A10623028O 林宇軒 W14 HW.

9.10.

$T_1 = 3.15$. $T_2 = 9.19$. $T_3 = 11.44$. $\bar{y}_1 = 0.63$. $\bar{y}_2 = 1.53$. $\bar{y}_3 = 1.91$.

Let $H_0: \mu_1 = \mu_2 = \mu_3$. $n = 5+6+6 = 17$.

$SST = \sum_{i=1}^{3}\sum_{j=1}^{n_i} y_{ij}^2 - \frac{T^2}{n} = 5.895$.

$SSTR = \sum_{i=1}^{4}\left(\frac{T_i^2}{n_i}\right) - \frac{T^2}{n} = 37.873 - 33.264 = 4.609$.

$SSE = 5.895 - 4.609 = 1.286$.

$MSTR = 2.305$. $MSE = 0.092$

$F = \frac{2.305}{0.092} = 25.05$.

$F_{0.05}(2,14) = 3.74$.

$25.05 > 3.74$ 顯著.

∴ 棄卻 H_0. 三種藥有明顯差異

9.12.

$S = \sqrt{MSE} = \sqrt{0.092} = 0.303$. $\sqrt{(k-1)F} = \sqrt{(3-1)3.74} = 2.73$.

$\mu_2 - \mu_1$: $(1.53 - 0.63) \pm 2.73 \times 0.303 \times \sqrt{\frac{1}{6}+\frac{1}{5}} = (0.399, 1.401)$. 不包含0

$\mu_3 - \mu_2$: $(1.91 - 1.53) \pm 2.73 \times 0.303 \times \sqrt{\frac{1}{6}+\frac{1}{6}} = (-0.098, 0.858)$ 包含0

$\mu_3 - \mu_1$: $(1.91 - 0.63) \pm 2.73 \times 0.303 \times \sqrt{\frac{1}{6}+\frac{1}{5}} = (0.79, 1.781)$. 不包含0

∴ 2 & 3 有明顯差異