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CC-21

M. Tech. EXAMINATION, May 2017

(Third Semester)

(Re-appear Only)

EE(I&C)

MIC-601-B

NEURAL NETWORKS IN
INSTRUMENTATION & 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.

Unit I

1. (a) Explain the operation of dendrite, soma and axon in the biological neuron.

(b) Draw the architecture of the adaline net. State the training and application algorithm of the adaline net.

2. (a) What are the main requirements of McCulloch-Pitts neurons ? Draw the McCulloch-Pitts neuron architecture. What is the condition used for inhibition to be absolute in this net ?

(b) State the perception learning rule convergence theorem. Also explain the algorithm used for training the perception net.

Unit II

3. (a) Explain the architecture of the perception net used for pattern classification.

(b) Derive the generalized delta learning rule.

4. (a) What is the optimization technique used in back propagation algorithm ?

(b) Explain multicategory single layer percetion networks.

Unit III

5. (a) Explain the discrete Hopfiled net with its architecture. State the application algorithm for a discrete Hopfield net.

(b) Explain energy analysis of Hopfield net.

6. Explain in detail problem and its solution (i) minimization of the travelling salesman tour length.

Unit IV

7. Explain about the process identification with reference to the feed forward and plant inverse identification.

8. Explain the system identification using CMAC.