

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI-86
DEPARTMENT OF MATHEMATICS

CODE : 11MT/RO/FT 205

END SEMISTER EXAMINATION – APRIL 2013
FUZZY SET THEORY AND APPLICATIONS

Class : M.Phil.

Max. : 100 Mks.

Time : 3 Hrs.

Answer any **FIVE** questions only : (20 × 5 = 100)

1. a) Explain the different types of fuzzy sets.
b) State and prove a representation theorem with an example. (12+8)
2. a) Explain with an example the extension principle of fuzzy sets.
b) Write the details of fuzzy equation w.r.t. addition and multiplication.
3. Explain the concept of fuzzy t-norms and fuzzy t-conorms and combination of the operations with respect to fuzzy complements.
4. Discuss the concept of *Sup-i* Compositions of fuzzy relations and *Inf ω* , Compositions of fuzzy relations.
5. a) Show that the extension principle is strong cutworthy but not cutworthy.
b) Write a note on fuzzy morphisms.
6. a) Discuss in detail: Binary relation on a single set.
b) Discuss : Partitioning using Solution method.
7. a) Explain the role of Fuzzy controllers in a Fuzzy Expert system.
b) Explain with an instance any two types of Fuzzy propositions.
8. Discuss in detail with an example any **TWO** of the following :
 - a) Application of Fuzzy Mathematics to Pattern Recognition
 - b) Application of Fuzzy Mathematics to Engineering
 - c) Application of Fuzzy Mathematics to Industry
