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BICSE-004

B.TECH. COMPUTER SCIENCE AND ENGINEERING (BTCSVI)

Term-End Examination

June, 2013

BICSE-004 : FUZZY SYSTEMS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt **any seven** questions. Assume the missing data, if any. All questions carry **equal** marks.*

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

   (b) Explain why the law of contradiction and the law of exclusive middle are violated in fuzzy set theory under the standard fuzzy sets operations ? 5

2. (a) Describe the Extension principle for fuzzy sets. 5

   (b) Explain t- Norms and t- conorms for fuzzy set. Also compare them with classical counterparts. 5

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

4. Prove that properties of symmetry, reflexivity, and transitivity (or lack of these properties) are preserved under inversion for both crisp and fuzzy relations. 10

5. Give an example from daily life of each type of fuzzy proposition, and express the proposition in its canonical form. 10

6. Describe the multivalued logic and compare it with classical and fuzzy logic. 10

7. What are fuzzy quantifiers and linguistic hedges ? Explain with a daily life example. 10

8. How information is related to uncertainty ? Also discuss about the uncertainty principle. 10

9. Write the short notes on the following : 5x2=10

   (a) Fuzzy Neural Networks

   (b) Fuzzy Automata

10. Describe the Genetic algorithm and show that how it can be useful in fuzzy systems. 10