

## **DEEP LEARNING**

**Code: MCSE304**

**MM:15**

**Time: 1 Hrs**

**Q1.** a) Distinguish between supervised learning and Reinforcement learning. Illustrate with an example. (2.5)

OR

b) Discuss any four examples of machine learning applications. (2.5)

**Q2.** Distinguish between overfitting and underfitting. How it can affect model generalization? (2.5)

**Q3.** Calculate the output  $y$  of a three input neuron with bias. The input feature vector is  $(x_1, x_2, x_3) = (0.8, 0.6, 0.4)$  and weight values are  $[w_1, w_2, w_3, b] = [0.2, 0.1, -0.3, 0.35]$ . Use binary Sigmoid function as activation function. (3)

**Q4.** Explain Back propagation with its algorithm. Why we need Back Propagation? (3)

**Q5. A.** Compare Classification with regression with an example. (2)

B. Explain stochastic gradient descent and hyperparameter tuning with suitable example. (2)