CS	362	**Due**	Sunday, 2 April 2023, till 11:59PM
HW#	1	**How**	Via BB
Instructor	Dr. Ghada	**Format**	MS Word/PDF
Total Assigned Marks		5	
Student Name:			
Student ID:			
Student Section:			

Q1-*CLO1.2*: Translate the following English sentences into first-order logic formulas: Mark (1)

1. Every student who takes CS101 passes it
2. No lion is green.

Q2-*CLO1.1*: Translate the following formulas into natural English sentences: Mark (1)

1. ∃ X (animal(X) ∧ lion(X)) ∧ ¬ ∃ Z (animal(Z) ∧ tiger(Z))
2. ∀X ((father(X) → male(X)) ^ (mother(X) → female(X)))

Q3-*CLO1.1*: Prove the correctness/validity of the following expressions:

Marks (2)

1. (A∧B)∨C ≡ (A∨C)∧(B∨C) (hint: use distributive rule + truth table)
2. Given P ∧ Q, P → ¬(Q ∧ R), S → R , Prove ¬S (hint: use inference rule/s of FOL)

Q4-*CLO1.2*: Unify the following pairs of expressions:

Mark (1)

1. ancestor(X,Y) and ancestor(tom, father(tom))
2. q(X) and ¬q(b)