PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
M.Sc., Summer 2018-19 Examination

Semester: 4   Date: 08/04/2019
Subject Code: 11206280   Time: 02:00pm To 04:30pm
Subject Name: Artificial Neural Network   Total Marks: 60

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1. A) Essay type/ Brief note (4x2) (Each of 04 marks)   **(08)**
    a) Explain the difference between supervised and unsupervised learning.
    b) Design Neural network with only one M-P neuron that implements the OR function.

Q.1. B) Answer the following questions (Any two)
    a) Explain Bipolar sigmoid function.   **(04)**
    b) If f(x) is a sigmoid function with steepness parameter δ then evaluate f'(x).   **(04)**
    c) State the Hebb learning rule.   **(04)**

Q.2. A) Answer the following questions.
    (a) State perceptron rule convergence theorem.   **(04)**
    (b)What is meant by local minima and global minima.   **(04)**

Q.2. B) Answer the following questions (Any two)
    (a) Write characteristics of ANN.   **(03)**
    (b) Find the Hamming distance between vectors (1,-1,1,1,-1) and (1,1,-1,1,-1).   **(03)**
    (c) Explain Biological Neural Network.   **(03)**

Q.3. A) Essay type/ Brief note (4x2) (Each of 04 marks)   **(08)**
    (a) Write Comparison of Brain and ANN.
    (b) Write basic types of Neuron connection Architectures.

Q.3. B) Answer the following questions (Any two)
    (a) Write Basic model of ANN.   **(04)**
    (b) Write difference between single layer and multilayer.   **(04)**
    (c)Write role of Activation function.   **(04)**

Q.4. A) Answer the following questions.
    (a) What is Radial Basis Function network.   **(04)**
    (b) Write Bidirectional Associative Memory Network.   **(04)**

Q.4. B) Answer the following questions (Any two)
    (a) Write approximate the storage capacity of the distance Hopfield network with n neurons.   **(03)**
    (b) Explain time delay neural network.   **(03)**
    (c) Use outer product rule to store the vector (1,1,1,1) and (-1,1,1,-1) in an auto-associative   **(03)**
    network. Find the weight matrix.