

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Questions 1–4: A quality control analyst for a lightbulb manufacturer is concerned that the time it takes to produce a batch of lightbulbs is too erratic. Accordingly, the analyst randomly surveys 5 production periods each day for 8 days and records the sample mean and range for each day.

Day	\bar{X} (in minutes)	R
1	13.6	3.5
2	14.3	4.1
3	15.3	5.0
4	12.6	2.8
5	11.8	3.7
6	12.9	4.8
7	17.3	4.5
8	15.8	2.4
Total	113.6	30.8

- Referring to the table, suppose the analyst constructs an R chart to see if the variability in production times is in-control. What is the upper control limit (UCL) for this R chart?
 - 8.14
 - 7.82
 - 7.18
 - 6.84
- Referring to the table, suppose the analyst constructs an R chart to see if the variability in production times is in-control. What is the lower control limit (LCL) for this R chart?
 - 0.86
 - 0.52
 - 3.85
 - 0.00
- Referring to the table, suppose the analyst constructs an \bar{X} chart to see if the production process is in-control. What is the upper control limit (UCL) and the lower control limit (LCL) for this chart?
 - 14.20 and 3.85
 - 16.42 and 11.98
 - 15.64 and 12.76
 - 15.39 and 12.03
- Referring to the table, suppose the analyst constructs an \bar{X} chart to see if the production process is in-control. Which expression best describes this chart?
 - increasing trend
 - decreasing trend
 - at least one point is outside of the control limits.
 - in-control

Question 5–7: A manufacturer of computer disks took samples of 100 disks on 6 consecutive days. The number of disks with bad sectors was determined for each of these samples. The results are in the table that follows.

Day	Sample Size	Bad
1	100	18
2	100	14
3	100	10
4	100	17
5	100	16
6	100	12

- The p control chart is to be made for these data. The proportion (center line) of the control chart is _____.
 - 0.8700
 - 0.1450
 - 14.5000
 - 87.0000
- The p control chart is to be made for these data. The upper control limit is _____, and the lower control limit is _____.
 - 0.2506; 0.0394
 - 0.1802; 0.1098
 - 0.1881; -.9972
 - 0.2475; 0.0126
- Referring to the table, suppose, which expression best describes this chart?
 - at least one point is outside of the control limits
 - a increasing trend is detected
 - a decreasing trend is detected
 - the process is in-control

- 8) For a process, the mean $\mu=64.5$ and the standard deviation $\sigma=1.2$. If the sample size 4 is provided, find the UCL and LCL for an \bar{X} chart.
- A) 65.1 and 63.9 B) 68.1 and 60.9 C) 65.4 and 63.6 D) 66.3 and 62.7
- 9) A process is said to be out of control if
- A) A point falls above the upper or below the lower control limit.
B) An upward or downward trend is detected.
C) Either of the above.
D) None of the above.

Answer Key

Testname: SAMPLE_QUIZ9.TST

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) A
- 2) D
- 3) B
- 4) C
- 5) B
- 6) A
- 7) D
- 8) D
- 9) C