1. What is the concept of human learning? Please give two examples.
Gathering knowledge from the sources like book, referring materials and websites etc. and growth of personal development and productive manner.

Writing and practice

Doing some practical work like projects and animated views.

2. What different forms of human learning are there? Are there any machine learning equivalents?
No it's not equivalent to the machine learning it belongs to only the past data it is learned from the past data and it predict the output.
Classical Conditional,
Operands conditional and
Observational conditional

3. What is machine learning, and how does it work? What are the key responsibilities of machine learning?
Machine learning is the process of solving the real world problems with the past data which are focused on the scenario and do the statistically model for the problem.
Collecting the dataset and algorithmically build the statistic model and predict the output what we expect.

4. Define the terms "penalty" and "reward" in the context of reinforcement learning.
In reinforcement learning, there is mapping between the output and input to performing the task, that uses rewards and punishment/penalty which is give positive and negative behavior of our features.

5. Explain the term "learning as a search"?
Learning as a search is a process to find the hypothesis that find the best fit training samples from the dataset.
6. What are the various goals of machine learning? What is the relationship between these and human learning?
The Goal of machine learning is used to build algorithms with the past data the model has to train with these past data to build the generalized model with accurate predictions.

7. Illustrate the various elements of machine learning using a real-life illustration.
Healthcare, Robotics, automation, Telecom, finance, Sales & Marketing, E-commerce,

8. Provide an example of the abstraction method.
It allows to create the set of method that can created from any child classes build from the abstract class. One or more abstract methods are called abstract class. The abstract method has be declaration but not implemented it can be implemented any of the child class

```
From abc import ABC, abstractmethod
Class polygon(ABC):
        def no_sides(self):
                pass
Class triangle(ABC):
        def no_sides(self):
                print('there are 3 sides')
Class Quad(ABC):
        Def no_sides(self) :
                Print('there are 4 sides")

T= Triangle()
Q=Quad ()
T.no_sides()
Q.no_sides()
```

9. What is the concept of generalization? What function does it play in the machine learning process? What is classification, exactly? What are the main distinctions between classification and regression?

Generalization refers to our model is ability to adapt with new features and unseen data which is drawn from the same distribution that one used to create the model it is large gap between the training and validation loss.
The Output variable in classification is categorical (continuous) while regression have numerical and it is discrete in nature, classification is predicting the label while regression is predicting the quantity.

11. What is regression, and how does it work? Give an example of a real-world problem that was solved using regression.

Regression is the process of finding a model for distinguishing the data into continuous real values instead of using classes or discrete values. It can also identify the distribution movement depending on the historical data. Because a regression predictive model predicts a quantity,
Voting prediction and probability of finding the rainfall in particular region which is tuned by earlier records.

12. Describe the clustering mechanism in detail.
Clustering is an unsupervised learning method of identify and grouping the larger datasets into particular groups without concerning the outcomes. The most common algorithm is used for the cluster is K means clustering.

13. Make brief observations on two of the following topics:

i. Machine learning algorithms are used
Machine learning is the process of solving the real world problems with the past data which are focused on the scenario and do the statistically model for the problem.
Collecting the dataset and algorithmically build the statistic model and predict the output what we expect.

ii. Studying under supervision
The goal of a supervised learning algorithm is to use a dataset to produce a model that takes a feature X as input and outputs information that allows deducing a label for this dependent features. It data has defined labels samples. The model predicts a class called classification and predicting the real number is called regression.

iii. Studying without supervision
The goal of unsupervised learning to deals with unstructured or unlabeled datasets which has clustering one, it is often used in the machine learning problems the features deals with text, images , audio

iv. Reinforcement learning is a form of learning based on positive reinforcement.
Reinforcement learning is about taking suitable action to maximize reward in a particular situation. It is employed by various software and machines to find the best possible behavior or path it should take in a specific situation.

Two types of reinforcement learning
1) Positive 2) Negative and used learning model such as 1) Markov Decision Process 2) Q learning.