

Code No: R05320505

R05**Set No. 2**

III B.Tech II Semester Examinations, December 2010

NEURAL NETWORKS**Computer Science And Engineering****Time: 3 hours****Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. A Hopfield network made up of 5 neurons, which is required to store the following three fundamental memories

$$\xi_1 = \{+1, +1, +1, +1, +1\}^T$$

$$\xi_2 = \{+1, -1, -1, +1, -1\}^T$$

$$\xi_3 = \{-1, +1, -1, +1, +1\}^T$$

- (a) Evaluate the synaptic weight matrix
- (b) Specify the network structure
- (c) Specify the connection weights
- (d) Examine whether the network can accurately retrieve the vector given the first 4 bits in each of the original vectors (the rest of the bits are set to zero).

[6+2+2+6]

2. Give the solution for credit assignment problem using back propagation. [16]

3. (a) Draw the architecture in which there is a hidden layer with 3 hidden units and the network is fully connected.

- (b) Explain Jacobian matrix of the multilayer perceptron.

- (c) Explain how the Hessian matrix plays an important role in Neural Networks.

[8+4+4]

4. (a) Explain signal-flow graph of Gaussian classifier

- (b) What is Gaussian distribution. Explain

[8+8]

5. What is manipulation of attractors as recurrent network paradigm. [16]

6. Write short notes on the following properties of feature map

- (a) Topological ordering

- (b) Density matching

- (c) Feature selection.

[5+6+5]

7. (a) Explain in detail about Boltzmann learning.

- (b) Explain in detail about competitive learning.

[8+8]

8. "Neural network can be viewed as directed graphs". Explain. [16]

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R05**Set No. 4**

III B.Tech II Semester Examinations, December 2010

NEURAL NETWORKS**Computer Science And Engineering****Time: 3 hours****Max Marks: 80****Answer any FIVE Questions****All Questions carry equal marks**

1. Give the solution for credit -assignment problem using back propagation. [16]
2. (a) Explain signal-flow graph of Gaussian classifier
(b) What is Gaussian distribution. Explain [8+8]
3. What is manipulation of attractors as recurrent network paradigm. [16]
4. Write short notes on the following properties of feature map
 - (a) Topological ordering
 - (b) Density matching
 - (c) Feature selection. [5+6+5]
5. (a) Draw the architecture in which there is a hidden layer with 3 hidden units and the network is fully connected.
(b) Explain Jacobian matrix of the multilayer perceptron.
(c) Explain how the Hessian matrix plays an important role in Neural Networks. [8+4+4]
6. (a) Explain in detail about Boltzmann learning.
(b) Explain in detail about competitive learning. [8+8]
7. A Hopfield network made up of 5 neurons, which is required to store the following three fundamental memories

$$\xi_1 = \{+1, +1, +1, +1, +1\}^T$$

$$\xi_2 = \{+1, -1, -1, +1, -1\}^T$$

$$\xi_3 = \{-1, +1, -1, +1, +1\}^T$$
 - (a) Evaluate the synaptic weight matrix
 - (b) Specify the network structure
 - (c) Specify the connection weights
 - (d) Examine whether the network can accurately retrieve the vector given the first 4 bits in each of the original vectors (the rest of the bits are set to zero). [6+2+2+6]
8. "Neural network can be viewed as directed graphs". Explain. [16]

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R05**Set No. 1**

III B.Tech II Semester Examinations, December 2010

NEURAL NETWORKS**Computer Science And Engineering****Time: 3 hours****Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. A Hopfield network made up of 5 neurons, which is required to store the following three fundamental memories

$$\xi_1 = \{+1, +1, +1, +1, +1\}^T$$

$$\xi_2 = \{+1, -1, -1, +1, -1\}^T$$

$$\xi_3 = \{-1, +1, -1, +1, +1\}^T$$

- Evaluate the synaptic weight matrix
- Specify the network structure
- Specify the connection weights
- Examine whether the network can accurately retrieve the vector given the first 4 bits in each of the original vectors (the rest of the bits are set to zero).

[6+2+2+6]

2. Give the solution for credit assignment problem using back propagation. [16]

3. "Neural network can be viewed as directed graphs". Explain. [16]

4. What is manipulation of attractors as recurrent network paradigm. [16]

5. (a) Explain signal-flow graph of Gaussian classifier

- (b) What is Gaussian distribution. Explain [8+8]

6. (a) Draw the architecture in which there is a hidden layer with 3 hidden units and the network is fully connected.

- (b) Explain Jacobian matrix of the multilayer perceptron.

- (c) Explain how the Hessian matrix plays an important role in Neural Networks. [8+4+4]

7. (a) Explain in detail about Boltzmann learning.

- (b) Explain in detail about competitive learning. [8+8]

8. Write short notes on the following properties of feature map

- (a) Topological ordering

- (b) Density matching

- (c) Feature selection. [5+6+5]

Code No: R05320505

R05**Set No. 3**

III B.Tech II Semester Examinations, December 2010

NEURAL NETWORKS**Computer Science And Engineering****Time: 3 hours****Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. Write short notes on the following properties of feature map
 - (a) Topological ordering
 - (b) Density matching
 - (c) Feature selection. [5+6+5]
2. What is manipulation of attractors as recurrent network paradigm. [16]
3. Give the solution for credit -assignment problem using back propagation. [16]
4. A Hopfield network made up of 5 neurons, which is required to store the following three fundamental memories

$$\xi_1 = \{+1, +1, +1, +1, +1\}^T$$

$$\xi_2 = \{+1, -1, -1, +1, -1\}^T$$

$$\xi_3 = \{-1, +1, -1, +1, +1\}^T$$
 - (a) Evaluate the synaptic weight matrix
 - (b) Specify the network structure
 - (c) Specify the connection weights
 - (d) Examine whether the network can accurately retrieve the vector given the first 4 bits in each of the original vectors (the rest of the bits are set to zero). [6+2+2+6]
5. "Neural network can be viewed as directed graphs". Explain. [16]
6.
 - (a) Draw the architecture in which there is a hidden layer with 3 hidden units and the network is fully connected.
 - (b) Explain Jacobian matrix of the multilayer perceptron.
 - (c) Explain how the Hessian matrix plays an important role in Neural Networks. [8+4+4]
7.
 - (a) Explain signal-flow graph of Gaussian classifier
 - (b) What is Gaussian distribution. Explain [8+8]
8.
 - (a) Explain in detail about Boltzmann learning.
 - (b) Explain in detail about competitive learning. [8+8]
