

## 1. What is deep learning?

Deep Learning is a subtype of Machine Learning that incorporates multi-layer networks (deep neural networks) to train and make decisions.

## 2. Explain the structure of a neural network.

A neural network consists of input layer, hidden layers (having weights and biases) and output layer having weighted connections connecting neurons in one layer to those in another.

## 3. What is the vanishing gradient problem, and how does it affect deep learning?

The problem of vanishing gradient happens when during backpropagation, gradients become very small hence slow or no learning at all takes place in deep neural networks; this makes them hard to train.

## 4. What is the role of an activation function in a neural network?

The introduction of non-linearities into neural networks by activation functions allows them to learn complex patterns. Sigmoid, tanh and ReLU are some typical examples of activation functions.

## 5. Explain backpropagation in the context of deep learning.

Backpropagation is an optimization algorithm used to train Neural Networks by propagating errors backward through the network so as to adjust weights that minimize differences

between predicted outputs and actual ones.

## 6. What is the purpose of dropout in deep learning?

When training a Neural Network, Dropout is employed as a technique for regularization against overfitting. It does this by randomly turning off neurons during training causing the Network to learn more robust features.

## 7. Describe the architecture of a Convolutional Neural Network (CNN).

Convolutional Neural Networks consist of convolutional layers for feature extraction; pooling layers for down-sampling; as well as fully connected layers which lead to classification. They are highly used for image recognition tasks.

## 8. What is the role of pooling layers in a CNN?

In CNNs, pooling layers reduce spatial dimensions of input data leading to down-sampling that retains only essential information needed for extracting features.

## 9. Explain recurrent neural networks (RNNs) and their applications.

Neural networks that have loops for recurrence contain memory of past input examples. They are useful in natural language processing (NLP) and time-series analysis.

## 10. What are GANs (Generative Adversarial Networks)?

GANs consist of a generator network and discriminator network which are trained together

using adversarial training. The work of the generator is to generate realistic samples while the discriminator helps differentiate between real data and generated data.

Related posts:

1. What is Machine learning ?
2. Define machine learning and explain its importance in real-world applications.
3. What are the different types of machine learning?
4. What is a hyperparameter in machine learning ?
5. Unsupervised Learning Interview Q&A
6. TOP INTERVIEW QUESTIONS AND ANSWERS FOR Artificial Intelligence
7. Differences Between Machine Learning and Artificial Intelligence
8. Machine Learning works on which type of data ?
9. What is Regression in Machine learning
10. Finding Machine Learning Datasets
11. What is hypothesis function and testing
12. Explain computer vision with an appropriate example
13. Explain Reinforcement learning with an appropriate exaple
14. Reinforcement Learning Framework
15. Data augmentation
16. Normalizing Data Sets in Machine Learning
17. Machine learning models
18. Unsupervised machine learning
19. Neural Network in Machine Learning
20. Recurrent neural network
21. Support Vector Machines
22. Long short-term memory (LSTM) networks

23. Convolutional neural network
24. How to implement Convolutional neural network in Python
25. What does it mean to train a model on a dataset ?
26. Can a textual dataset be used with an openCV?
27. Name some popular machine learning libraries.
28. Introduction to Machine Learning
29. Like machine learning, what are other approaches in AI ?
30. What are the scope and limitations in machine learning ?
31. What is biased data ?
32. What is labelled and unlabelled data set in Machine Learning ?
33. What is neural networks in Machine Learning ?
34. How are convolutional neural networks related to supervised learning ?
35. Linearity vs non-linearity in Machine Learning ?
36. What are activation functions in neural networks ?