WORKSHEET-1

DEEP LEARNING

Q1 to Q8 are MCQs with only one correct answer. Choose the correct option.

1. Which of the following can approximate any function universally (i.e. universal approximators)?

D) All of the above

2. In which of the following domains we cannot use neural networks?

D) None of the above

3. Rearrange the following steps of a gradient descent algorithm in correct order of their occurrence?

i. Initialize random weight and bias

ii. Repeat the process until you find the best weights of network

iii. Change weights and biases for each neuron to reduce the error

iv. Calculate error distances between the actual and the predicted value

v. Pass an input through the network and get values from output layer

Choose the correct option:

C) i – v – iv – iii – ii

4. What is the full form of RNN?

A) Recurrent Neural Network

5. What is plasticity in neural networks?

C) output pattern keeps on changing

6. What is stability plasticity dilemma?

A) system can neither be stable nor plastic

7. Read the following statements:

Statement 1: It is possible to train a network well by initializing all the weights as 0

Statement 2: It is possible to train a network well by initializing biases as 0

Which of the statements given above is true, Choose the correct option?

B) Statement 2 is true while statement 1 is false

8. Which of the following architecture has feedback connections?

A) Recurrent Neural network

Q9 and Q10 are MCQs with one or more correct answers. Choose all the correct options.

9. In training a neural network, you notice that the loss does not decrease in the few starting epochs. The reason behind it could be

A) Learning Rate is low B) Regularisation parameter is high

D) Stuck at local minima

10. Which of the following function(s) can be used to impart non – linearity in a neural network?

B) Rectified Linear Unit D) Sigmoid Function

Q11 to Q15 are subjective answer type question. Answer them briefly.

11. What is Deep Learning?

**Answer:** Deep Learning is a part of machine learning, inspired by the structure and function of the brain. I t is also called artificial neural networks. In a way this is a field of machine learning designed to identify patterns in complex and huge amount of data. Here features are used to generate more features which are again used to generate features and finally define the pattern in the data.

12. What is reinforcement learning?

**Answer:** Reinforcement learning is a part of machine learning. These algorithms learn sequentially from previous outputs to maximise the reward while achieving the goal. So these models learn from their experiences.

13. What Are the Differences Between Machine Learning and Deep Learning?

**Answer:**

|  |  |  |
| --- | --- | --- |
|  | Deep Learning | Machine Learning |
| Feature Extraction | Performs hierarchical feature extraction from given data | Manual |
| Data Requirement | Useful for huge datasets, performance desnot saturate with increasing data | Comparatively requires less data, performance saturates as data increases |
| Computation time | Comparatively more | Comparatively less |

14. What is a perceptron?

**Answer:** Perceptrons are building blocks of a single layer in a neural network, made up of four different parts: Input Values or One Input Layer, Weights and Bias, Net sum, Activation function. An interconnected system of Perceptrons make up a neural network.

15. What’s the difference between AI and ML?

**Answer:** ML is a sub-class of AI. Machine learning uses the data to look for the pattern it learned. AI uses the data to find patterns, further uses these patterns acquire knowledge/skill and also how to apply that knowledge for new environments.