**Unit I:**

**4 Aug 2022**

1. Explain the Basic terminology associated with NN [Input, Weights, Net Input function, Activation function, List of activation function, Error Propagation]
2. Explain different NNs architectures with suitable diagram.
3. State and explain various training techniques used in ANN.

**20 Jul 2023**

1. What is Artificial Intelligence? State the typical AI problems. Explain approaches, advantages and limitations of AI.
2. State and explain various models used in Artificial Neural Network.

**Unit II:**

**4 Aug 2022**

1. What is Pattern? What are different approaches in pattern recognition? How data is data classified using pattern classification? Explain.
2. What non-linearly separated problem? Explain XOR problem with sam=
3. State and explain perceptron learning algorithm.

**20 Jul 2023**

1. What is Artificial Neural Network? With neat sketch, explain the different terms used in ANN with characteristics.
2. What is Soft Computing? State the characteristics of soft computing. What are the applications of Soft Computing?
3. What is linear separable problem? How it is solved using logic gates? Give the Examples of few gates with sample data.

**Unit III:**

1. State and explain the algorithm for radial basis function network and draw flowchart for it.
2. Explain how back propagation works and draw flowchart for it.
3. Obtain the output of the neuron using binary and bipolar sigmoidal function : [x1,x2,x3]=[0.5,0.7,0.3],[w1,w2,w3]=[0.4,0.7,-0.4],bias is b = 0.45

**20 Jul 2023**

1. Use Adeline network to train ANDNOT function with bipolar inputs and targets. Perform 2 epochs of training.
2. Draw neat flowchart for Radial Basis Function Network (RBF).
3. Obtain the output of the neuron using binary and bipolar sigmoidal function: [x1,x2,x3]=[0.5,0.7,0.3],[w1,w2,w3]=[0.4,0.7,-0.4],bias is b = 0.45

**Unit IV:**

**4 Aug 2022**

1. Draw flowchart and write algorithm for KSOFM network.
2. Explain algorithm LVQ and Draw flowchart for the same.

**20 Jul 2023**

1. Explain a Mexican hat networks? Draw the flowchart for Mexican Hat Network.
2. Consider a Kohonen self-organizing net with two cluster units and five input units. The weight vectors for the cluster units are given by w1 = [1.0 0.900.7 0.5 0.3] w2 = [0.3 0.5 0.7 0.9 1.0]. Use the square of the Euclidean distance to find the winning cluster unit for the input pattern x = [0.0 0.5 1.0 0.5 0.0], using the learning rate of 0.25, find the new weights for the winning unit.

**Unit V:**

**4 Aug 2022**

1. Explain the properties and operations on fuzzy sets.
2. Consider the two given fuzzy sets A = {1/2, 0.3/4, 0.5/6, 0.2/0.8} B = {0.5/2, 0.4/4, 0.1/6, 1/8} Perform intersection difference & complement.

**20 Jul 2023**

1. What is fuzzy logic? Explain the classical sets or Crisp sets associated with it.
2. Using the inference approach, obtain the membership values for the triangular shapes (L,R,Z) for a triangular with angles 400, 600 and 800.
3. Given the fuzzy sets

B1 = {1/1.0 + 0.75/1.5 + 0.3/2.0 + 0.15/2.5 + 0/3.0}

B2 = {1/1.0 + 0.6/1.5 + 0.2/2.0 + 0.1/2.5 + 0/3.0}

Find the following: