KFUPM Term 122, STAT 319 Date: 4/5/2013

Mathematics & Statistics Quiz #7 Duration: 25 minutes

Name: ID #: Section 2 Serial #:

***Q*1.** At a certain study two brands of ultrasonic humidifiers were compared with respect to the rate at which they output moisture. The following data are the maximum outputs (in fluid ounces) per hour as measured in a chamber controlled at a temperature of 70°F and a relative humidity of 30%:

	Sample size	Sample mean	Sample variance
Brand 1	**35**	**13.9**	**1.5**
Brand 2	**40**	**13.9**	**1.02**

Construct a 97% confidence interval for the true difference in the mean output moisture from the two brands of humidifier, and use it to test that there is no significant difference in the mean output moisture from the two brands of humidifier. State all the assumptions.

P.T.O. ➔

Q2. Two temperature instruments are compared daily: one coupled to a process computer and the other used for visual control. Ideally these two instruments should agree. The following data are the temperatures over a five–day period and corresponding summary statistics:

Day	1	2	3	4	5	$\bar{x}$	s
Temp 1	**84.6**	**84.5**	**84.4**	**84.6**	**84.3**	84.48	0.13038
Temp 2	**85.2**	**85.1**	**84.9**	**85.3**	**85.0**	85.10	0.15811

At 1% level of significance test that the mean temperature measured by the computer does not exceed the mean temperature measured visually. Use the critical value approach. State all the hypotheses.

With My Best Wishes