Midterm II Stat 513-IE 530, Spring 2012

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section time:

1. To improve a stable process we use a designed experiment to model the quality characteristic as a function of two types of variables. What are they and define each one:

i.

ii.

2. Name two circumstances under which you would use an XmR chart instead of a p-chart with Binomial data:

i.

ii.

3. What are the assumptions for Poisson data?

4. For Poisson data with equal Areas of Opportunity:

i. When would you not use 3 sigma limits and why?

ii. What would you use for limits instead?

5. Why would a Moving Average chart not detect isolated Special Cause as well as an XmR chart?

6. How does Measurement System variation affect my ability to detect trends or a sustained shift in the process mean? Why?

7. How do Natural Process Limits compare to limits of an XmR chart?

8. For Binomial Data with very large sample sizes, why is it preferable to us an XmR chart instead of a p-chart?

9. How do the control limits for an XmR chart compare to those of a moving average chart and why?

10. The measured variance of a product has three components. What are they?