B.Tech. – VIEP – COMPUTER SCIENCE AND ENGINEERING (BTCSVI)

Term-End Examination

June, 2015   00835

BICSE-004 : FUZZY SYSTEMS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any* ***seven*** *questions. Each question carries equal marks. Assume the missing data, if any.*

1. (a) Describe the concept of fuzzy sets in your own words. 5

   (b) Do fuzzy sets satisfy the law on the excluded middle ? Explain with an example. 5

2. Define various fuzzy set operations and properties. Draw the Venn diagram for fuzzy set operations. 10

3. What are fuzzy relations ? Explain the various fuzzy relations' properties and operations. 10

4. Prove that the max-min composition and min join are associative operations on binary fuzzy relation. 10

5. (a) Prove that De Morgan's laws hold good for a pair of fuzzy sets.

   (b) Define Inference from quantified propositions. 2×5=10

6. What is possibility theory and how is it related to fuzzy logic ? Explain in detail. *10*

7. Describe the Genetic Algorithm and show how it can be useful in fuzzy system. *10*

8. Explain any *two* of the following : *2×5=10*
  (a) Individual decision-making
  (b) Multi-person decision-making
  (c) Multi-stage decision-making

9. (a) How is fuzzy logic useful in Neural Networking ?

  (b) Describe the neural and fuzzy systems as model free function estimators. *2×5=10*

10. Write short notes on any *two* of the following : *2×5=10*

  (a) Fuzzy Automata

  (b) Principles of Uncertainty

  (c) Fuzziness of Fuzzy Set