IT3030 Quiz#4 2018.06.19 ID:____________________ Name:________________

[Write down the MATLAB commands you used.]

1. (50%) Week #17 slides – in-class practice problem 1.

After the outlier (the first data point) was removed, we have only 3 data points (1, 8), (3, 6) and (5, 4) only.

❶ Using MATLAB:

```
>> x=[1 3 5];y=[8 6 4];n=3;
>> [R,P]=corrcoef(x,y)
R =
     1    -1
    -1     1
P =
     1     0
     0     1
>>
```

The Pearson correlation coefficient is -1.

The p-value is zero.

❷ One can compute the t-value as -∞ (or –Inf in MATLAB) from knowing r=-1. This means the left-tail would have a size of zero (tcdf(t,n-2)=0). And doubling this would give a p-value = 0 too.

❸ The p-value is zero.

❹ This is smaller than prescribed alpha=0.05, so we'd reject the null hypothesis that no significant correlation exists between x and y. In other words, there exists significant correlation between the two.

2. (50%) Week #17 slides – in-class practice problem 2.

```
>> y=[80 344 416 348 262 360 332 34]';
>> x2=[19 55 81 115 56 51 68 8]';
>> x6=[53 67.5 72 72 73.5 68.5 73 37]';
>> A=[ones(size(x2)) x2 x6];
>> b=regress(y,A)
b =
  -266.3891
     1.0968
     7.3770
>>
```

So the regression would give y = -266.3891 + 1.0968*b2 + 7.3770*b6