Control Chart Q&A

Look at each of the questions on this page and determine which Control Chart you would recommend for each. The answers and explanations are on the following two pages.

(1) Cycle time for a "Credit Check" process

(2) Percent cream content in milk bottles (comes in four-bottle container sets)

(3) Sales Hit Rate (Number of sales proposals that were won) reported each month

(4) Number of defects per square yard of cloth, where pieces of cloth may be of variable size

(5) Number of employee accidents per month

(6) Proportion of orders that were late coming out of Sales Dept. in daily samples of 100 orders.

(7) Percent defective parts in hourly production

(8) Number of surface blemishes in four-piece sets of coffee cups

(9) Length of screws in samples of size ten from production lots

1.) Cycle time for a "Credit Check" process
   Answer : Individual X & Moving Range Chart. Why? A) Continuous Data (Variables data)
   B) No reason to naturally put into subgroups
   NOTE: If we decided to use subgroups, the X-Bar and R chart would be appropriate.

2.) Percent cream content in milk bottles of 4-bottle sets:
   Answer: X-Bar & R Chart; Why? A) Continuous Data (Variables Data). NOTE: you are
   not counting items -- you are measuring cream as a weight or as a volume -- which makes
   it continuous data B) Subgroups of n=4   C) Use R chart instead of S chart because n=4 is
   less than 6 or 7. **CAUTION**: Many incorrectly believe that ALL "percentage" data must be
   continuous data. Remember that some proportions are based on counts and some are
   based on continuous measurements. Also, not all ratios are proportions.

3.) Sales Hit Rate (Number of sales proposals that were won) reported each month
   Answer: p-chart
   Why? A) Discrete data (Attributes data) B) Defective items (pass/fail) C) sample size is
   NOT likely to be constant every month.

4.) Number of defects per square yard of cloth where pieces of cloth may be of variable size =
Answer: U-Chart; Why? A) Discrete data (Attributes data) B) Defects or blemishes C) Area of opportunity is not constant because of changing cloth size.

5.) Number of employee accidents per month
Answer: U-Chart; Why? A) Discrete data (Attributes data) B) Defects or blemishes C) Area of opportunity is not constant because of changing size of a the time frame space for counting (some months are longer than others).

6.) Proportion of orders that were late coming out of Sales Dept. in daily samples of 100 orders:
A) Discrete data (Attributes data) B) Defective items (pass/fail) C) n=100 is constant sample size; **Answer**: np chart (p-chart okay, too, but more complex)

7.) % defective parts in hourly production: **Answer**: p-chart; Why? A) Discrete data (Attributes data) B) Pass/fail items C) Not constant sample size, since unlikely to see the same number of parts every hour.

8.) Number of surface blemishes in 4-piece sets of coffee cups: **Answer**: C-Chart; Why? A) Discrete data (Attributes data) B) Defects/blemishes C) Surface area of opportunity is constant.

9.) Length of screws in samples of size ten from production lots: **Answer**: X Bar & S Chart; Why? A) Continuous Data (Variables Data) B) Yes--Subgroups C) Yes--n=10 is greater than 6 or 7. D) No information given to suggest a need for easy math.