21/12/23

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Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 33710 Roll No.

B. Tech. Examination 2023-24

(Odd Semester)

ARTIFICIAL NEURAL NETWORK

Time : Three Hours] *[Maximum Marks : 60*

Note :– Attempt all questions.

SECTION–A

1. Attempt all parts of the following : 8×1=8

   (a) What is neuron?

   (b) What are learning laws in neural network?

   (c) What is simulated annealing?

   (d) List any two applications of back propagation network.

   (e) What is generalization?

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(f) What is network prunning?

(g) What is recurrent neural network?

(h) What is Hopfield memory?

SECTION – B

2. Attempt any two parts of the following : 2×6=12

(a) What is learning in ANN? List the important learning strategies in ANN.

(b) Explain the relation between perceptron and classical pattern Bayes classifier for the Gaussian environment.

(c) What is cross-validation? Give its significance in feed forward network design.

(d) Provide the training algorithm for Hopfield memory.

SECTION – C

Note :– Attempt all questions. Attempt any two parts from each question. 5×8=40

3. (a) What are the typical architectures used for neural networks?

(b) Explain the Hebbian learning and Boltzmann learning in detail.

(c) Discuss the role of mean square error in delta learning rule.

4. (a) What kind of operation can be implemented with perception? Show that it cannot implement exclusive OR function.

(b) Draw the architecture of multilayer perception network. Derive the expressions used to update weights in back propagation algorithm for MLP network.

(c) Discuss the unconstrained optimization in detail. Which method is used for unconstrained minimization?

5. (a) How do you identify a Hessian matrix? What is it used for?

(b) What are the virtues and limitations of back propagation learning?

(c) Discuss the various steps involved in solving function approximation with back propagation networks.

6. (a) What is dynamical system? Classify the dynamical systems.

(b) Define an attractor. What are the different types of attractors?

(c) Discuss the working of Hopfield models. What are the application areas of Hopfield model?

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