M.Sc. (MATHEMATICS WITH APPLICATIONS IN COMPUTER SCIENCE)

00758

Term-End Examination

December, 2011

MMTE-007 (P) : (MACS)

Time : 1½ hours   Maximum Marks : 40

Note :   This question paper has **one** question worth **30** marks.
Remaining **10** marks are for **viva-voce.**

1. Consider the following two - dimensional data   30
set that consists of 15 points in R^2.

k	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
x_{k1}	0	0	0	1	1	1	2	3	4	5	5	5	6	6	6
x_{k2}	0	2	4	1	2	3	2	2	2	1	2	3	0	2	4

Assume that we want to determine a fuzzy
pseudo partition with two clusters. Also, assume
m =1.25, and the initial fuzzy pseudo

Partition is $P^{(0)} = \{A_1, A_2\}$ with

$$A_1 = \sum_{i=1}^{15} \frac{0.854}{x_i}$$

$$A_2 = \sum_{i=1}^{15} \frac{0.146}{x_i}$$

Write a program in 'C' language to obtain the final fuzzy pseudo partition and the cluster centres assuming that convergence is achieved when the difference between two values is ≤ 0.001.

———————