

Name:

ID#:

Section: 455 or 555

2	8	10	

Directions – *The quiz is closed book/notes. You have 10 minutes to complete it; use this paper only.*

Problem 1: Recall (2pts) (Answer in one sentence only.)

What is zero-one loss?

Problem 2: Work (8 pts) (Show all derivations/work and explain.)

Show that the following statement is true:

If the decision regions of a two-class classification are chosen to minimize the probability of misclassification, this probability will satisfy

$$p(\text{mistake}) \leq \int \{p(x, \omega_1)p(x, \omega_2)\}^{1/2} dx$$

(Hint: for two nonnegative numbers a and b , if $a \leq b$ then $a \leq (ab)^{1/2}$.)