M.E. Second Semester (Electrical (Electronics & Power) Engineering) (New-CGS)

13326 : Elective-II : Neuro Fuzzy Control : 2 EEPME 4

P. Pages : 2 | **AW - 3859**

Time : Three Hours | Max. Marks : 80

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Notes :
1. Due credit will be given to neatness and adequate dimensions.
2. Assume suitable data wherever necessary.
3. Diagrams and equations should be given wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.
5. Use of slide rule logarithmic tables, Drawing instrument, Non-programmable calculator is permitted.
6. Discuss the reaction, mechanism wherever necessary.
7. Use of pen Blue/Black ink/refill only for writing the answer book.

1. a) Explain the use and application of fuzzy logic controller with significance. **7**

b) Explain Linguistic variables. **6**

OR

2. a) What is the need of defuzzification? Explain any one defuzzification method with its significance. **7**

b) What do you understand by a universal approximation? Explain. **6**

3. a) Explain the design of vehicle speed control system fuzzy controller. **7**

b) Explain TKS architecture for fuzzy controller. **7**

OR

4. a) Draw and explain fuzzy PD controller. **7**

b) Explain the notion of stability of fuzzy control system. How it is determined? **7**

5. a) Explain the performance measures of Neural Network architectures suitable for control applications. **6**

b) How is learning capability of a Neural Network determined? What are the different data partitioning strategies for ensuring true learning and generalization? **7**

OR

6. a) Obtain the back propagation rule for an output neuron with a sigmoidal function. **7**

b) Explain Incremental training and batch training. Also give comparison of these two. **6**

7. a) What is neural network identified model? Obtain control law directly from the plant dynamics by computing the inverse dynamics. **7**

	b)	Develop an optimal neural network model for controlling temperature.	6

OR

8.	a)	Differentiate between direct neural control and indirect-neural control.	7
	b)	Explain any one application of neural networks in the area of system identification.	6
9.	a)	Explain ANFIS controller with block diagram. Also give properties of this controller.	8
	b)	Explain the use of fuzzy concepts in Neural Networks.	5

OR

10.	a)	What is hybrid neural network? Explain i) AND Fuzzy neuron ii) OR fuzzy neuron	6
	b)	Explain ANFIS learning algorithm.	7
11.	a)	Explain fuzzy logic based control for Thermo-electric cooling of laser materials.	7
	b)	Design neuro fuzzy control system for integrated pest management.	7

OR

12.		Explain in detail a fuzzy logic based approach for automating the color matching process to obtain a conditional color match between a test sample and a standard based on tristimulus values.	14

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