Homework 4

Consider the following program with an extensional database (EDB)
meal = {[m1, white], [m2, red], [m3, white], [m3, red]}:

vegetarian(m3).
vegetarian(X) ← meal(X, _), ¬ nonvegetarian(X), ¬ pork(X), ¬ beef(X).
nonvegetarian(X) ← meal(X, _), beef(X), ¬ vegetarian(X).
pork(X) ← meal(X, _), nonvegetarian(X), ¬ beef(X).
pork(X) ← meal(X, white), nonvegetarian(X), ¬ fish(X).
beef(X) ← meal(X, red), ¬ vegetarian(X), ¬ pork(X).
fish(X) ← meal(X, white), ¬ pork(X), ¬ beef(X).

a) Find the intersection of all models for the program with the EDB. Decide whether the intersection of all models is a model. Explain.
b) Find all stable models of the program with the EDB.
c) Find the well-founded model of the program with the EDB.