**MAT 458-HOMEWORK 1**

**Due: 02/05/2020**

**Problem # 1**

**A1)** Set up appropriate hypotheses for **H0** and **H1 are given by**

***H0* : = 225 vs *H1*: 225**

**A2) SAS Code:**

**/\*Problem 1\*/**

data elecinstruments;

input hours @@;

cards;

159 280 101 212

224 379 179 264

222 362 168 250

149 260 485 170

;

run;

/\*Part A2\*/

proc univariate data=elecinstruments plot normal;

var hours;

run;

data elecinstrumentsDiff;

input hours @@;

diff = hours-225;

cards;

159 280 101 212

224 379 179 264

222 362 168 250

149 260 485 170

;

run;

proc univariate data=elecinstrumentsDiff plot normal;

var diff;

run;

**C)** Run PROC Means with options Mean Var Stderr T PRT in the DIFF in (B2)

**SAS Code:**

data elecinstrumentsDiff;

input hours @@;

diff = hours-225;

cards;

159 280 101 212

224 379 179 264

222 362 168 250

149 260 485 170

;

run;

proc means data = elecinstrumentsDiff Mean Var Stderr T PRT;

var diff;

run;

**Problem # 2**

1. The hypothesis required is given by**:**

**H0: μ1 - μ2 = 0 vs H1: μ1 - μ2  0**

1. The Hypothesis to be tested is: **H0: vs H1:**

**SAS Code:**

**/\*Problem 2\*/**

data machines;

input type ounces @@;

cards;

1 16.03 1 16.01 1 16.04 1 15.96 1 16.05 1 15.98 1 16.05 1 16.02 1 16.02 1 15.99

2 16.02 2 16.03 2 15.97 2 16.04 2 15.96 2 16.02 2 16.01 2 16.01 2 15.99 2 16.00

;

run;

proc ttest data= machines sides=2 alpha=0.05 h0=0;

class type;

var ounces;

run;

**Class 2 codes**

**data** wafer;

Input order power rate @@;

cards;

04 160 575

05 160 542

08 160 530

13 160 539

14 160 570

06 180 565

09 180 593

16 180 590

17 180 579

18 180 610

01 200 600

07 200 651

10 200 610

19 200 637

20 200 629

02 220 725

03 220 700

11 220 715

12 220 685

15 220 710

;

**proc** **sort**;

by order;

**proc** **print**;

**run**;

**proc** **glm**;

class power;

model rate = power/p;

means power/HOVTEST=BARTLETT;

output out=wafer1 predicted=ypred residual=res;

**run**;

**proc** **Univariate** data=wafer1 plot normal;

var res;

**run**;

**proc** **plot** data=wafer1;

plot res\*ypred;

plot rate\*power;

plot res\*order;

**proc** **print**;

**run**;