**UNIVERSITY OF ENGINEERING AND TECHNOLOGY TAXILA**

Department of Industrial Engineering

**FINAL TERM PAPER**

**OBJECTIVE**

**Course Name:** Metrology & Statistical Quality Control **Course Code:** IE 312

**Semester:** 5th (Entry 2011) **Course Instructor:** Engr. Zaheer Ahmad

Name: Time Allowed: 15 minutes

Roll #: Marks: 10

**MULTIPLE CHOICES: Circle the letter before the correct answer.**

**1-**What type of control chart would be used to monitor the number of defects in the output of a process?

1. X-bar chart.
2. P-control chart.
3. C-control chart.
4. R chart.
5. None of the Above

**2-** An x-bar chart is best suited for this type of data:

1. Count.
2. Attribute.
3. Measurement.
4. Variable
5. None of these.

**3-** Process capability calculations take into account the process width and:

1. Process standard deviation.
2. Process dispersion
3. Specifications
4. Control limits

**4-** Which type of variation occurs when a process is in control?

1. Attribute
2. Sampling
3. Assignable
4. Random

**5-** Acceptance sampling is used for all but which one of these?

1. Incoming raw material.
2. Final goods.
3. Incoming purchased parts.
4. Work-in-progress.

**6-** A sampling plan with a steep OC curve means that

1. There is a high tolerance for defective items.
2. The plan has a high degree of discrimination between good and bad lots.
3. There is a moderate tolerance for defective items.
4. Defective items are 20% of the total lot.
5. Non-defective items are 20% of the total lot.

**7-** The R-chart

1. Is always in control if the X-bar chart is in control.
2. Generally uses control limits set at plus or minus 2 standard deviations of the distribution, rather than plus or minus 3 which is commonly used on the X-bar chart.
3. Is used to measure changes in the central tendency.
4. Is used to indicate gains or losses in uniformity.

**8-** Twenty samples of size 5 are taken from a stable process. The average means of the sample means is 42.5, and the average range of the samples is 1.5. What is the UCL for the R-chart?

1. 1.5
2. 3.17
3. 43.37
4. 0.00

**9-**In acceptance sampling, the producer's risk is the risk of having a

1. bad lot accepted
2. good lot accepted
3. good lot rejected
4. bad lot rejected
5. All of the above

**10-** Process capability

1. Exists when CPK is less than 1.0.
2. Exists when the process is perfectly centered.
3. Means that the natural variation of the process must be small enough to produce products that meet the standard.
4. Cannot be measured.
5. None of the above