

①  
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Ans. to the ques. no. 'Part-3'

Here,

Null Hypothesis,  $H_0 : \mu < 100$  [for me  
it's even  
lower!  
100Kbps]

Alternate Hypothesis,  $H_1 : \mu \geq 100$

$$n = 7$$

$$\bar{X} = \frac{94.1 + 84.9 + 101.7 + 93.3 + 89.4 + 99.9 + 110.1}{7}$$
$$= 96.2$$

$\sigma$  = is unknown (not given)

$$s = \sqrt{\frac{(94.1 - 96.2)^2 + (84.9 - 96.2)^2 + (101.7 - 96.2)^2 + (93.3 - 96.2)^2 + (89.4 - 96.2)^2 + (99.9 - 96.2)^2 + (110.1 - 96.2)^2}{7 - 1}}$$

$$= 8.405$$

$$\alpha = 1 - c$$

$$= 1 - 0.90$$

$$= 0.1$$

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we will use ~~t~~ table since  $\sigma$  is unknown  
and  $n = 7 < 100$ .

we will use one-tailed test and  
it is Right-tailed test.

$\alpha = 0.1$  and critical value from  
t-table  $\frac{2}{3}$

critical value = 1.440

$$Z = \frac{\bar{x} - \mu}{s/\sqrt{n}} = \frac{96.2 - 100}{8.405/\sqrt{7}} = -1.196$$

Since,  $1.440 > 1.196$  so, ~~the~~ my hypothesis  
is "failed to reject with 90% confidence."

for 80% ,

$$\alpha = 1 - 0.80 \\ = 0.2$$

critical value = 0.906

So, for 80% will be rejected.