1. Which of the following is an example of Machine Learning? 1 / 1 point

- ◯ Streaming service viewing suggestions.
- ◯ Websites recommending items to purchase.
- ◯ Telecommunication companies predicting subscriber retention.
- ◉ All of the above.

✓ Correct
Correct! All of these are valid examples of tasks that can be accomplished with machine learning.

2. Which of the following groups are not Machine Learning techniques? 1 / 1 point

- ◉ Numpy, Scipy, and Scikit-Learn
- ◯ Classification and Clustering
- ◯ Anomaly Detection and Recommendation Systems

✓ Correct
Correct! These are Python packages that we use to write machine learning algorithms rather than techniques.

3. When would you use Multiple Linear Regression? 1 / 1 point

- ◉ When we would like to predict the impacts that weather and temperature have on crop yield.
- ◯ Predict whether or not a customer switches to another brand based on income, education, etc.
- ◯ Group genetic markers to identify family ties.
- ◯ None of the above.

✓ Correct
Correct! We want to predict the impacts of changes in weather and temperature on a continuous target variable.

4. Which one is not an example of a classification problem? 1 / 1 point

- ◯ To predict whether a customer responds to a particular advertising campaign or not.
- ◯ To predict whether a customer switches to another provider/brand.
- ◉ To predict the amount of money a customer will spend in one year.
- ◯ To predict the category to which a customer belongs to.

✓ Correct
Correct! The amount of money spent is not a categorical target variable.

5. When is logistic regression more suitable than linear regression? 1 / 1 point

- ◉ When we want the probability of a point belonging to a class.
- ◯ When we have multiple independent variables.
- ◯ When we want to model the relationship between two variables by fitting a linear equation to observe data.
- ◯ When we want to predict the income of an unknown customer based on age.

Correct
Correct! Linear regression with a step function can't provide the class probability, so values close to and far away from the threshold are treated equally.

6. Which statement is FALSEabout k-means clustering? 1 / 1 point

- (●) As k-means is an iterative algorithm, it guarantees that it will always converge to the global optimum.
- ( ) The objective of k-means, is to form clusters in such a way that similar samples go into a cluster, and dissimilar samples fall into different clusters.
- ( ) k-means divides the data into non-overlapping clusters without any cluster-internal structure.

Correct
Correct! K-Means is a heuristic algorithm, so it is guaranteed to converge to a result that could be a local optimum.

7. Which one best describes the clustering process for k-means clustering? 1 / 1 point

- ( ) k-means creates clusters by grouping data points with similar labels.
- (●) The objective of k-means is to form clusters in such a way that similar samples go into a cluster, and dissimilar samples fall into different clusters.
- ( ) k-means clustering creates a tree of clusters.
- ( ) k-means divides the data into clusters with minimal overlap such that there are low chances of dissimilar samples in the same cluster.

Correct
Correct! K-Means seeks to create non-overlapping clusters.

8. What is a statistical model that uses Logistic function to model the conditional probability? 1 / 1 point

- (●) Logistic regression
- ( ) Linear regression
- ( ) Stepwise regression
- ( ) Ridge regression

Correct
Correct! Logistic regression uses the logistic cost function to return the probability of each class.

9. Suppose you'd like to determine how a model performs on predicting the minimum and maximum temperature for a given day. Which metric is the most appropriate to use? 1 / 1 point

- ( ) F1 Score
- ( ) False positives
- ( ) Log Loss
- (●) Root Mean Squared Error

Correct
Correct! Root mean squared error is in the same units as the response vector, so it's easier to relate information for the regression problem.

10. Which of the following is more suitable to solve with a decision tree? 1 / 1 point

- ○ To predict the salary of a baseball player based on the number of home runs and years in the league.
- ◉ To predict if the person will like a certain movie based on age, favorite actors and genre.
- ○ To predict the probability of raining based on current temperature and humidity.
- ○ To segment customers into groups with similar characteristics.

✓ Correct
Correct! Decision trees can split the data based on age, favorite actors, and genre to output a discrete prediction for whether the person likes/dislikes a movie.