# ECEN321: Engineering Statistics

Assignment 9

Due: 9:00 a.m., Wednesday 10 June 2020

**Hypothesis Tests**

1. (Navidi 6.2.18) A shipment of fibres is not acceptable if the mean breaking strength of the fibres is less than 50 N. A large sample of fibres from this shipment was tested, and a 98% lower confidence bound for the man breaking strength was computed to be 50.1 N. Someone suggests using these data to test the hypothesis $H_0 : \mu \leq 50$ verses $H_1 : \mu > 50$

   (a) Is it possible to determine from the confidence bound whether $P < 0.01$? Explain.

   [1 mark]

   (b) Is is possible to determine from the confidence bound whether $P < 0.05$? Explain.

   [1 mark]

2. (Navidi 6.3.8) A grinding machine will be qualified for a particular task if it can be shown to produce less than 8% defective parts. In a random sample of 300 parts, 12 were defective. On the basis of these data, can the machine be qualified?

   [3 marks]

3. (Navidi 6.4.4) A certain manufactured product is supposed to contain 23% potassium by weight. A sample of 10 specimens of this product had an average percentage of 23.2 with a standard deviation of 0.2. If the mean percentage is found to differ from 23, the manufacturing process will be recalibrated.

   (a) State the appropriate null and alternate hypotheses

   [1 mark]

   (b) Compute the $P$-value

   [4 marks]

   (c) Should the process be recalibrated? Explain.

   [1 mark]