Q1. An ill-posed problem is a problem that is not well posed. A well posed problem should have the following properties:

1. A solution exists
2. The solution is unique
3. The solution's behaviour changes continuously with the initial conditions.

A single consistent model cannot be found based on a sample training dataset alone, because of this machine learning is a fundamentally ill-posed problem.

Q2. The predictive model that generalises best must be used. The predictive model must make predictions for queries that are not present in the training data. Two sources of information are used to guide this search: The training dataset and the inductive bias assumed by the algorithm.

Q3. All the data they have on their customers could be used as a dataset for a predictive model. Information such as date of birth, what movies they watch, gender etc could be used. There may be a certain age group or gender are leaving more than others. The model could predict the number and demographics of future cancelled subscriptions. The company could use this information to address shortcomings in their catalogue of movies. There may not be enough movies that interest the people that are cancelling their subscriptions. The company could invest in getting more of the types of movies they need.