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

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

B) Speech Processing

1. Rearrange the following steps of a gradient descent algorithm in correct order of their occurrence?
2. Initialize random weight and bias
3. Repeat the process until you find the best weights of network
4. Change weights and biases for each neuron to reduce the error
5. Calculate error distances between the actual and the predicted value
6. Pass an input through the network and get values from output layer Choose the correct option:

C) i – v – iv – iii – ii

1. What is the full form of RNN?
   1. Recurrent Neural Network
2. What is plasticity in neural networks?
   1. input pattern keeps on changing
3. What is stability plasticity dilemma?
   1. dynamic inputs & categorization can’t be handled
4. 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?

* 1. Statement 2 is true while statement 1 is false

1. Which of the following architecture has feedback connections?
   1. Recurrent Neural network

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

1. In training a neural network, you notice that the loss does not decrease in the few starting epochs. The reason behind it could be
   1. Learning Rate is low B) Regularisation parameter is high

D) Stuck at local minima

1. 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.

1. What is Deep Learning?

Ans- Deep learning is a class of machine learning. In deep learning information are processed through many layers to understand the features of data more deeply. Deep learning algorithms are neural network where all the neurons are interconnected and organized in layers, that is each neuron is connected to each other and passing the information. It performs well with large amounts of data.

1. What is reinforcement learning?

Ans- Reinforcement learning is an area of Machine Learning. It is takes suitable action to maximize accuracy in a particular situation. Reinforcement learning differs from the supervised learning in a way that in supervised learning the training data has the answer key with it so the model is trained with the correct answer itself whereas in reinforcement learning, there is no answer but the reinforcement agent decides what to do to perform the given task. In the absence of a training dataset, it is bound to learn from its experience.

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

Ans- **Deep learning:** it performs well with large amounts of data. In deep learning feature extraction is done by machine itself. In deep learning neurons are used to understand the representation and feature extraction.

**Machine learning:** It does not perform well with large amounts of data because after a saturation point, it stops improving the result. In machine learning we manually extract the features. Neurons are not used in machine learning.

1. What is a perceptron?

Ans- A perceptron was a form of neural network. Perceptron can able to learn, make decisions and translate languages. In perceptron model some sets of inputs are going to neuron and gives a single output.

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

Ans- **Artificial intelligence:** it is a study of how to train computers so that computers can do all the capabilities that human contain. Basically, it mimics human behaviour. Its aim is to increase the rate of success. It finds optimal solution. The goal is to simulate natural intelligence to solve complex problems.

**Machine learning:** it is a learning in which machine can learn by its own without being explicitly programmed. Its aim is to increase the rate of accuracy not success. It finds only solution which may be optimal or may not be. The goal is to learn from the given data and maximize the performance of the machine on the given task.