Code No: R05410201 | **R05** | **Set No. 2**

IV B.Tech I Semester Examinations,NOVEMBER 2010
NEURAL NETWORKS AND FUZZY LOGIC
Common to MEP, AE, AME, ICE, E.CONT.E, EEE

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

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Explain how Back Propagation Network is used as differentiator.
   (b) Explain about cross validation technique. [8+8]

2. (a) What are the assumptions followed in Hopfield network.
   (b) Illustrate the steps involved in Hopfield network algorithm to store and recall a set of bipolar patterns. [8+8]

3. What is meant by activation function in an artificial neuron model. Describe the various activation functions that are employed and compare their merits and demerits.

   [16]

4. Conduct a simulation of the final descent and landing approach of an aircraft. The desired downward velocity is proportional to the square of the height. Thus, at higher altitudes, a large downward velocity is desired. As the height (altitude) diminishes, the desired downward velocity gets smaller and smaller. In the limit, as the height becomes vanishingly small, the downward velocity also goes to zero. In this way, the aircraft will descend from altitude promptly but will touch down very gently to avoid damage. Assume all the necessary conditions to be used to design an adaptive FLC. [16]

5. Given three sets A, B and C. Prove De Moragan's laws using Venn diagrams. [16]

6. Develop a perceptron for the AND function with binary inputs and bipolar targets without bias up to 2 epochs (Take first with (0,0) and next without (0,0)). [16]

7. (a) What are the rules based format used to represent the fuzzy information.
   (b) Explain the importance of fuzzi logic control in various fields. [8+8]

8. Justify the statement that intelligent behaviour is an adaptive model free estimation and explain the process of learning. [16]

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Code No: R05410201 | **R05** | **Set No. 4**

IV B.Tech I Semester Examinations,NOVEMBER 2010
NEURAL NETWORKS AND FUZZY LOGIC
Common to MEP, AE, AME, ICE, E.CONT.E, EEE
Time: 3 hours   Max Marks: 80
Answer any FIVE Questions
All Questions carry equal marks
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1. Develop a perceptron for the AND function with binary inputs and bipolar targets without bias up to 2 epochs (Take first with (0,0) and next without (0,0)).   [16]

2. (a) What are the assumptions followed in Hopfield network.

    (b) Illustrate the steps involved in Hopfield network algorithm to store and recall a set of bipolar patterns.   [8+8]

3. (a) Explain how Back Propagation Network is used as differentiator.

    (b) Explain about cross validation technique.   [8+8]

4. What is meant by activation function in an artificial neuron model. Describe the various activation functions that are employed and compare their merits and de-merits.

[16]

5. (a) What are the rules based format used to represent the fuzzy information.

    (b) Explain the importance of fuzzi logic control in various fields.   [8+8]

6. Justify the statement that intelligent behaviour is an adaptive model free estimation and explain the process of learning.   [16]

7. Conduct a simulation of the final descent and landing approach of an aircraft. The desired downward velocity is proportional to the square of the height. Thus, at higher altitudes, a large downward velocity is desired. As the height (altitude) diminishes, the desired downward velocity gets smaller and smaller. In the limit, as the height becomes vanishingly small, the downward velocity also goes to zero. In this way, the aircraft will descend from altitude promptly but will touch down very gently to avoid damage. Assume all the necessary conditions to be used to design an adaptive FLC.   [16]

8. Given three sets A, B and C. Prove De Moragan's laws using Venn diagrams. [16]

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Code No: R05410201 $\qquad$ **R05** $\qquad$ **Set No. 1**

IV B.Tech I Semester Examinations,NOVEMBER 2010
NEURAL NETWORKS AND FUZZY LOGIC
Common to MEP, AE, AME, ICE, E.CONT.E, EEE

Time: 3 hours $\qquad$ Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
⋆ ⋆ ⋆ ⋆ ⋆

1. (a) What are the rules based format used to represent the fuzzy information.

   (b) Explain the importance of fuzzi logic control in various fields. [8+8]

2. Justify the statement that intelligent behaviour is an adaptive model free estimation and explain the process of learning. [16]

3. Given three sets A, B and C. Prove De Moragan's laws using Venn diagrams. [16]

4. (a) What are the assumptions followed in Hopfield network.

   (b) Illustrate the steps involved in Hopfield network algorithm to store and recall a set of bipolar patterns. [8+8]

5. Conduct a simulation of the final descent and landing approach of an aircraft. The desired downward velocity is proportional to the square of the height. Thus, at higher altitudes, a large downward velocity is desired. As the height (altitude) diminishes, the desired downward velocity gets smaller and smaller. In the limit, as the height becomes vanishingly small, the downward velocity also goes to zero. In this way, the aircraft will descend from altitude promptly but will touch down very gently to avoid damage. Assume all the necessary conditions to be used to design an adaptive FLC. [16]

6. (a) Explain how Back Propagation Network is used as differentiator.

   (b) Explain about cross validation technique. [8+8]

7. Develop a perceptron for the AND function with binary inputs and bipolar targets without bias up to 2 epochs (Take first with (0,0) and next without (0,0)). [16]

8. What is meant by activation function in an artificial neuron model. Describe the various activation functions that are employed and compare their merits and demerits.

[16]

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Code No: R05410201 | **R05** | **Set No. 3**

IV B.Tech I Semester Examinations,NOVEMBER 2010
NEURAL NETWORKS AND FUZZY LOGIC
Common to MEP, AE, AME, ICE, E.CONT.E, EEE

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
⋆ ⋆ ⋆ ⋆ ⋆

1. (a) What are the assumptions followed in Hopfield network.

   (b) Illustrate the steps involved in Hopfield network algorithm to store and recall a set of bipolar patterns.   [8+8]

2. What is meant by activation function in an artificial neuron model. Describe the various activation functions that are employed and compare their merits and de-merits.

   [16]

3. Conduct a simulation of the final descent and landing approach of an aircraft. The desired downward velocity is proportional to the square of the height. Thus, at higher altitudes, a large downward velocity is desired. As the height (altitude) diminishes, the desired downward velocity gets smaller and smaller. In the limit, as the height becomes vanishingly small, the downward velocity also goes to zero. In this way, the aircraft will descend from altitude promptly but will touch down very gently to avoid damage. Assume all the necessary conditions to be used to design an adaptive FLC.   [16]

4. Justify the statement that intelligent behaviour is an adaptive model free estimation and explain the process of learning.   [16]

5. Develop a perceptron for the AND function with binary inputs and bipolar targets without bias up to 2 epochs (Take first with (0,0) and next without (0,0)).   [16]

6. (a) Explain how Back Propagation Network is used as differentiator.

   (b) Explain about cross validation technique.   [8+8]

7. Given three sets A, B and C. Prove De Moragan's laws using Venn diagrams. [16]

8. (a) What are the rules based format used to represent the fuzzy information.

   (b) Explain the importance of fuzzi logic control in various fields.   [8+8]

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