1Q.What is DL

In AI (Artificial Intelligence), DL stands for Deep Learning.

Deep Learning is a subset of Machine Learning that uses artificial neural networks with many layers (that’s why it’s called “deep”) to let computers learn complex patterns in data.

Deep Learning helps AI systems learn from experience, just like humans. Instead of being told exactly what to do, the system figures it out by looking at lots of data.

Examples in AI:

Speech recognition (like Siri or Google Assistant)

Image recognition (like detecting faces in photos)

Self-driving cars (understanding road signs and people)

Chatbots and language translation

Deep learning is what powers many of the smartest features in modern AI.

2Q.What is Neutral Network And its types

A Neural Network is a type of computer model inspired by the human brain. It is made up of layers of interconnected “neurons” (small processing units) that work together to recognize patterns, make decisions, or learn from data.

Basic Structure:

1. Input Layer – Takes in the data (e.g., pixels of an image).
2. Hidden Layers – Do the processing, learning patterns/features.
3. Output Layer – Produces the result (e.g., “cat” or “dog”).

Types of Neural Networks:

1. Feedforward Neural Network (FNN):

The simplest type.

Data flows in one direction (input → hidden → output).

Used for basic classification or regression.

1. Convolutional Neural Network (CNN):

Best for image and video processing.

Uses filters to detect features like edges or shapes.

1. Recurrent Neural Network (RNN):

Designed for sequence data like text, speech, or time series.

Remembers previous inputs using feedback loops.

Example: language translation, speech recognition.

1. Long Short-Term Memory (LSTM):

A type of RNN that can remember long-term dependencies better.

Great for long sequences (like sentences or music).

1. Generative Adversarial Network (GAN):

Made of two networks: a generator and a discriminator.

Can create realistic images, videos, or sounds.

Used in deepfake technology and art generation.

1. Radial Basis Function Network (RBFN):

Uses radial basis functions as activation functions.

Often used in function approximation or time series prediction.

1. Autoencoder:

Learns to compress data and then reconstruct it.

Useful for noise reduction or feature learning.

3Q.What is CNN in simple words

A Convolutional Neural Network (CNN) is a type of computer program that helps machines “see” and understand images, just like our brains do.

For example, if you show a CNN a picture of a cat, it looks at the picture in small parts, finds patterns like edges, eyes, and whiskers, and then learns to recognize that it’s a cat.

Think of it like this:

Your eyes see a picture.

Your brain notices shapes and features to figure out what it is.

A CNN does something similar — it breaks the image into pieces, finds important parts, and then decides what’s in the picture.

CNNs are used in things like:

Facial recognition

Self-driving cars

Detecting diseases in medical scans

4Q.Create short notes about the pipeline we have discussed in a lecture

Ans:-

Project Pipeline is of having various steps :-

1.Data Collection

2.Data Loading

For Data Loading we use Google Colab.

3.Image Processing & Image Augmentation

Suppose assume two images

We can feed to images directly using CNN model

Because CNN requires same size and same dimensions images.

There the image processing got done.

4.Build CNN model -> tensor flow

5.Test and evaluate