

THE HONG KONG POLYTECHNIC UNIVERSITY
HONG KONG COMMUNITY COLLEGE

Subject Title : Survey Design and Analysis

Subject Code : CCN2277

Session : Semester One, 2016/17

Numerical Answers

Question A2

- (a) 66.7, 3.630
- (b) 1.6

Question A3

- (a) 333.333, 64.635
- (b) 100, 44.654
- (c) 2, 0.473

Question A4

- (a)(i) 816
- (a)(ii) 0.053
- (b)(ii) 0.023
- (b)(iii) 0.25

Question A5

- (b) 384, 68.498
- (c) 170.625, 12.428

Question A6

- (b) 3.5, 0.026
- (c) 3.494, 0.017

Question B1

- (a)(i)

ID of the students selected (Unordered)	Sample proportion (\hat{p})	Probability of selecting the sample
1, 2	0.5	0.1
1, 3	0.5	0.1
1, 4	1	0.1

1, 5	1	0.1
2, 3	0	0.1
2, 4	0.5	0.1
2, 5	0.5	0.1
3, 4	0.5	0.1
3, 5	0.5	0.1
4, 5	1	0.1

(a)(iii) 0.0225

(b)(i)

ID of the selected units (Ordered)	$\hat{\tau}_{HH}$ of the sample	Probability of selecting the sample
1, 1	20	0.01
1, 2	$0.5(20+12.5)=16.25$	0.04
1, 3	$0.5(20+14)=17$	0.05
2, 1	$0.5(20+12.5)=16.25$	0.04
2, 2	12.5	0.16
2, 3	$0.5(12.5+14)=13.25$	0.2
3, 1	$0.5(20+14)=17$	0.05
3, 2	$0.5(12.5+14)=13.25$	0.2
3, 3	14	0.25

Question B2

- (a) 810, 23.766
- (b) 516000, 9281.756
- (c) 4810000, 153442.2
- (d) 150
- (e) 178, 115, 30

Question B3

- (c) 0.04
- (d) 1300, 115.470
- (e) 44.077, 0.661
- (f) 44.077, 4.095