Q1

Artificial intelligence is the science of making machines that can think like humans. It can do things that are considered "smart." AI technology can process large amounts of data in ways, unlike humans. The goal for AI is to be able to do things such as recognize patterns, make decisions, and judge like humans.

Machine learning (ML) is defined as a discipline of artificial intelligence (AI) that provides machines the ability to automatically learn from data and past experiences to identify patterns and make predictions with minimal human intervention.

Deep learning is a method in artificial intelligence (AI) that teaches computers to process data in a way that is inspired by the human brain. Deep learning models can recognize complex patterns in pictures, text, sounds, and other data to produce accurate insights and predictions.

Q2

Supervised machine learning is generally used to classify data or make predictions, whereas unsupervised learning is generally used to understand relationships within datasets. For example, salary based on work experience or weight based on height, etc.

Q3

Unsupervised learning, also known as unsupervised machine learning, uses machine learning algorithms to analyze and cluster unlabeled datasets. These algorithms discover hidden patterns or data groupings without the need for human intervention.EX:-Find a face in an image.An example of unsupervised machine learning would be a case where a supermarket wants to increase its revenue. It decides to implement a machine learning algorithm on its sold products' data

Q4 AI:-AI is the broader family consisting of ML and DL as it’s components.AI is a computer algorithm which exhibits intelligence through decision making.The aim is to basically increase chances of success and not accuracy.

ML:-ML is the subset of AI.ML is an AI algorithm which allows system to learn from data.The aim is to increase accuracy not caring much about the success ratio.Examples of ML applications include: Virtual Personal Assistants: Siri, Alexa, Google, etc., Email Spam and Malware Filtering.

DL:-DL is the subset of ML.DL is a ML algorithm that uses deep(more than one layer) neural networks to analyze data and provide output accordingly.It attains the highest rank in terms of accuracy when it is trained with large amount of data.

DS:-Data science focuses on managing, processing, and interpreting big data to effectively inform decision-making.Data science is mainly focused on extracting insights and information from vast amounts of data. AI, on the other hand, focuses on creating systems that can perform tasks without any explicit instructions

Q5 SL:-Supervised learning is a problem with labeled data, expecting to develop predictive capability. USL:-Unsupervised learning is discovering process, diving into unlabeled data to capture hidden information. SSL:-Semi-supervised learning is a blend of supervised and unsupervised learning.

Q6 Train split:-We will train our models. Validation split:-Hyper Tuning of the model.change parameter to increase accuracy. Test split:-Model will be test with the new data.

Q7 when it comes to anomaly detection, kNN works as an unsupervised learning algorithm. A machine learning expert defines a range of normal and abnormal values manually, and the algorithm breaks this representation into classes by itself.

identifying normal patterns within a data sample and then detecting outliers based on the natural characteristics of the data set itself.

Q8 The most commonly used Supervised Learning algorithms are decision tree, logistic regression, linear regression, support vector machine.Decision Trees.Naive Bayes.The most commonly used Unsupervised Learning algorithms are k-means clustering, hierarchical clustering, and apriori algorithm.