

Quality Control Review Test

Name : _____ Date: _____

Part 1:

1. The main programs of the quality assurance department are:
 - a. Risk management, in-service and continuing education, safety programs, quality control and peer review.
 - b. Human resources, national laboratory week committee, and quality control documentation.
 - c. Diversity, red ribbon week, and health and safety education.
 - d. Laboratory operations, research and development.

2. Statistical methods commonly used to evaluate quality control data in the clinical lab is/are:
 - a. T-test, z-test, and F-test.
 - b. Numerical statistics and graphic techniques.
 - c. Regression analysis and Pearson's correlation coefficient
 - d. X^2 (chi-square) tests.

3. Precision of a method is best defined as:
 - a. Agreement between replicate measurements obtained from the sample analyzed by the test method under prescribed conditions.
 - b. Allowable bias.
 - c. Accuracy.
 - d. Closeness of the agreement between the result of the measurement and a true value of the measured

4. Systematic error causes:
 - a. Shifts and trends on control (Levey Jennings) charts.
 - b. Outliers on control charts.
 - c. Random error.
 - d. Imprecision.

5. Select one example of the postanalytic phase:
 - a. Specimen preparation
 - b. Specimen analysis
 - c. Clinician receives the test result
 - d. Specimen collection

Part 2:

1. Calculate the mean of the following set of numbers, **SHOW YOUR WORK:**
25,22,26,24,21,29,26,20,28,23

Mean: _____

2. Calculate the variance from the above values, **SHOW YOUR WORK.**

X	X - Mean	(X - Mean)²
25		
22		
26		
24		
21		
29		
26		
20		
28		
23		
TOTAL		

Variance: _____

3. Calculate the standard deviation from the above values, **SHOW YOUR WORK.**

4. Calculate the mean of the following values, **SHOW YOUR WORK:**
82,85,90,86,91,90,81,86,94,89.

Mean: _____

5. Calculate the variance from the above values (question 4), **USE THE FOLLOWING TABLE.**

X	X - Mean	(X - Mean) ²
82		
85		
90		
86		
91		
90		
81		
86		
94		
89		
TOTAL		

Variance: _____

6. Calculate the standard deviation from the above values, **SHOW YOUR WORK.**

Part 3:

1. Your lab manager asks you to create the new control range for the new lot of hematology control level 1. The following 20 hemoglobin values are gathered to determine the control limits. Using a calculator or website SD function, calculate and record the mean, the standard deviation, and the 95% confidence interval for this set of values.

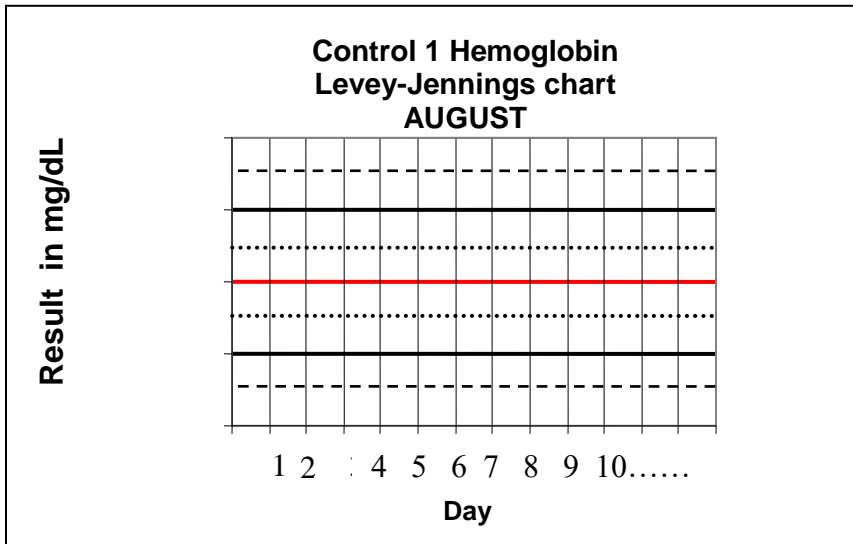
4.2	4.6	4.6
4.7	4.7	4.0
4.3	4.9	4.4
4.4	5.0	4.5
4.0	4.1	4.8
4.9	4.2	4.4
4.7	4.7	

Mean: _____ 1 SD: _____ 95% Confidence range: _____

2. Given the results above, label the following Levey-Jennings Control chart with all of the following:

Mean

Values for -3SD, -2SD, -1SD, +1SD, +2SD, +3SD



3. You have your Levey-Jennings Control chart ready. Your supervisor tells you to begin using the lot. Record the first 10 days of Control 1 Hemoglobin results. In your lab, you run controls once per day because you are a clinic open from 8-5pm. Plot each data point on your labeled chart and circle whether the controls are acceptable or “out.”

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Day	Value	In or Out	Day	Value	In or Out
1	4.5		6	4.8	
2	4.2		7	4.4	
3	4.1		8	4.4	
4	4.6		9	4.2	
5	4.7		10	4.9	

4. You run a normal serum glucose control and obtain a value of 78.4 mg/dL. The mean for this control is 74.8 mg/dL and 1 SD has been calculated as 1.2. Is the value of 78.4 within 2SD (95% confidence interval)? Circle the correct answer. YES NO