

8.22. Consider the binary communication system of Prob. 8.6.

(a) Construct a Neyman-Pearson test for the case where $\alpha = 0.1$.

(b) Find β .

Ans. (a) $|x| \underset{H_0}{\overset{H_1}{\gtrless}} 1.282$; (b) $\beta = 0.6111$

8.23. Consider the binary decision problem of Prob. 8.11. Determine the Bayes' test if $P(H_0) = 0.25$ and the Bayes' costs are

$$C_{00} = C_{11} = 0 \quad C_{01} = 1 \quad C_{10} = 2$$

Ans. $|x| \underset{H_0}{\overset{H_1}{\lessgtr}} 1.10$