

Register No: Name:



SAINTGITS COLLEGE OF ENGINEERING KOTTAYAM, KERALA

(AN AUTONOMOUS COLLEGE AFFILIATED TO
APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIRST SEMESTER M.TECH. DEGREE EXAMINATION (R), MARCH 2021 ROBOTICS AND AUTOMATION

Course Code: 20ECRAT121

Course Name: SOFT COMPUTING TECHNIQUES

Max. Marks: 60

Duration: 3 Hours

PART A

(Answer all questions. Each question carries 3 marks)

1. Draw a simple artificial neuron and discuss the calculations.
2. What is Unsupervised learning?
3. Discuss the properties of Lambda cut for Fuzzy relation.
4. Explain the structure of Fuzzy logic in Image processing.
5. What is cross over? Discuss different types of cross over?
6. With a neat flow chart explain Genetic Algorithm.
7. Mention the properties of Genetic neuro hybrid system.
8. Give 3 advantages and disadvantages of neuro genetic hybrid system.

PART B

(Answer one full question from each module, each question carries 6 marks)

MODULE I

9. Explain the various terminologies of ANN. (6)

OR

10. With a neat flow chart explain Radial basis function network. (6)

MODULE II

11. With a neat flow chart explain Hebb training algorithm. (6)

OR

12. Explain the architecture of Back Propagation Network. (6)

MODULE III

13. Define Defuzzification. Explain the different methods of defuzzification. (6)

OR

14. By assuming two fuzzy sets A and B, find the complement, difference, union, intersection, bounded sum and bounded difference over this fuzzy sets. (6)

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MODULE IV

15. Design and explain inverted pendulum using fuzzy logic controller. (6)

OR

16. Explain Adaptive Fuzzy Controller. (6)

MODULE V

17. Explain encoding and mention the different methods. (6)

OR

18. Define reproduction in genetic algorithm and explain the different methods of selecting chromosomes for the parents to cross over. (6)

MODULE VI

19. Explain the operation of ANFIS architecture with necessary diagram. (6)

OR

20. With necessary block diagram explain GA based back propagation network. (6)
