1. What does one mean by the term "machine learning"?

a. It is an art by which computer will learn itself, based on historical data to solve a specific problem.

2.Can you think of 4 distinct types of issues where it shines?

Overfittng, Underfitting, mis match of data , null value and many more

3.What is a labeled training set, and how does it work?

It is a set of training data which have a solution to the specific task.

4.What are the two most important tasks that are supervised?

The two most important task in supervised machine learning is regression and classification.

5.Can you think of four examples of unsupervised tasks?

Firstly unsupervised learning means that it doesn’t have target column and the four example are clustering, dimensional reduction, visualization and association rule.

6.State the machine learning model that would be best to make a robot walk through various unfamiliar terrains?

Reinforcement learning as it will learn from the response.

7.Which algorithm will you use to divide your customers into different groups?

Clustering algorithm, k mean cluster, KNN

8.Will you consider the problem of spam detection to be a supervised or unsupervised learning problem?

Yes it is truly a supervised learning task as we will have the target column.

9.What is the concept of an online learning system?

It is the learning process in which machine learn while passing the data.

10.What is out-of-core learning, and how does it differ from core learning?

Out of core learning is the process of handling those data that even can’t fit into the computer, whereas core learning data can easily fit.

11.What kind of learning algorithm makes predictions using a similarity measure?

Instance- based algorithm.

12.What's the difference between a model parameter and a hyperparameter in a learning algorithm?

In lamen way we can say that model parameter is the value that we pass to the model for prediction, whereas hyperparameter will help the algorithm to learn.

13.What are the criteria that model-based learning algorithms look for? What is the most popular method they use to achieve success? What method do they use to make predictions?

Model based learning algorithm will look for the best parameter that will produce good accuracy or best result for unknown data, the most popular method used to achieve success is using gridCV which help to identify the best parameter that help in achieving optimal value or result. Collect the new instance/data and then apply it to the model in prediction stage

14.Can you name four of the most important Machine Learning challenges?

Overfitting , underfitting, improper data, null value and soon..

15.What happens if the model performs well on the training data but fails to generalize the results to new situations? Can you think of three different options?

Retune the model or cross check, check whether you have used per processing of data or transformation data applied to the model, model is under fitting

16.What exactly is a test set, and why would you need one?

Test set is nothing but a piece of data where we use it to get the accuracy score of the trained model. We need it because one the model is built on known dataset we need to predict it so we use test set.

17.What is a validation set's purpose?

Validation is used to compare difference between training model.

18.What precisely is the train-dev kit, when will you need it, how do you put it to use?

To rank the model in terms of their accuracy and help us to decide which model further with. Using Dev set we rank all our models in terms of their accuracy and pick the best performing model.

19.What could go wrong if you use the test set to tune hyperparameters?

Model training will go wrong.