(a) According to value of summary statistics, estimation for β is

$$\begin{pmatrix} \hat{\beta}_0' \\ \hat{\beta}_1 \\ \hat{\beta}_2 \end{pmatrix} = (X_c^T X_c)^{-1} X_c^T Y = \begin{pmatrix} 18.75 \\ 1.2184 \\ 1.9073 \end{pmatrix}$$

$$\hat{\beta}_0 = \hat{\beta}_0' - \hat{\beta}_1 \bar{x}_1 - \hat{\beta}_2 \bar{x}_2 = 18.75 - 1.21837 * 6.6 - 1.90731 * 5.95 = -0.6397$$

Then,

$$RSS = s_{yy} - \hat{\beta}_1 s_{x_1 y} - \hat{\beta}_2 s_{x_2 y} = 64.29165$$

Source	Sum of Squares	D.F.	Mean Squares	F value
Regression	2091.4580	2	1045.7290	276.5118
Residual	64.2917	17	3.7819	–
Lack of fit	50.2917	12	4.1910	1.4968
Pure error	14	5	2.8	–
Total	2155.75		–	–

(b) Since $F_{0bs} = 1.4968 < F_{0.05,12,5} = 4.68$, do not reject H_0, i.e. there is no lack of fit.