(3 Hours) **[Marks: 80]**

N.B.: 1) Question No. 1 is compulsory.

2) Answer any three out of remaining questions.

3) Assume suitable data if necessary.

4) Figures to the right indicate full marks.

Q1. (a) What is the significance of ROC curves? (5)

Q1. (b) Discuss different activation function used in Neural Network. (5)

Q1. (c) Differentiate between Fuzzyness and Probability. (5)

Q1. (d) Implement AND function using Mc-Culloch-Pitts neuron). (5)

Q2. (a) Define Cognitive Computing. Draw a neat diagram of component of the cognitive system and explain the components. (10)

Q2. (b) Defrne Defuzzification. Discuss any two methods of defuzzification? (10)

Q3. (a) Describe Natural Language Processing in Support of a Cognitive System. (10)

Q3. (b) Explain the components of ANN architecture. (10)

Q4. (a) What is a Markov Decision process (MDP)? List its primary components. Explain in detail. (10)

Q4. (b) What is all the objective of using LSTM? Explain its architecture. (10)

Q5. (a) What is Bayesian Belief Network? Explain inferencing with example. (10)

Q5. (b) How does class imbalanced affect on classification? What are the-ways to solve class imbalanced Problem? (10)

Q6. (a) Explain Metrics for evaluating classifier performance. (10)

(b) Compares and contrast Bagging and Boosting with their application. (10)

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