Chapter 10 Addendum: Three More Examples

Example 1: Let $Y_1, ..., Y_n \overset{iid}{\sim} N(\mu, \sigma^2)$ with μ unknown and $\sigma^2 = 1$. Find the MP test of $H_0: \mu = 10$ vs. $H_a: \mu = 6$ having $\alpha = .01$.

Example 2: Let $Y_1, \ldots, Y_4 \overset{iid}{\sim}$ Gamma $(3, \theta)$. Find the UMP test of $H_o: \theta = \theta_o$ vs. $H_a: \theta > \theta_o$ having $\alpha = .05$.

Example 3: Let $Y_1, .., Y_{30}$ be iid Gamma r.v.'s with $\alpha = 2$ and unknown β. Derive a test of $H_0: \beta = 1$ vs. $H_a: \beta \neq 1$, having $\alpha = 0.10$.

Exercise: If the sample taken yields $Y_1 + Y_2 + \cdots + Y_{30} = 79.07$, then find the approximate P-value of the test.