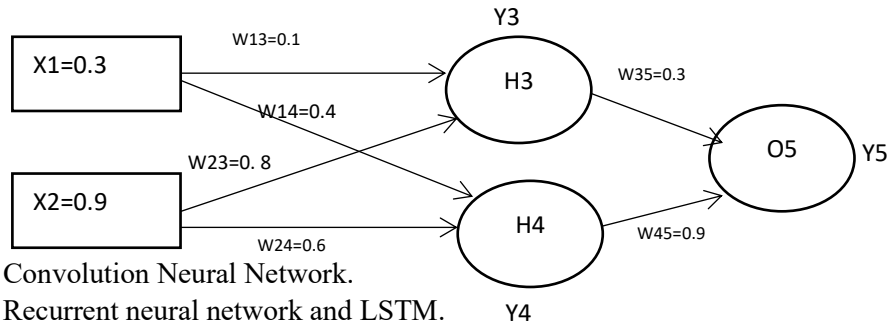
Unit 3

1. Describe classification supervised machine learning
2. Discuss logistic regression.
3. Discuss logistic regression with an example
4. Describe support vector machine classifier
5. Draw the graph of sigmoid function.
6. Explain i) Gradient descent ii) online Gradient Descent
7. Explain support vector machine classifier.
8. Discuss kernel function in SVM.
9. Define hard margin and soft margin.
10. Define Bias and Variance.
11. Summarize Bias Variance tradeoff.
12. Define Time Series.
13. Explain Components of Time series with suitable example.
14. Explain time series modeling technique.
15. Describe Markov Model.
16. Explain autoregressive model.

Unit 4:

1. Differentiate between sigmoid and Relu activation function.
2. Define neural network.
3. Discuss gradient and stochastic gradient descent in detail.
4. Illustrate deep learning in details.
5. Describe neural network (NN).
6. Explain multi-layer network.
7. Discuss back-propagation.
8. Illustrate convolutional neural network.
9. Solve the following problem using back-propagation NN for epochs=2, Learning rate=1, target output =0.5



10. Explain Convolution Neural Network.
11. Discuss Recurrent neural network and LSTM.

Unit 5:

1. Explain Computation Complexity.
2. Explain PAC Learning Model
3. Discuss sample complexity.
4. Describe VC Model.
5. What is a sample complexity?
6. Discuss the concept of random forest.

7. Define clustering.
8. Explain K-Means clustering algorithm with an example.
9. Solve the following problem using K-Means Algorithm
   Data = {2, 3, 4, 10, 11, 12, 20, 25, 30} , K=2, Random means **m1 = 4** & **m2=12**
10. Demonstrate hierarchical agglomerative single link clustering.
11. Describe a perceptron with a neat diagram in detail.
12. Explain ensemble learning.
13. Discuss bagging and boosting.
14. Describe random forest model.
15. Illustrate Gaussian Mixture Model.