Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

M.Tech. Winter 2017 - 18 Examination

Semester: 1 **Date: 04/01/2018**
Subject Code: 03207130 **Time: 2:00 pm to 4:30 pm**
Subject Name: Ai Techniques in Power Systems **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 A) Describe Fuzzy Logic. **(05)**

B) What do you mean by Recurrent Neural Network? **(05)**

C) Jot six points related to standard back propagation algorithm. **(05)**

Q.2 **Answer the following questions**. (Attempt any three) **(15)**

A) Explain an artificial neuron in detail.

B) Explain Fuzzy Logic in Fault Diagnosis.

C) Draw structure and explain Feed forward Neural Network.

D) Write Extension Principle in detail.

Q.3 A) Define types of learning and explain any one. **(07)**

B) Solve the following using α [addition & subtraction only – for C where C=A±B] **(08)**

$$\mu_A(x) = \begin{cases} 0, & x \le 6 \\ x-6, & 6 \le x \le 7 \\ -x+8, & 7 \le x \le 8 \\ 0, & x \ge 8 \end{cases}$$

and

$$\mu_B(x) = \begin{cases} 0, & x \le 3 \\ x-3, & 3 \le x \le 4 \\ -x+3, & 4 \le x \le 5 \\ 0, & x \ge 5 \end{cases}$$

OR

B) What is α-cut and resolution principle? Define in brief. **(08)**

Q.4 A) Write merits of Fuzzy logic in control and decision making applications in brief. **(07)**

OR

A) Define and obtain the equations of weight calculation in case of hidden –layer neurons. **(07)**

B) Define Defuzzification and explain any one method in detail of Defuzzification method. **(08)**