# Introduction to Soft Computing

## Practice Sheet: NN-1

## Introduction to ANN

1) An ANN learn quickly if $\eta$, the learning rate assumes the following value(s).

(a) $\eta = 1$
(b) $\eta < 1$
(c) $\eta > 1$
(d) $\eta = 0$

2) Which of the following is true for neural networks?

i. The training time depends on the size of the network.
ii. Neural networks can be simulated on a conventional computer.
iii. Artificial neurons are identical in operation to biological ones.

(a) i and ii are true
(b) i and iii are true
(c) ii is true.
(d) all of them are true

3) Which of the following is true for neural networks?

i. The error calculation which is followed in "Back-propagation algorithm" is the steepest descent method.
ii. Simulated annealing approach is followed in unsupervised learning.
iii. A problem whose output is linearly separable can also be solved with MLFFNN.
iv. The output of the perceptron with hard limit transfer function is more accurate than it is defined with any sigmoid transfer function.

(a) i and iii are true
(b) i and ii are true
(c) ii and iv are true
(d) all are true

4) A possible neuron specification to solve the AND problem requires a minimum of

(a) Single neuron
(b) Two neurons
(c) Three neurons
(d) Four neurons

5) What is back propagation?

(a) It is another name given to the curvy function in the perceptron
(b) It is the transmission of error back through the network to adjust the inputs
(c) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
(d) None of the above

6) Neural Networks are complex _____ with many parameters
   (a) Linear Functions
   (b) Nonlinear Functions
   (c) Discrete Functions
   (d) Exponential Functions

7) For problems, with error calculation, we solve using
   (a) Recurrent neural networks
   (b) Single layer feed forward neural network
   (c) Multilayer feed forward neural network
   (d) All of the above

8) Application of Neural Network includes
   (a) Pattern Recognition
   (b) Classification
   (c) Clustering
   (d) All of the above

9) If an individual $x_i$ is dominated by $p_i$ individuals in the current generation, then $rank(x_i)$ is

   (a) $0$
   (b) $p_i$
   (c) $1$
   (d) $1 + p_i$

10) What is perceptron in Neural network

   (a) It is an auto-associative neural network
   (b) It is a double layer auto-associative neural network
   (c) It is a single layer feed-forward neural network with pre-processing
   (d) It is a neural network that contains feedback