

M.Sc. S.Y. (Electronics) (CBCS Pattern) Sem-III  
**PSELT302 - Paper-II - Core-X : Fuzzy Logic and Artificial Neural Networks**

P. Pages : 1

Time : Three Hours



**GUG/W/22/11253**

Max. Marks : 80

- Notes :
1. All questions are compulsory and carry equal marks.
  2. Draw neat and labelled diagrams wherever necessary.
  3. Use of log table/calculator is allowed.

**Either :**

1. a) Explain the basic concept of fuzzy sets. 8
- b) State the properties of fuzzy set and explain any one of them with suitable example. 8

**OR**

- c) Explain any two types of De-fuzzification. 8
- d) Explain fuzzy membership function. 8

**Either :**

2. a) Explain Zadeh's Extension principle. 8
- b) Draw the block diagram of a fuzzy rule base system and explain in brief. 8

**OR**

- c) Explain the graphical techniques of interference with a suitable example. 8
- d) Explain the method of fuzzy classification assuming suitable data. 8

**Either :**

3. a) Define learning. Explain different type of learning rules. 8
- b) Explain the basic building blocks of the artificial neural network. 8

**OR**

- c) Explain characteristics of feed forward neural network. 8
- d) Describe back propagation algorithm. 8

**Either :**

4. a) What is associative memory? Distinguish between interpolative and accretive associative memory. 8
- b) Explain the self-organizing features maps. 8

**OR**

- c) Draw adaptive resonance theory (ART1) architecture diagram and explain. 8
- d) Explain the architecture of a bidirectional associative memory (BAM). 8

5. a) State difference between crisp sets and fuzzy sets. 4
- b) Write short note on fuzzy c-means clustering (FCM). 4
- c) Differentiate between artificial neural network & bio neural network. 4
- d) Write a note on counter-propagation network (CPN). 4

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