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**Statistical Pattern Recognition (CE-725)**  
**Department of Computer Engineering**  
**Quiz #6 (Linear Discriminant Functions) - Spring 2011**

Consider Five discriminant functions for a two-dimensional classification problem in the form of  $f_i(x) = (x - b_i)^T(x - b_i)$  which  $b_i$ 's are:

$$b_1 = [0 \ 0]^T \quad b_2 = [2 \ 0]^T \quad b_3 = [-2 \ 0]^T \quad b_4 = [2 \ 2]^T \quad b_5 = [2 \ -2]^T$$

How do a pairwise linearly separable rule, using these functions, partitions the feature space? (Avoid explicit calculation of discriminant functions and draw a rough sketch of the class boundaries).

Hint: Assume  $g_{ij}(x) = g_j(x) - g_i(x)$ .