



CBCS SCHEME

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15EC653

Sixth Semester B.E. Degree Examination, Aug./Sept.2020 Artificial Neural Networks

Time: 3 hrs.

Max. Marks: 80

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Question on a topic of a module may appear in either its 1st or/and 2nd question.*

Module-1

- 1 a. What is Artificial Neural Network? Explain any three commonly used activation functions in ANN. (08 Marks)
- b. Define Convex Sets, Convex Hulls and Linear separability with relevant diagrams. (08 Marks)

OR

- 2 a. Give any 4 differences between supervised and unsupervised learning. (08 Marks)
- b. State and prove Perceptron Convergence Theorem. (08 Marks)

Module-2

- 3 a. Discuss α – Least Mean Square Learning Algorithm. (08 Marks)
- b. Explain how LMS is used for Noise cancellation. (08 Marks)

OR

- 4 a. Derive the expression for Back propagation learning algorithm. (08 Marks)
- b. Explain the generic architecture of Multilayered Neural Network. (08 Marks)

Module-3

- 5 a. Write a note on Statistical Learning Theory. (08 Marks)
- b. Illustrate how Support Vector Machine is used for image classification (08 Marks)

OR

- 6 a. Explain K-means Clustering Algorithm used in Radial Basis Function Network. (08 Marks)
- b. Illustrate how Radial Basis Function is applied for face recognition. (08 Marks)

Module-4

- 7 a. Describe Associative Memory Model with relevant diagram. (08 Marks)
- b. Explain Cohen-Grossberg Form of Hopfield model. (08 Marks)

OR

- 8 a. Write short note on Simulated Annealing. (08 Marks)
- b. With a neat architectural diagram, explain the relaxation procedure in Boltzmann machine. (08 Marks)

Module-5

- 9 a. Explain in detail about Oja's Rule. (08 Marks)
- b. Discuss Adaptive Vector Quantization Algorithm. (08 Marks)

OR

- 10 a. Describe the operational details of Self Organizing Feature Map. (10 Marks)
- b. Mention the steps followed in Growing Neural Gas. (06 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.