrete mathematics. What is difference between discrete and continuous mathematics? Explain with the help of appropriate examples.	**2**
	Define 1. Truth table 2. Logic 3. De Morgan's Law 4. Contradiction	**2**
Q#2	Show that s →t and its contrapositive ~s→~t are logically equivalent.	**2**
	Show that proposition q→p, and ~p→~q is not equivalent to p →q.	**2**
	Consider the following propositions. ~p∨~q and ~(p∧q). Are they equivalent	**2**
Q#3	Investigate whether the argument is valid or not. If at least one of these two numbers is divisible by 6, then the product of these two numbers is divisible by 6. Neither of these two numbers is divisible by 6. ∴ The product of these two numbers is not divisible by 6.	**2**
	Investigate whether the argument is valid or not. If I got a bonus, I'll buy a car. If I sell my plot, I'll buy a car. ∴ If I get a bonus or I sell my plot then I'll buy a car.	**2**
	Investigate whether the argument is valid or not.	**2**

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	If you invest in stock market, then you will get rich. If you get rich, then you will be happy. $\therefore$ If you invest in stock market, then you will be happy.	
	Investigate ($p \vee q, p \rightarrow r, q \rightarrow r, \therefore r$) is a valid argument.	**2**
	Investigate ($p \rightarrow q, \therefore \sim p \rightarrow \sim q$) is invalid argument.	**2**