Question Bank on First Module I (Partial)

Q1: Explain MP Neuron. Give its mathematical model.

Q2:- Explain achievements of MP Neuron and write about its limitation.

Q3:- Explain basic Perceptron. Give its Mathematical Model.

Q4:- Compare Perceptron with MP Neuron.

Q5:- Show mathematically that Perceptron can learn OR/AND function.

Q6:- Show mathematically that single Perceptron is not able to learn X-OR/X-NOR function.

Q7:- Explain Perceptron learning algorithm.

Q8:- With what type of data set the Perceptron will final converge and will never converge.

Q9:- How can you be sure that Perceptron algorithm has finally converged.

Q10:- Suppose the initial weight vector W= [0 1 0 0]. What will be the final value of weight vector, after convergence for OR function, if the points are selected in following order repeatedly.

000, 001, 010, 011, 100, 101, 110, 111.

Q11:- Can Perceptron learning algorithm work on real valued data set. If yes show how? If No, Why not?

Q12:- Show that two layers of Perceptron can learn X-OR/X-NOR function.

Q13:- Argue that two layers of Perceptron can learn any function of any dimensionality.

Q14:- Intuitively argue, what happens when layers of Perceptron are used to separate initially non separable data by linear functions?

Q15:- What is sigmoid function and explain, why to go for Sigmoid Neuron.

Q16:- Why to use Non-linear activation function.
Q17:- What is Tanh function and explain, when to go for Tanh Neuron.

Q18:- What is ReLU function and explain, when and why to go for ReLU Neuron.

Q19:- Is ReLU a linear or Non-linear function? Explain how?

Q20:- What is Softmax function and explain, when to go for Softmax function.

Q21:- What is loss function? Why is it used? What is the loss function used in Regression?

Q22:- Explain significance of each term used in MSE loss function.

Q23:- Which type of loss function is used in binary classification problem? Explain it.

Q24:- Explain gradient descent technique, taking regression as example.

Q25:- Why Gradient Descent is known as Gradient Descent?

Q26:- What is Gradient Descent weight update rule? Explain significance of Learning Rate in Gradient Descent technique. Q27:- Why is it desirable to have convex shaped error function/surface in Machine Learning setup? Q28:- Explain, intuitively Back propagation algorithm.

Q29:- What is the nature of error surface generated by Deep Learning setup? Why it is so?

Q30:- Why Back propagation algorithm is known as Back propagation algorithm? What propagates backwards in Backpropagation algorithm?