

In The Name of God, The Compassionate, The Merciful

Name: .....

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**Statistical Pattern Recognition (CE-725)**  
**Department of Computer Engineering**  
**Quiz #2 (Feature Selection)**  
**Spring 2011**

**1. (10 points)** Suppose we have dataset  $A=\{x_1,x_2,y\}$  in which  $x_1$  and  $x_2$  are our features and  $y$  is the label. Also suppose that the covariance matrix between these three random variables are as follows:

	<b>x1</b>	<b>x2</b>	<b>y</b>
<b>x1</b>	a	d	e
<b>x2</b>	d	b	f
<b>y</b>	e	f	c

- For which covariance values, we may infer that we can ignore  $x_1$  in the process of classification without loss of accuracy?
- For which covariance values, we may infer that we can ignore either one of features in the process of classification without loss of accuracy?
- For which covariance values, we may infer that we **can not** ignore neither  $x_1$  nor  $x_2$  in the process of classification?