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

Ans: Machine learning is a process by which we try to find some pattern in the the data so that we can accurately predict the future outcomes from the data.

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

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

Ans: labelled training set have all the target values so that it can help to train our model by showing the desired outcomes.

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

Ans: Let’s say we want to predict the price of a car , so we will first see all the data available with labels or else our model will fail to correlate the labels and attributes in the data.

Another example is that if we want to predict the stock price, we should have the old data with us then only we can follow up the trend.

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

Ans: 1. customer segmentation

1. product distribution
2. speech/image segmentation
3. anomaly detection

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

Ans: I think reinforced learning because it will optimize the robot by gaining experiences.

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

Ans: clustering

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

Ans: Supervised learning problem because to know if a message is span , it should have seen before how span messages are, then only the model can find patterns in between .

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

Ans: Online learning system is a learning system in which the machine learns as data is given in small streams continuously.

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

Ans: out-of-core learning comes into play when the data you need cannot fit into your local system

So you use online larning systems and gets small- small bits of data

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

Ans: Instance based algorithm.

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

Ans: model parameter determines how the model will predict when given a new instance , it’s the parameter of the model where as hyperparameter is for the learning algo. Not of the model.

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?

Ans:it looks for the best models parameter to get the optimal results and we can achive it by using cost function every time and setting the parameter which minimizes it.

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

Ans: underfitting the data, overfitting the data , non-representative data , lacking data.

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?

Ans: it happens when the model is overfitted. To over come we can give more data , reduce the noise of the data or we can change the learning algorithm .

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

Ans: test set is the data that is unknown to the model and it is used to check the performance of the model.

17.What is a validation set's purpose?

Ans: use to compare different models.

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

Ans:it helps to select the best model as well as best parameter .

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

Ans: we will fail to test the performance of the model .