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

Machine Learning is based on algorithm which we are used for practical application and it process of solving the practical problems by using dataset and training statistically the model with the datasets.

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

While using the algorithms the dataset have not contains any of categorical features. Lack of quality of datasets less than 100, scalability and biasing of dataset, categorical values.

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

Labeled training is the target one which takes samples of only independent features wrt to dependent features and it can output may predicted by yes or no (1/0)

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

The Goal of Supervised learning, is that by given dataset to produce a model with training and test data with target output values. It basically two types like classification (based on the class) and regression (based on the real numbers).

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

The datasets which are having unlabeled one. Clustering like images, text, audio files, and object detection and anomaly detection.

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

Reinforcement learning model is suitable for this one. It tries like a game win/loss and it optimize itself.

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

One hot encoding with many categorical features or using pd.dummies using many number of feature are occurred from defined one.

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

Spam detection is under the unsupervised learning because it has emails are spam or not spam (1 or 0) predicting which class under this.

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

The concept of online learning system is E-learning system.

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

Learning from data that doesn't fit into main memory.it support like partial fit and core learning is basically fit into main memory.

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

To measure the similarity measure in model, we can use Euclidean distance, similarity between two points.

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

By using model parameter the predicted score is little less than by using hyper parameter.

In model parameter it uses default one which is defined model specified and it is belongs to training data

Hyper parameter by tuning the parameters like max-features, n-estimators, max-samples_split.and it doesn't belongs to training data

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?

The model –based learning algorithms that are size of the training datasets, accuracy of the data haven't missing values , no categorical features, number of features, method to achieve success is cost function and that will give the best results.

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

Data collections is main role,

Splitting training and test data sets,

Overfitting and under fitting

bias and variance.

Unwanted and irrespective features in the datasets

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?

One vs best model performs well on the training data if we add the new data sets in the independent features.

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

test set data are the smaller one which is 20 cent of the original data. The model/algorithms are not allowed to predict the results from the test data.

17.What is a validation set's purpose?

Validation is same as test data and its similar in size. We can use in hyper parameter tuning by choosing the best algorithms and configuration the data itself.

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

It helps to do research on ML and DL to recognize the object, person .place

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

The Number of features are less and in test set there is like binomial classification 1 or which consists error.