

# GBCS SCHEME

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18E181

## Eighth Semester B.E. Degree Examination, July/August 2022 Neural Networks and Fuzzy Logic Systems

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- List the advantages and applications of neural networks. (08 Marks)
  - Briefly discuss the significance of genetic algorithm. (06 Marks)
  - Describe soft computing in problem solving process. (06 Marks)

OR

- With the help of schematic diagram, explain the basic models of artificial neural network. (10 Marks)
  - Discuss the following terminology i) Weights ii) Bias iii) Threshold. (10 Marks)

### Module-2

- With a flowchart describe the Hebb training algorithm. (08 Marks)
  - For the network shown in figure calculate the net input to the output neuron.

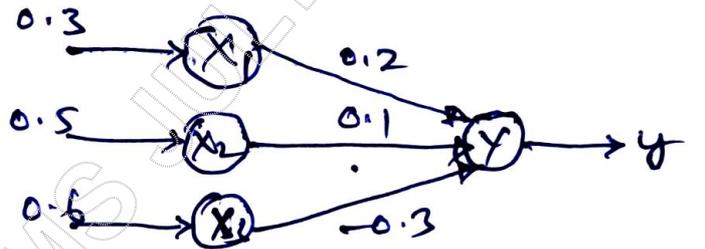


Fig.Q3(b)

- With a labeled block diagram, describe the original perceptron network. (08 Marks)

OR

- Explain the architecture of adaptive linear neurons. (06 Marks)
  - With the help of neat flowchart, explain adaline training process. (08 Marks)
  - With the help of schematic diagram, describe multiple adaptive linear neurons. (06 Marks)

### Module-3

- With a labeled flowchart, explain the back-propagation network training process. (10 Marks)
  - Discuss the learning factors of back – propagation network. (10 Marks)

OR

- Explain the radial basin function network. (06 Marks)
  - Describe the steps for RBF training algorithm. (08 Marks)
  - With the help of diagram, explain time delay neural network. (06 Marks)

### Module-4

- Explain the concept of fuzzy logic system. (04 Marks)
  - Describe the following operations on classical sets.  
i) Union ii) Intersection iii) Complement iv) Difference. (10 Marks)
  - List the properties of fuzzy sets. (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

OR

- 8 a. With the help of graphical representation, explain fuzzy relations. (10 Marks)  
b. Explain the tolerance and equivalence relations of Fuzzy system. (10 Marks)

**Module-5**

- 9 a. Discuss the features of membership functions. (08 Marks)  
b. Explain the following membership functions : (12 Marks)  
i) Inference ii) Angular fuzzy sets.

OR

- 10 a. What is meant by defuzzification? Briefly discuss defuzzification methods. (10 Marks)  
b. Describe the architecture and operation of FLC system. (10 Marks)

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