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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)**M.Tech I Year I Semester (R16) Regular Examinations January 2017****SOFT COMPUTING TECHNIQUES**

(Control Systems)

(For Students admitted in 2016 only)

Time: **3 hours**Max. Marks: **60**(Answer all Five Units **5 X 12 =60** Marks)**UNIT-I**

- Q.1** a. Explain about biological neuron 6M  
b. Explain about the applications of artificial neural networks 6M

**OR**

- Q.2** a. Explain about the McCulloch-Pitts neuron model. 6M  
b. Discuss about the supervised learning strategy 6M

**UNIT-II**

- Q.3** a. Explain about the back propagation network. 6M  
b. Explain about back propagation learning. 6M

**OR**

- Q.4** Explain about the bidirectional associative memory 12M

**UNIT-III**

- Q.5** Explain crisp and fuzzy implication rules. 12M

**OR**

- Q.6** a. What are the properties of fuzzy sets? 6M  
b. Explain about the cardinalities in fuzzy sets 6M

**UNIT-IV**

- Q.7** What are the basic components of a fuzzy logic system? Explain each of them in detail. 12M

**OR**

- Q.8** Explain applications of fuzzy logic in control system with one example. 12M

**UNIT-V**

- Q.9** a. Explain about the basic operators in genetic algorithms. 6M  
b. Explain about the mutation operator. 6M

**OR**

- Q.10** Explain different cross over operations performed in GA 12M

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