Code :R7420407 **1**

IV B.Tech II Semester(R07) Regular Examinations, April 2011
ARTIFICIAL NEURAL NETWORKS
(Electronics & Communication Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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1. (a) What are the types of learning? Explain in detail.
   (b) What are the features inherited by artificial neural network from biological neurons?
2. (a) What are the main requirements of the McCullochpitts neurons.
   (b) Define bias and threshold.
3. (a) Explain in detail about the strictly local back propagation net.
   (b) Differentiate between back propagation and radial bias function network.
   (c) How is data compression achieved using back propagation.
4. (a) Draw the architecture of the adaline net.
   (b) Generate AND functions with binary inputs and bipolar targets using adaline net.
5. (a) State the training and application algorithm used for forward only CPN.
   (b) What is Grossberg learning rule.
6. (a) What is pattern association.
   (b) What are the types of pattern association?
   (c) State the outer products rule.
7. (a) State the application algorithm for a discrete Hopfield net.
   (b) Discuss in detail the energy function used in the discrete Hopfield net.
8. Write a short note on:
   (a) Image compression using direct method based neural network.
   (b) Neural network in pattern recognition.

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Code :R7420407 **2**

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ARTIFICIAL NEURAL NETWORKS
(Electronics & Communication Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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1. (a) What are the basic building blocks of an artificial neural networks.
   (b) List and explain common activation functions.
2. (a) Derive the Hebbian and the perception learning rule.
   (b) What is the importance of delta learning rule? Delta learning rule is called as error correction rule? Justify.
3. (a) Differentiate between local minima and global minima.
   (b) What is the advantage of using momentum factor in back propagation network.
   (c) How is the error back propagated in BPN.
4. (a) How is madaline net formed from adaline net.
   (b) Form the AND NOT function with binary data using adline net.
5. (a) Explain in detail the training algorithm used in the full CPN network.
   (b) Full CPN is more efficient than the forward only CPN justify.
6. (a) Explain in detail the algorithm for Hebb Rule used in pattern association.
   (b) When vectors are all called cross talk vectors.
   (c) What is hetero Associative memory.
7. (a) Explain the discrete Hopefield net with its architecture.
   (b) What is spurious stable state.
8. Give a brief note about the following:
   (a) Image compression using neural networks
   (b) Image restoration using neural networks.

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Code :R7420407 **3**

IV B.Tech II Semester(R07) Regular Examinations, April 2011
ARTIFICIAL NEURAL NETWORKS
(Electronics & Communication Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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1. (a) Compare biological and artificial neural networks.
   (b) What are the various characteristics of an artificial neural networks.
2. (a) State the algorithm of the Hebbnet with its architecture.
   (b) What is the weight updation rule used in Hebbnet.
3. (a) Discuss in detail the training algorithm used in back propagation net.
   (b) Write a short note on the choice of the parameters used in a back propagation net.
4. (a) With architecture, explain the MRI training algorithm.
   (b) Using adaline net, generate XOR function with bipolar inputs and targets.
5. (a) What are the types of CPN. Explain.
   (b) On what basis the look up table constructed in a CPN network.
6. (a) What is an auto associative net.
   (b) Define storage capacity.
   (c) State the application algorithm of an auto associative net.
7. (a) What is the basic concept behind adaptive resonance theory.
   (b) How is ART net designed for both stability and plasticity.
   (c) What is plasticity with reference to neural networks.
8. Give a brief note about the following:
   (a) Image compression using direct solution method based neural network.
   (b) Neural network in pattern recognition.

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Code :R7420407 4

IV B.Tech II Semester(R07) Regular Examinations, April 2011
ARTIFICIAL NEURAL NETWORKS
(Electronics & Communication Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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1. (a) Define artificial neural networks?
   (b) Explain in detail the development of artificial neural networks?
2. (a) What is the difference between Kohenen's learning rule and Grossberg learing rule?
   (b) How is Boltzmann learning rule applied for travelling salesman problem?
3. (a) Explain the architecture of a back propagation Net?
   (b) What is feed forward network?
4. (a) Discuss in detail the MRIT training algorithm?
   (b) Form OR function with bipolar input and targets using MRIT algorithm.
5. (a) Give a brief description of the counter propagation net?
   (b) How is the counter propagation network used for data compression?
6. (a) What are the activation used in a BAM?
   (b) What are the two types of BAM? Explain in detail?
   (c) Define hamming distance?
7. (a) Write a short note on the basic architecture and operation of ART network.
   (b) What are the three states of ART?
   (c) What are the two forms of ART?
8. Write a short note on:
   (a) Image compression using neural networks
   (b) Image restoration using neural networks.

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