**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)?
   1. Boosted Decision Trees B) Neural Networks

C) Kernel SVM D) All of the above

**Answer 1: B**

1. In which of the following domains we cannot use neural networks?
   1. Image Processing B) Speech Processing

C) Fraud Detection D) None of the above

**Answer 2: C**

1. 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:

* 1. iv – i – iii – v – ii B) v – i – iii – iv –ii

C) i – v – iv – iii – ii D) i – v – iii –iv –ii

**Answer 3: C**

1. What is the full form of RNN?
   1. Recurrent Neural Network B) Recursive Neural Network
   2. C) Redundant Neural Network D) Resurrection Neural Network

**Answer 4: A**

1. What is plasticity in neural networks?
   1. input pattern keeps on changing B) input pattern has become static

C) output pattern keeps on changing D) output is static

**Answer 5: A**

6. What is stability plasticity dilemma?

A) system can neither be stable nor plastic

* 1. static inputs & categorization can’t be handled
  2. dynamic inputs & categorization can’t be handled
  3. none of the above

**Answer 6: A**

1. 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 1 is true while Statement 2 is false
  2. Statement 2 is true while statement 1 is false
  3. Both statements are true
  4. Both statements are false

**Answer 7: B**

1. Which of the following architecture has feedback connections?
   1. Recurrent Neural network B) Convolutional Neural Network

C) Restricted Boltzmann Machine D) simple Artificial Neural Network

**Answer 8: A**

**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

C) Regularisation parameter is low D) Stuck at local minima

**Answer 9: A , B and D**

1. Which of the following function(s) can be used to impart non – linearity in a neural network?
   1. Stochastic Gradient Descent B) Rectified Linear Unit

C) Convolution Function D) Sigmoid Function

**Answer 10: B**

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

1. What is Deep Learning?

Ans. 11. **Deep learning** can be considered as a subset of machine learning. It is a field that is based on learning and improving on its own by examining computer algorithms.  Deep learning has aided image classification, language translation, speech recognition. It can be used to solve any pattern recognition problem and without human intervention.

1. What is reinforcement learning?

Ans 12. **Reinforcement learning** is an area of Machine Learning. It is about taking suitable action to maximize reward in a particular situation.

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

Ans 13. The **differences between** the two: **Machine learning** uses algorithms to parse data, learn from that data, and make informed decisions based on what it has learned. **Deep learning** structures algorithms in layers to create an "artificial **neural network**” that can learn and make intelligent decisions on its own.

1. What is a perceptron?

Ans 14. A perceptron is a neural network unit (an artificial neuron) that does certain computations to detect features or business intelligence in the input data.

A Perceptron is an algorithm for supervised learning of binary classifiers. This algorithm enables neurons to learn and processes elements in the training set one at a time.

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

Ans 15: **AI** is a bigger concept to create intelligent **machines** that can simulate human thinking capability and behavior, whereas, **machine learning** is an application or subset of **AI** that allows **machines** to learn from data without being programmed explicitly.