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BICSE-004

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

Term-End Examination

00293 **December, 2016**

BICSE-004 : FUZZY SYSTEMS

Time : 3 hours *Maximum Marks : 70*

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

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

(b) What are the properties of fuzzy sets ? Explain with example. *5*

2. (a) Briefly discuss the group decision-making model. *5*

(b) Explain t-norms and t-conorms for fuzzy sets. Also compare them with classical counterparts. *5*

3. Explain the following with the help of examples : *2×5=10*

(a) Fuzzy Equivalence Relations

(b) Fuzzy Compatibility Relations

4. (a) What is fuzzy expert system ? Explain the architecture of an expert system with the help of a neat diagram. *2+3*

(b) How will the fuzzy be implemented ? Explain any one theorem in fuzzy implementation. *2+3*

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

6. (a) What is the relation between fuzzy truth with values and probabilities ? *5*

(b) What are the different forms of uncertainties in the information world ? *5*

7. (a) Define fuzzy quantifiers. Explain the same with a suitable example including a diagram. *5*

(b) What are linguistic hedges ? Explain the concept with a suitable example. *5*

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

9. (a) What is multiperson decision-making model ? Explain. *5*

(b) How is genetic algorithm used in fuzzy systems ? Describe with some examples. *5*

10. (a) Write a short note on fuzzy measures. *5*

(b) What is multivalued logic ? What are the types of multivalued logic ? Explain. *5*