**Reg. No. :** | | | | | | | | | | |

# Question Paper Code: 59315

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Elective

Electrical and Electronics Engineering

15UEE915 – NEURAL NETWORK AND FUZZY SYSTEM

(Regulation 2015)

Duration: 1.15 hrs Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

**(Answer any six of the following questions)**

1. The height h(A) of a fuzzy set is defined as h(A)=sup A(x) CO1- R

   (a) h(A) =0 (b) h(A) <0 (c) h(A)=1 (d) h(A)<1

2. A _____ point of a fuzzy set is a point x∈X at which μA(x)=0.5 CO1- R

   (a) Core (b) Support (c) Cross-over (d) α - cut

3. What are the following sequence of steps taken in designing a fuzzy logic machine CO2- R

   (a) Fuzzification → Rule evaluation → Defuzzification

   (b) Fuzzification → Defuzzification → Rule evaluation

   (c) Rule evaluation → Fuzzification → Defuzzification

   (d) Rule evaluation → Defuzzification → Fuzzification

4. Perceptron, Delta, LMS are the learning methods falls under the category of CO2- R

   (a) Error correction learning - learning with a teacher

   (b) Reinforcement learning - learning with a critic

   (c) Hebbian learning

   (d) Competitive learning - learning without a teacher

5. A perceptron is: CO3- R

(a) A single layer feed-forward neural network with preprocessing

(b) A double layer autoassociative neural network

(c) An autoassociative neural network

(d) None of the above

6. Hebbian learning is also called CO3- R

(a) Perceptron (b) Competitive (c) Correlation (d) Associative

7. Which of the following is true? CO4- R

Single layer associative neural networks do not have the ability to:

(i) perform pattern recognition

(ii) find the parity of a picture

(iii) determine whether two or more shapes in a picture are connected or not

(a) (ii) and (iii) are true b) c) d) (b) (ii) is true

(c) (iii) is true (d) None of the mentioned

8. Which of the following is the component of learning system? CO4- R

(a) Goal (b) Model (c) Learning rules (d) All of the mentioned

9. Automatic generation control with fuzzy logic controller in the power system includes CO5- R

(a) Single area (b) Two area (c) Three area (d) All of these

10. The balancing controller is a stabilizing linear controller which can either be a CO5- R

(a) PD (b) PID (c)PI (d) All of these

PART – B (3 x 8= 24 Marks)

**(Answer any three of the following questions)**

11. Define classical set CO1- U (8)

12. Write short notes on the following. CO2- Ana (8)
(i) Fuzzification interface.

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| 13. | With the help of a neat diagram, explain the analogy of a biological neuron. | CO3- Ana | (8) |
| 14. | Construct a Hopfield network to associate 3×3 input images with dots and dashes. | CO4- U | (8) |
| 15. | Explain in detail any one application of fuzzy logic controller techniques in power systems. | CO5- U | (8) |