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**BR—90—2016**

**FACULTY OF COMPUTER STUDIES**

**M.Sc. (Second Year) (Fourth Semester) EXAMINATION**

**OCTOBER/NOVEMBER, 2016**

**(Revised Pattern)**

**COMPUTER SCIENCE**

**Paper CH-401**

**(Fuzzy System and ANN)**

**(Thursday, 17-11-2016)**

**Time : 2.00 p.m. to 5.00 p.m.**

*Time—Three Hours*

*Maximum Marks—100*

*N.B. :—* (i) All questions are compulsory.

(ii) Assume suitable data, if necessary.

(iii) Figures to the right indicate full marks.

1. (a) Explain generalized data learning rule with its derivation of weight and vectors. 10

(b) What is fuzzy logic ? Explain its applications. 10

*Or*

(c) Explain RBF with example. 10

(d) Explain difference between linear and non-linear separability rule with example. 10

2. (a) Explain Hopfield neural network. 10

(b) Explain ANN topologies. 10

*Or*

(c) Explain min-max composition for fuzzy relation. 10

(d) Explain different type of membership function and used in ANN. 10

3. (a) Explain back propagation training algorithm with derivation of weight. 10

(b) What is Boltzman machine ? How it is used for learning mechanism ? 10

P.T.O.

*Or*

- |    |   |   |    |
|----|---|---|----|
|    | (c)                                       | Explain counterpropagation network.               | 10 |
|    | (d)                                       | Explain perceptron learning rule.                 | 10 |
| 4. | (a)                                       | Explain neural network architecture.              | 10 |
|    | (b)                                       | Explain fuzzy extension principle.                | 10 |
|    | <i>Or</i>                                 |   |    |
|    | (c)                                       | Compare biological neuron with artificial neuron. | 10 |
|    | (d)                                       | Explain extension principle for fuzzy sets.       | 10 |
| 5. | Write short notes on (any <i>four</i> ) : |   | 20 |
|    | (i)                                       | Fuzzy logic                                       |    |
|    | (ii)                                      | Signature varification                            |    |
|    | (iii)                                     | Perceptron classification                         |    |
|    | (iv)                                      | Pattern recognition                               |    |
|    | (v)                                       | Fuzzy compatibility relation                      |    |
|    | (vi)                                      | Fuzzy neural network.                             |    |