

Q8 Clustering

Step 1 Design of chromosome

Cluster 1	Cluster 2	...	C _n
2 5 10			

row No.

Step 2 Fitness function

$$F1 : \min \sum_{\forall c_i} \sum_{\forall i, j} d_{ij}$$

$$d_{ij} = \sqrt{(x_{i1} - x_{j1})^2 + (x_{i2} - x_{j2})^2 + \dots + (x_{im} - x_{jm})^2}$$

$$F2 : \max \sum_{\forall c_i, c_j} d'_{ij}$$

d'_{ij} = Euc. Distance between centroids of clusters 'i' & 'j'

Step 3 Selection

Normal Roulette wheel selection.

step 4 Crossover

Use EX operator

step 5 Mutation

Swap items between
clusters in a single
chromosome

Step 6 Replacement
Elitist Strategy.