

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2014 COURSE)  
B.Tech.Sem - VIII ELECTRONIC : WINTER- 2022  
SUBJECT : FUZZY LOGIC & NEURAL NETWORK

Day : Tuesday

Time : 02:30 PM-05:30 PM

Date : 29-11-2022

W-13407-2022

Max. Marks : 60

**N. B. :**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagrams **WHEREVER** necessary.

**Q.1** Define T-norms and T-conorms with their properties. **(10)**

**OR**

**Q.1** Define fuzzy set boundary with membership functions. **(10)**

**Q.2** Write following fuzzy implication rules : **(10)**  
i) Dienes-Rescher                      ii) Mamdani

**OR**

**Q.2** Define following Fuzzy inference models **(10)**  
i) Sugeno fuzzy model                      ii) Tsukamoto fuzzy model

**Q.3** Design vacuum cleaner application based on fuzzy logic controller. **(10)**

**OR**

**Q.3** Define role of knowledge base, fuzzification, defuzzification in fuzzy logic controller. Construct IF-THEN rules for washing machine application. **(10)**

**Q.4** Write gradient descent algorithm in detail. **(10)**

**OR**

**Q.4** Implement logical OR function with Mc culloch-Pits neuron model. **(10)**

**Q.5** Define multilayer perceptron. Write algorithm for Adaline & Madeline. **(10)**

**OR**

**Q.5** Write algorithm for back propagation. **(10)**

**Q.6** Write in detail any one application of ANFIS. **(10)**

**OR**

**Q.6** Design and implement one application based on hybrid learning. **(10)**

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