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B.TECH. DEGREE EXAMINATION, MAY 2017

Eighth Semester

Branch : Computer Science and Engineering/Information Technology

CS 010 805 G02/IT 010 805 G05—NEURAL NETWORKS—Elective—IV [CS, IT]

(New Scheme—2010 Admission onwards)

[Regular/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. State the significance of perceptron convergence theorem.
2. What is the significance of momentum term in backpropagation learning ?
3. Define a radial basis function network.
4. What are self-organizing neural networks ?
5. Define synchronous and asynchronous update in bidirectional associative memory.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Explain Hebbian learning.
7. How 'pattern' mode and 'batch' mode of training affect the result of backpropagation learning ?
8. Distinguish between clamped and free running conditions in a Boltzmann machine during learning.
9. What is Hamming Net ? Discuss.
10. Explain the 'gain control' mechanism in adaptive resonance theory.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each question carries 12 marks.

11. Explain McCulloch-Pitts model of a neuron and Rosenblatt's perceptron model of a neuron with diagrammatic illustration.

Or

12. Explain with an example and diagrammatic illustration linearly separable and linearly inseparable classification problems.
13. What is pattern classification? How to design a classifier using the perceptron learning law? Discuss with an example.

Or

14. Explain the backpropagation learning algorithm with a simple example.
15. Explain with diagrammatic illustration the architecture of a radial basis function network.

Or

16. Explain the Boltzmann learning law.
17. Explain with an example how MAXNET, a neural net based on competition works.

Or

18. Explain with an example unsupervised clustering of binary input vectors using adaptive resonance theory 1 (ART1).
19. Explain with diagrammatic illustration architecture of Hopfield network.

Or

20. Prove that bidirectional associative memory is unconditionally stable for any binary units.

(5 × 12 = 60 marks)

Neural Networks Question Paper 2016 - MG University BTech

B.TECH. DEGREE EXAMINATION, MAY 2016
Eighth Semester

Branch : Computer Science and Engineering/Information Technology
CS 010 805 G02/IT 010 805 G05 -NEURAL NETWORKS (Elective IV) (CS, IT)
(New Scheme 2010 Admission onwards)
(Regular/Supplementary)

Time Three Hours

Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 3 marks.

1. What is the difference between human intelligence and machine intelligence ?
2. What are multilayer perceptrons ?
3. What are the applications of Radial Basis Function networks ?
4. What are the various ways to realize competition in neural networks ?
5. What is pattern association ?

(5 x 3 = 15 marks)

Part B

Answer all questions.
Each question carries 5 marks.

6. Why we need pattern classification ?
7. Explain temporal stability.
8. How to train RBF networks ? Explain.
9. What is a counter propagation network ?
10. Give an example for hetero associative networks.

(5 x 5 = 25 marks)

Part C

Answer all questions.
Each question carries 12 marks.

11. Compare the performance of a computer and that of a biological neural network in terms of speed of processing, size and complexity, storage, fault tolerance and control mechanism.

Or

12. Explain McCulloch-Pitts model of neuron.
13. Briefly explain Back propagation algorithm in detail.

Or

14. Derive the Back propagation algorithm for regression.

15. What is under fitting and over fitting ? Explain prevention mechanisms for the same.

Or

16. Explain learning with momentum and conjugate gradient learning.

17. Explain Maxnet fixed weight competitive networks.

Or

18. Explain the application and architecture of full counter propagation network.

19. Briefly explain the algorithm for hopfield networks.

Or

20. What is the purpose of using bidirectional associative memory ? Explain.

B.TECH. DEGREE EXAMINATION, NOVEMBER 2015**Eighth Semester**

Branch : Computer Science and Engineering/Information Technology

CS010 805 G02/IT 010 805 G01—NEURAL NETWORKS (Elective IV) (CS, IT)

(New Scheme—2010 Admission onwards)

[Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A*Answer all questions.**Each question carries 3 marks.*

1. What are the different categories of learning ?
2. What is a pattern clustering network ?
3. Explain conjugate gradient learning.
4. What are the components of a competitive learning network ?
5. What are the advantages of associative memory ?

(5 × 3 = 15 marks)

Part B*Answer all questions.**Each question carries 5 marks.*

6. What are the main components of a biological neuron ?
7. Discuss the applications of back propagation network.
8. Write a note on stochastic neural networks.
9. Draw the architecture of Mexican Hat and give its activation function.
10. Explain the characteristics of auto associative memory.

(5 × 5 = 25 marks)

Part C*Answer all questions.**Each full question carries 12 marks.*

11. (a) Why a single layer of perceptron cannot be used to solve linearly inseparable problems ?
(6 marks)
- (b) What is the significance of the Widrow's learning for linear associative networks ? (6 marks)

Or

Turn

12. (a) Explain Hebbian learning.
 (b) Discuss about commonly used activation functions.
13. Discuss pattern classification and regression using multilayer perceptron.

Or

14. Explain back propagation algorithm in detail.
15. Explain Boltzmann machine in detail.

Or

16. With the help of a neat diagram explain the architecture of RBF networks.
17. (a) What are the applications of Kohonen self organizing map ? Explain.
 (b) Define stability and plasticity. What is the primary difference between ART other networks ?

Or

18. What are the uses of counter propagation network ? Explain the architecture of forward counter propagation network.
19. Explain Bidirectional associative memory (BAM) architecture.

Or

20. What is a Hopfield net ? Explain the architecture of a Hopfield net.

(5 × 12 = 60)

B.TECH. DEGREE EXAMINATION, MAY 2015**Eighth Semester**

Branch : Computer Science and Engineering/Information Technology

CS 010 805 G 02/ IT 010 805 G 05: NEURAL NETWORKS (Elective IV) (CS, IT)

(New Scheme—2010 Admission onwards)

[Regular/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A*Answer all questions.**Each question carries 3 marks.*

1. What is an artificial neural network ?
2. What is clustering ?
3. What is a Boltzmann machine ?
4. List out the drawback of counter propagation networks.
5. Define bidirectional associative memory.

(5 × 3 = 15 marks)

Part B*Answer all questions.**Each question carries 5 marks.*

6. Explain in detail about the delta rule.
7. Write short notes on clustering algorithms.
8. Discuss about over fitting.
9. Explain bidirectional counter propagation network.
10. Discuss about auto associative memory.

(5 × 5 = 25 marks)

Part C*Answer all questions.**Each question carries 12 marks.*

11. Explain in detail about the Hebbian learning.

Or

12. Write in detail about gradient descent.

13. Explain in detail about the back propagation.

Or

14. Discuss about multilayer Perceptron.

15. Explain in detail about stochastic neural networks.

Or

16. Write in detail about conjugate gradient algorithms.

17. Explain in detail about Kohonen's Self-Organizing Map (SOM).

Or

18. Describe about adaptive resonance theory in detail.

19. Elaborate briefly on pattern association.

Or

20. Explain in detail about Hopfield networks.

(5 × 12 = 60)

B.TECH. DEGREE EXAMINATION, MAY 2014

Eighth Semester

Branch : Computer Science and Engineering / Information Technology

CS 010 805 G02 / IT 010 805 G05 - NEURAL NETWORKS (Elective IV) [CS, IT]

(New Scheme-2010 Admissions)

[Regular]

Maximum : 100 Marks

Time : Three Hours

Part A

Answer all questions.

Each question carries 3 marks.

1. What are the different categories of learning?
2. Differentiate between Pattern association and Pattern classification.
3. What is the basis for Boltzmann learning law?
4. What is an instar network?
5. What is an associative memory?

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Explain Widrow's learning law.
7. Explain the limitations of back propagation learning.
8. What is conjugate gradient learning?
9. Write a note on adaptive resonance theory.
10. Discuss about Hetro associative network.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each question carries 12 marks.

11. Compare the different models of artificial neurons.

Or

12. (a) Briefly explain the operation of a biological neural network.
(b) Give an overview of different learning methods.

13. Give the architecture of a multi-layer perceptron. Explain the features and limitations of learning. (6 + 6 = 12)

Or

14. Give the Back propagation algorithm and comment on its performance.
15. Explain the architecture of a Boltzmann machine. What are its limitations?

Or

16. (a) Explain thermal equilibrium and simulated annealing in stochastic networks.
(b) Write a note on RBF networks.

17. (a) What are the salient features of the Kohonen's self organizing learning algorithm?
(b) Explain the difference between pattern clustering and feature mapping. (6 + 6 = 12)

Or

18. Briefly explain the working of a counter propagation network.
19. Explain a Hopfield model of ANN and how it is used for pattern storage. (6 + 6 = 12)

Or

20. Explain BAM architecture. What is meant by synchronous and asynchronous update in BAM? [5 × 12 = 60]