Reg No.: _____ Name : _____

Jyothi Engineering College(Autonomous)

M.Tech Degree S2 (R) Examination, May 2026 (2025 Scheme)

25PADT241 - SOFT COMPUTING

Total Mark: 60 **Total Time: 2hr 30min**

CO MARK

PART A

Answer All Questions

1. Implement logical NOR function using neural network model. CO1 (5)
2. Differentiate Supervised and Unsupervised Learning Neural Networks with an example for each. CO2 (5)
3. Demonstrate how to calculate max-min composition on fuzzy relations with an example. CO3 (5)
4. Compare different defuzzification methods such as centroid, bisector, and maximum methods. CO4 (5)
5. Analyze the impact of population size and mutation rate on the efficiency of a genetic algorithm. CO5 (5)

PART B

Answer Any Five Question(s)

6. A handwritten character recognition system for English language has to be designed. Use feedforward neural network system to design the same. CO1 (7)
7. Explain the working of Kohonen Self Organizing Maps. CO2 (7)
8. Explain in detail Convolutional Neural Network (CNN). CO2 (7)
9. Two fuzzy sets A and B defined on the English alphabets(F,E,X,Y,I,T)are defined as below: CO3 (7)

   A={(F,0.2),(E,0.9),(X,0.4),(Y,0.3),(I,0.8),(T,0.5)} B={(F,0.4),(E,0.6),(X,0.7),(Y,0.2),(I,0.8),(T,0.6)} Find the following:

   i) A∩B 2. ii) AUBc iii) Verify Demorgan's Law (AUB)c=Ac∩Bc
10. Explain the working of Mamdani Fuzzy Model in detail. CO4 (7)
11. List the steps involved in a genetic algorithm. Discuss about the various operators used in genetic algorithm. CO5 (7)
12. Demonstrate one iteration of GA for a small TSP example. CO6 (7)

****