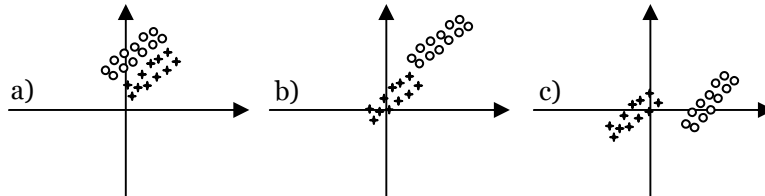


Name: .....

Student ID#: .....

**Statistical Pattern Recognition (CE-725)**  
**Department of Computer Engineering**  
**Quiz #3 (Features) - Spring 2011**

**1.a (3 points)** Consider the following three datasets:



For each dataset, which of three methods PCA, LDA and feature selection do you suggest for reducing dimensionality?

**1.b (7 points)** Which of the following would be a good objective function to use instead of Fisher's one and which of them not? Give 1 sentence explanations.

a)  $J(v) = \frac{(\mu_1 - \mu_2)^2}{\sigma_1^2} + \frac{(\mu_1 - \mu_2)^2}{\sigma_2^2}$       b)  $J(v) = \frac{(\mu_1 - \mu_2)^2}{\sigma_1^2 / \sigma_2^2}$       c)  $J(v) = \frac{\sigma_1^2 * \sigma_2^2}{(\mu_1 - \mu_2)^2}$