**Hand in** 10.3, 10.4, 10.6, and 10.7.

10.3(a)

The 90% CI is (89.5325,94.4675)

(b) Since 96 do not fail between the 90% CI, we can conclude that 96 is significantly higher than the population mean.

(c) Since 91.5 lies in the 90% CI, so at a = 0.1, the population mean is not significantly different from 91.5.

10.4 the 95% CI is (14.02,15.98). Since 14 do not lies in the 95% CI, so we can say that the air-pollution index for the past 5 years is statistically significantly different from 14

10.6

H0: those who participate in Project Advance in general score lower or equal those who do not participate

H1: those who participate in Project Advance in general score highter those who do not participate

Using Stata

display (1-normal((56-55)/(12/36^0.5))) //10.6

p=0.309 < 0.05.

So, we accept H0 and reject H1, those who participate in Project Advance in general score lower or equal those who do not participate.

10.7

(a)

H0: those who participate have significantly higher or equivalent cholesterol levels than 200mg per dl

H1: those who participate have significantly lower cholesterol levels than 200mg per dl

Using Stata:

di ((185-200)/(50/50^0.5))

di 1-normal(2.1213203) //10.7(a)

p=0.0169< 0.05. So, we accept H1 and reject H0, those who participate have significantly lower cholesterol levels than 200mg per dl.

(b) Cohen’s d = (185-200)/50 = -0.3, which indicates a small(>0.2) to medium(<0.5) effective size.