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

Machine learning is an approach/practice that enables machine to learn from data and take decisions based on that.

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

1. Prediction problems

2. grouping of customers

3. recommendation

4. fraud detection

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

Labeled data is that data which is fed to ML algorithms to find out relation between x(dependent) and y(dependent variable). Basically machine needs examples to analyse the data and find some realtionship/pattern in examples.

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

Regression

classification

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

Customer segmentation

Email classification( eg gmail personal, notification, promotion etc)

Finding new location for Charging stations

Cab management

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

Reinforcement Learning

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

Unsupervised learning

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

supervised

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

Online learning system is gets data in real time to learn from internet. It continously learns and updates.

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

Data for out-of-core learning resides out of memory in a hard disk

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

Unsupervised learning

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

Model parameters are tuned by machine whereas hyperparameter are set manually

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 uses assumptions about model to fit the data on a particular data set.

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

1speech recognition

face recognition

object detection

text detection

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?

Overfitting.

1 more data required for training

2 hyperparameter tuning

3 change algorithm as its not able to generalise on test data.

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

To evaluate model with unknown situation

17.What is a validation set's purpose?

To validate model against a set of data for which we know the output and hyperparameter tuning

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

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

Your model may not perform well on new data