Unit IV

7. Draw a CMAC neuracontrol block diagram and describe crebeller model articulation controller. **15**

8. Write short technical notes on the following :

(a) Process identification **7**

(b) Inverted pendulum neuro controller. **8**

CC21

M.Tech. EXAMINATION, May 2019

(Third Semester)

(B. Scheme) (Re-appear)

EE(I&C)

MIC601B

NEUTRAL NETWORKS IN INSTRUMENTATION AND CONTROL

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Classify ANNs into perceptron, Adaline, Madline, Hopfield net, and Kohenen network and describe each model with its distinctive structure and characteristics. **15**

2. (a) Draw the structure of a biological neural network. Discuss the role of cell body, some, dendrites, axons, and synapses. **12**

(b) What is the role of squashed sign function in an ANN ? **3**

Unit II

3. For the minimum distance (linear) dischotomizer, the weight and augmented pattern vectors are :

$$w = \begin{bmatrix} 2 \\ -1 \\ 2 \end{bmatrix}, \quad y = \begin{bmatrix} x_1 \\ x_2 \\ 1 \end{bmatrix}$$

(a) Find the equation of the decision surface in the pattern space.

(b) Find the equation of the decision surface in the augumented pattern space.

(c) Compute the new solution weight vector if the two class prtotype points are :

$x_1 = [2 \quad 5]^t$ and $x_2 = [-1 \quad -3]^t$ **15**

4. Explain the generalized delta learning rule for multilayer perception. **15**

Unit III

5. For *n*-city problem (for $n = 5$), apply single layer feedback network to minimize the tour length of the TS. **15**

6. Discuss the evolution of gradient type Hopfield network to one of the stable minima in the state space and show how it can solve a problem. **15**