

# Unit 8 - Week 6 :

## Course outline

How does an NPTEL online course work?

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Lecture 27 : Some Examples of Neural Networks (Contd.)

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Lecture Material

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Assignment Detailed Solution

## Assignment 6

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

**Due on 2020-04-08, 23:59 IST.**

- 1) Which one of the following algorithms is more appropriate for the prediction of prices in a stock market? 2 points
- (a) Feed-forward Neural Network  
(b) Self-Organizing Map  
(c) Recurrent Neural Network  
(d) Multiple Linear Regression
- (a)  
 (b)  
 (c)  
 (d)
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
(c)
- 2) Recurrent Neural Networks (RNN) are difficult to train compared to Multi-Layered Feed-Forward Neural Networks (MLFFNN) because 2 points
- (a) Feed-back loops are also present in RNN, which is missing in MLFFNN.  
(b) Number of hidden layer is kept larger in RNN compared to that in MLFFNN.  
(c) Number of nodes in the input layer is kept smaller in RNN compared to that in MLFFNN.  
(d) Number of hidden layer is kept smaller in RNN compared to that in MLFFNN.
- (a)  
 (b)  
 (c)  
 (d)
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
(a)
- 3) In the combined Elman and Jordan networks, 2 points
- (a) only the outputs of hidden layer are taken as feed-backs to the network  
(b) only the outputs of output layer are taken as feed-backs to the network  
(c) outputs of both the hidden and output layers are taken as feed-backs to the network  
(d) feedbacks are taken from output layer and given as inputs to the hidden layer
- (a)  
 (b)  
 (c)  
 (d)
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
(c)
- 4) The output of a Self-Organizing Map is 2 points
- (a) a feature map represented by synaptic weight vectors, which provides a good approximation to the input feature vectors.  
(b) a transformed data matrix, in which redundant and irrelevant features of input data are removed.  
(c) a transformed data matrix, in which similar input feature vectors are removed.  
(d) a matrix that consists of cluster centers of the input data.
- (a)  
 (b)  
 (c)  
 (d)
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
(a)
- 5) Synaptic weights (ultimately representing the neurons) in the competition layer of a self-organizing map undergo different operations in the following order: 2 points
- (a) Cooperation, competition and updating of synaptic weights.  
(b) Competition, cooperation and updating of synaptic weights.  
(c) Cooperation, updating and competition of synaptic weights.  
(d) Updating, cooperation and competition of synaptic weights.
- (a)  
 (b)  
 (c)  
 (d)
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
(b)
- 6) In the cooperation stage of a self-organizing map, the neighborhood function around a winning neuron is generally assumed to have a Gaussian distribution. The standard deviation of the distribution at  $t$ -th iteration is updated by using 2 points
- (a)  $\sigma_0 \exp\left(-\frac{t}{\tau}\right)$   
(b)  $\sigma_0 \exp\left(\frac{t}{\tau}\right)$   
(c)  $\sigma_0 \exp\left(\frac{2t}{\tau}\right)$   
(d)  $\sigma_0 \ln\left(\frac{t}{\tau}\right)$
- where  $\sigma_0$  is the initial value of standard deviation and  $\tau$  indicates maximum number of iterations.
- (a)  
 (b)  
 (c)  
 (d)
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
(a)
- 7) The most important feature of a self-organizing map is that 2 points
- (a) it preserves topology of the input feature vectors in a linear mapping process.  
(b) it preserves topology of the input feature vectors in a non-linear mapping process.  
(c) it reduces dimensionality of the input feature vectors in a linear mapping process.  
(d) it preserves dimensionality of the input feature vectors in a non-linear mapping process.
- (a)  
 (b)  
 (c)  
 (d)
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
(b)
- 8) In a Full Counter-Propagation Neural Network, the types of learning used in between the input and hidden layers, and the hidden and output layers are 2 points
- (a) Grossberg learning and Kohonen learning, respectively.  
(b) Kohonen learning and Grossberg learning, respectively.  
(c) Grossberg learning and back-propagation learning, respectively.  
(d) Back-propagation learning and Kohonen learning, respectively.
- (a)  
 (b)  
 (c)  
 (d)
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
(b)
- 9) If 10 input features along with one output are fed to the input layer of a Full Counter-Propagation Neural Network, the number of outputs of the network becomes equal to 2 points
- (a) 100  
(b) 10  
(c) 11  
(d) 101
- (a)  
 (b)  
 (c)  
 (d)
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
(c)
- 10) Which one of the following statements is true in case of Forward-Only Counter-Propagation Neural Networks? 2 points
- (a) Both the independent and dependent variables are passed through the input layer.  
(b) Both the independent and dependent variables are obtained through the output layer.  
(c) Only independent variables are passed through the input layer.  
(d) Learning of the weights takes places through back-propagation algorithm only in this network.
- (a)  
 (b)  
 (c)  
 (d)
- No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
(c)