Write the below propositions given:

\( p \): It is below freezing.
\( q \): It is snowing.

a) It is below freezing but not snowing.
b) It is not below freezing and it is not snowing.
c) It is either snowing or below freezing (or both).
d) If it is snowing, it is also below freezing.
e) Either it is below freezing or it is snowing, but it is not snowing if it is below freezing.
f) That it is below freezing is necessary and sufficient for it to be snowing.
Let $S$ be the set of people in the class. Define predicate $F(x, y)$ to mean that person $x$ considers person $y$ to be their friend. Note that friendship here is NOT inherently mutual. That is, I might consider someone my friend who may not consider me their friend. Translate the English description of each predicate or proposition into a logical formula using quantifiers.

a) Proposition $p$ that states that there is some super likable person in the class that everyone considers their friend.

b) Proposition $q$ that states that everyone in the class has at least one person they consider to be their friend.

c) Proposition $r$ that states that there is a mutual friendship in the class. That is, there are two people that consider each other to be their friend.

d) Predicate $A(x)$ that states that person $x$ considers more people to be their friend than anyone else in the class.

e) Predicate $B(x, y)$ states that everyone who considers person $x$ to be their friend also considers person $y$ to be their friend.