Exam. Code: 0919
Sub. Code: 33471

2125

B.E. (Computer Science and Engineering)

Seventh Semester

Elective - III

CS-705B: Neural Network

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: ***Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Part.***

x-x-x

I	a) What is error-correction learning? Discuss in brief. b) What is universal approximation theorem? Discuss in brief. c) What is a Perceptron? How does it relate to the McCulloch–Pitts (MP) neuron model? d) What is the role of the hidden layer in an RBF network? Discuss in brief. e) What is the purpose of the neighborhood function in SOM? Discuss in brief.	(02) (02) (02) (02) (02)
	PART I	
II	a) Discuss the computation model of a neuron and explain how it can be used to solve the AND logic function. b) What is the Gauss–Newton Method? Discuss its mathematical formulation.	(05) (05)
III	a) Explain the Perceptron Learning Algorithm. b) Discuss the basic concept and mathematical formulation of Hebbian learning.	(05) (05)
IV	Explain the Backpropagation training algorithm in detail. Discuss its mathematical formulation, the role of gradient descent, the computation of error terms for hidden and output layers, and the complete weight-update procedure.	(10)
	PART II	
V	a) Explain the Associative Memory Model. Differentiate between autoassociation and heteroassociation. b) Discuss the concept, mathematical formulation and applications of PCA.	(05) (05)
VI	a) How can RBF networks be used to solve the XOR problem? Discuss. b) Explain competitive learning and its role in Self Organizing Maps.	(05) (05)
VII	Write notes on the following: a) Self Organizing Maps b) Vector Quantization	 (05) (05)

x-x-x