

THE HONG KONG POLYTECHNIC UNIVERSITY
HONG KONG COMMUNITY COLLEGE

Subject Title : Foundations of Data Science **Subject Code** : CCN2311

Session : Semester Two, 2016/17

Numerical Answers

Question A1

- (a) 0.0228
- (b) 0.0571
- (c) 22.8
- (d) 88.35

Question A2

- (a) (36.6725, 47.3275)
- (b) (7.3868, 15.4796)
- (c) critical value = 1.753
test value = 0.8

Question A3

- (d) 0.0323

Question A4

Random variable	Distribution	Mean	Variance
Z_4	Normal	0	1
\bar{X}	Normal	100	0.25
Y	Binomial	50	25
W	Chi-square	3	6
V	t	0	3

Question A5

- (a) critical value = 11.07
test value = 5
- (b) critical value = 6.63
test value = 1.7857

Question A6

- (a) (-0.3300, -0.0700)

- (c) critical value = -1.645
test value = -3.015

Question B1

- (a)(i) 0.2
(a)(ii) 0.7
(a)(iii) 15.2
(a)(iv) 130.56
(b)(ii) 3.3333
(b)(iii) 1.3889
(c)(i) 0.1
(c)(ii) 0.0009

Question B2

- (a) (0.3157, 4.4321)
(b) (5.7293, 14.2707)
(d) critical value = 1.725
test value = 4.8845

Question B3

- (b) $\hat{\beta}_1 = 0.5164$ $\hat{\beta}_2 = 2.9958$
(d) 5.5772
(e) 0.8623
(g) predicted value = 18.4884, prediction error = 0.5116