Discrete Mathematics Quiz 2

Name: _____

NYU Net ID: _____

Generate multiple quizzes; for each quiz, select a single #1 question, a single #2, a single #3, and a single #4. Since this is 3 * 2 * 2 * 3 choices, that gives us 36 possible quizzes.

1.1) p ∨ (p ∧ q) ≡
a) q
b) ¬q
*c) p
d) ¬p

1.2) ¬(p ∨ q) ≡
*a) ¬p ∧ ¬q
b) ¬p ∧ q
c) p ∧ ¬q
d) ¬p ∨ ¬q

1.3) p ∧ (p ∨ q) ≡
a) ¬p
b) ¬q
c) q
*d) p

2.1) If the domain of x is all integers, is ∀x (x² > 0)
a) True
*b) False

2.2) If the domain of x is all integers, is ∀x (x³ > 0)
a) True
*b) False

3.1) If E(x) means "x is even" and P(x) means "x is prime", then ∀x (P(x) →E(x)) is
a) True
*b) False

3.2) If O(x) means "x is odd", then $\forall x\,(O(x) \to O(x^2))$ is
*a) True
b) False

4.1) Let L(a, b, c) be the statement " a loves b at time c," where the domain for both a and b consists of all living people in the world and time t consists of all moments from the year 1900 to 2018. Translate "Everybody loves somebody sometime" into a quantified logical statement.
Answer like "$\forall x\,\exists y\,\exists t(L(x,\ y,\ t))$"

4.2) Let S(a, b) be the statement "a has sent an e-mail message to b," where the domain for both a and b consists of all students in your class. Translate "Every student in your class HAS BEEN SENT a message from at least one student in your class." into a quantified logical statement.
Answer like "$\forall x\,\exists y(S(y,\ x))$"

4.3) Let C(x) is "x is a comedian" and F(x) is "x is funny" and the domain consists of all people.
Translate "Every comedian is funny." into predicate logic.
Answer like "$\forall x(C(x) \to F(x))$"