GUJARAT TECHNOLOGICAL UNIVERSITY ME – SEMESTER III (OLD) – • EXAMINATION – SUMMER 2016

| Subject Code: 730205 Date:05/05/2 Subject Name: Fuzzy Logic and Neural Networks Date:05/05/2 Time:10:30 am to 01:00 pm Total Marks Instructions: 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. | | | 016 : 70 | |
|--|------------|---|----------------|--|
| Q.1 | (a) (b) | Explain Fuzzy c-Means algorithm. Explain Single Layer Perceptions for neurons. | 07 07 | |
| Q.2 | (a) (b) | Discuss and compare classical sets and fuzzy sets. Explain supervised and unsupervised learning with example. OR Differentiate feedback and feed forward network | 07 07 07 | |
| 0.3 | (b) (a) | Explain the importance of Fuzzy approach in Pattern Recognition with suitable | 07 07 | |
| C | (b) | example. Explain the back propagation algorithm used for training multilayer neural networks. | 07 | |
| Q.3 | (a) (b) | Explain the λ -cut procedure in detail. Explain its importance for fuzzy logic. Explain the working of Hopfield network. How this network can be used to solve the problem of 'Character Recognition'? | 07 07 | |
| Q.4 | (a) (b) | Describe the architecture of Radial Basis Function Network (RBF net). Explain the steps of forward and backward calculation to train RBF net. Describe Fuzzy Associative Memories (FAMs) with example. | 07 07 | |
| Q.4 | (a) (b) | Explain the concept and algorithm for Self Organizing Feature Map. Demonstrate Defuzzification to Crisp Sets using suitable case study? | 07 07 | |
| Q.5 | (a) (b) | Explain feature analysis and partitions of the feature space using fuzzy logic. Explain the working principle of Swarm Intelligence (SI). Enlist algorithms working based on the concepts of SI. | 07 07 | |
| Q.5 | (a) (b) | Describe the form of generalized learning rule. Differentiate between Hebbian learning rule and Delta learning rule. Explain the multiple training encoding strategies as proposed by Wang in detail. | 07 07 | |
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