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

Answer :- Machine Learning is a branch of ai and computer science with data and machine

Learning algorithms

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

Fradulent transcations

Price prediction

Cancer digonalysis

Ham or spam

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

Answer:- Traning data is used to train the machine learning algorithm ,

And it can be use it for training model , it has x and y where x is all independent

Variable and y is dependent variable , in testing data only we will send xdata

To check how model train with traning data

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

Answer :- There are 2 most important tasks that will be used in supervised

1. Regression
2. Classification

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

Answer : - Clustering types.

K-means.

Gaussian Mixture Models (GMMs)

Hierarchical clustering.

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

Answer:- The best Machine Learning algorithm to allow a robot to walk in unknown terrain is Reinforced Learning,

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

Answer :- unsupervised , clustering algorithm will use to divide customer into

Different groups

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

Answer :- ham and spam is a supervised classification problem , bescause the y dependent

Is discrete

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

Answer :- Online learning is education that takes place over the Internet

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

Answer :- It is a way to train your model on data that cannot fit your core memory.” Out-of-core learning refers to the machine learning algorithms working with data that cannot fit into a single machine's memory

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

Answer :- Learning algorithm that relies on a similarity measure to make prediction

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

Answer : Model Parameters: These are the parameters in the model that must be determined using the training data set. These are the fitted parameters. Hyperparameters: To change the parameters

Inside the model to get more accurately predications

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?

Answer :- Model based learning algorithm search for the optimal value of parameters in a model that will give the best results for the new instances. We often use a cost function or similar to determine what the parameter value has to be in order to minimize the function

We will use linear regression , logistic regression , Decision tree, K nearest neighbour and ensemble techiqunes

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

Answer :- over fitting

Under fitting

Poor quality of data

Monitoring

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?

Answer :- If a model has been trained too well on training data, it will be unable to generalize. It will make inaccurate predictions when given new data, making the model useless even though it is able to make accurate predictions for the training data

Example:- Generalization

Reduce overfitting

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

Answer :- A test set in machine learning is a secondary (or tertiary) data set that is used to test a machine learning program after it has been trained on an initial training data set

17.What is a validation set's purpose?

Answer:-  finding and optimizing the best model to solve a given problem

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?

Answer:-  the test data and to develop a bias towards this test data. Therefore, you actually lose the possibility to find out how good your model would actually be on unseen data