



CBCS SCHEME

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15EC653

Sixth Semester B.E. Degree Examination, July/August 2021 Artificial Neural Networks

Time: 3 hrs.

Max. Marks:80

Note: Answer any FIVE full questions.

- 1 a. Develop the model of an artificial neuron. Explain each component in it. (04 Marks)
b. Prove that AND functions are Linearly separable. (06 Marks)
c. Explain that binary neurons are pattern dichotomizers. (06 Marks)
- 2 a. What is an activation function? Explain the different types of activation function used in ANN. (08 Marks)
b. State and prove that the perceptron error correction rules always converges to solution for linearly separable. (08 Marks)
- 3 a. Discuss the weight updating procedure in steepest descent search algorithm. (08 Marks)
b. Discuss the practical consideration in (any two) implementation of BP algorithm. (08 Marks)
- 4 a. With example, explain the application of LMS algorithm for noise cancellation. (08 Marks)
b. Define the condition for stability and rate of convergence of α - LMS learning algorithm. (08 Marks)
- 5 a. Explain the RBF application to face recognition. (08 Marks)
b. Discuss regularization theory and obtain expression for smoothness function. (08 Marks)
- 6 a. Explain the design objective of SVM for linearly separable classes. (08 Marks)
b. Write the kernel function used in SVM that satisfy mercers condition. (08 Marks)
- 7 a. What do you mean by association? Explain the associative memory model of a neural network. (08 Marks)
b. Explain the operational details of BSB (Brain State in a BOX). (08 Marks)
- 8 a. Explain in detail.
i) Long term potentiation and Hebb's postulate. (04 Marks)
ii) NMDA synapse as a model for LTP. (04 Marks)
b. Explain the concept of simulated annealing. Also write the steps used in simulated annealing. (08 Marks)
- 9 a. Explain Sanger's rule for principal component analysis. (08 Marks)
b. Discuss generalized adaptation learning laws. (08 Marks)
- 10 a. Write a short note on Growing Neural Gas algorithm. (08 Marks)
b. Write any two application of SOFM. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.