

THE HONG KONG POLYTECHNIC UNIVERSITY
HONG KONG COMMUNITY COLLEGE

Subject Title : Applied Statistical Methods

Subject Code : CCN2237

Session : Semester Two, 2014/15

Numerical Answers

Question B1

(a) -0.7100, 0.1057

(c)

Source of Variation	Sum of Squares	Degree(s) of Freedom	Mean Square	Computed F
Regression	20.3547	1	20.3547	18.8442
Error/Residual	8.6413	8	1.0802	
Total	28.9960	9		

(d) test value =18.8442, critical value = 5.32

(e) 0.7020

Question B2

(a) 33.7411, -9.6679, -0.9394

(b) 0.1382

(c) test value = -0.5091, critical value = -2.567

(d) 0.8902

(e) (17.2188,18.8562)

(f) (17.8031,18.2720)

Question B3

(a) 17.8366, 3.0050, 4.6749

(b)

Step	Variables in the Model	Partial F	Conclusion
1	x_1 x_2 x_3 x_4	1.6749 33.3911 17.3597 0.6326	Discard x_4 with the smallest F and $F < F_{0.05;1,15} = 4.54$
2	x_1 x_2 x_3	1.4046 35.4398 18.6235	Discard x_1 with the smallest F and $F < F_{0.05;1,16} = 4.49$
3	x_2 x_3	33.7993 16.8268	Retain x_2 and x_3 as both F values are greater than $F_{0.05;1,17} = 4.45$

(c) test value = 0.6252, critical values = ± 2.131 **Question B4**

(a) 1.12, 1.1

(b) MSE = 0.0105, MSPE = 0.0055

(d) test value = 4.9090, critical value = 3.71

Question B5

(b) 7.058

(d) intercept = 6.512, coefficient for female = 0, coefficient for male = -1.444

(e) p-value = 0.008

(f)(i) d = 2.6812

(f)(ii) r = -0.3406

(f)(iii) critical values = 0.68, 1.57