



CBCS SCHEME

15MT755

Seventh Semester B.E. Degree Examination, Dec.2019/Jan.2020 Artificial Neural Networks

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Draw and explain the artificial neuron model. Explain how activations measure similarity. (08 Marks)
- b. List any four neuron signal function and their characteristics used in ANN. (08 Marks)

OR

- 2 a. State and explain, XOR is non-linearly separable. Also explain the implementation of XOR function using two layered network architecture. (10 Marks)
- b. Explain feed forward and feedback architecture for neural networks. (06 Marks)

Module-2

- 3 a. Discuss α - LMS algorithm. Explain the computational steps. (08 Marks)
- b. With example, explain the application of LMS algorithm to noise application. (08 Marks)

OR

- 4 a. Discuss the weight update procedure in steepest descent search algorithm. (08 Marks)
- b. Discuss square error performance function with respect to back propagation learning algorithm. (08 Marks)

Module-3

- 5 a. What are the design objectives of SVM? Derive an expression for the total margin in two class SVM. (08 Marks)
- b. Compare RBF with support vector machine. (08 Marks)

OR

- 6 a. Discuss K-mean clustering algorithm in RBF Neural networks. (08 Marks)
- b. Explain the application of SVM in image classification. (08 Marks)

Module-4

- 7 a. Draw the architecture of hop field auto-associative memory. Also explain electronic circuit interpretation of additive dynamic structure of Hopfield network. (08 Marks)
- b. Explain Brain state in a box neural network, provide the algorithm. (08 Marks)

OR

- 8 a. Explain simulated annealing, provide the steps used in simulated annealing. (08 Marks)
- b. Write the similarities and differences between Hopfield network and Boltzmann machine. (08 Marks)

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.

Module-5

- 9 a. Explain the concept of dimensionality reduction using principal component analysis. (08 Marks)
b. Explain Linear vector quantization algorithm. (08 Marks)

OR

- 10 a. Explain the concept of Kohonen self organizing feature maps. (08 Marks)
b. Explain the growing neural gas algorithm. (08 Marks)

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