

IASSC

Exam Questions ICBB

IASSC Certified Lean Six Sigma Black Belt



NEW QUESTION 1

A Belt has determined that the inventory of repair parts at a rework station can be reduced by 45%. According to Cost of Poor Quality (COPQ) definitions inventory reduction would be considered _____.

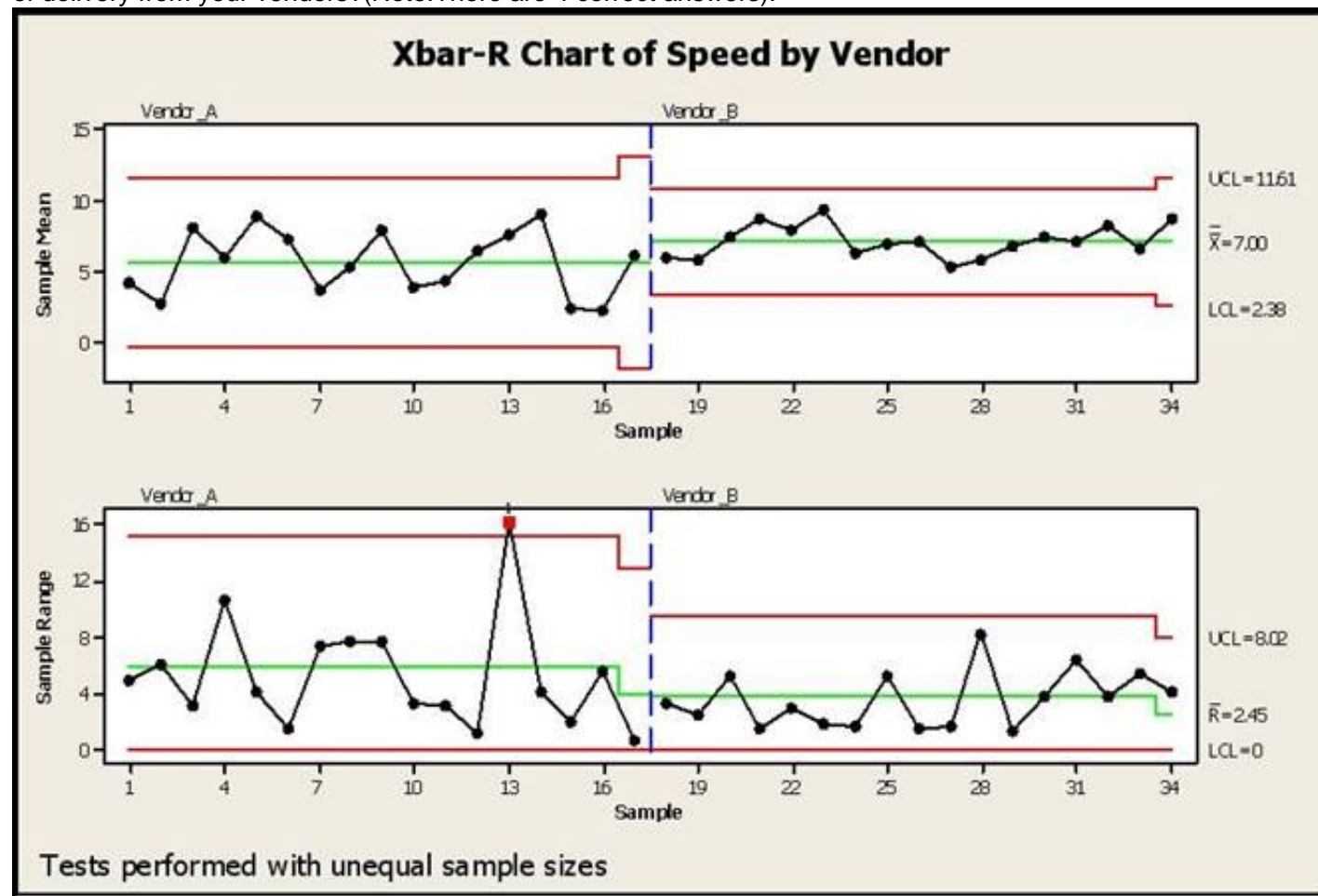
- A. Soft Savings
- B. COPQ efficiency
- C. Median Savings
- D. Hard Savings

Answer: D

NEW QUESTION 2

SPC Charts are used extensively in different business and decision-making environments.

In this example a vendor is being selected based on speed of delivery. Which of the conclusions would help you pick a vendor for your needs regarding lead-time of delivery from your vendors?(Note:There are 4 correct answers).



- A. Vendor A with a much shorter lead time in delivery
- B. Vendor B as it has a better consistency (lower variance) on lead time
- C. Vendor B since Vendor A shows a situation out of control as shown in red
- D. Vendor B since the Control Limits are much narrower than Vendor A
- E. Vendor B has higher lead time, but a process with much narrower Control Limits

Answer: BCDE

NEW QUESTION 3

Which of these graphs demonstrates conditions which would be sufficient to enable OCAP for the process?

- A. Xbar Chart
- B. Time Series Chart
- C. Neither
- D. Both

Answer: A

NEW QUESTION 4

When we gather information for the Voice of the Business we are primarily interested in information concerning the _____ of the business.

- A. Advertising budget
- B. Market share
- C. Profitability
- D. Ownership

Answer: C

NEW QUESTION 5

A Belt working in a supply chain environment has to make a decision to change suppliers of critical raw materials for a new product upgrade. The purchasing manager is depending on the Belt's effort requiring that the average cost of an internal critical raw material component be less than or equal to \$4,200 in order to stay within budget. Using a sample of 35 first article components, a Mean of the new product upgrade price of \$4,060, and a Standard Deviation of \$98 was

estimated. The Alternative Hypothesis in the above example is?

- A. The Standard Deviation is equal to \$300.
- B. The Mean is less than \$4,320.
- C. The Mean is equal to \$4,060.
- D. The Mean is less than \$4,200.
- E. The Mean is greater than \$ 4,200.

Answer: E

NEW QUESTION 6

For the data shown here which statement(s) are true?(Note:There are 2 correct answers).

Grade A	Grade B	Grade C
0.917	1.1	0.63
0.68	0.173	4.17
1.74	0.24	0.6
0.3	0.67	0.84
0.33	6.94	0.22
4.13		

- A. With 95% confidence, we cannot conclude if the samples are from three Normal Distributions.
- B. With greater than 95% confidence, we conclude the samples are from Non-normal Distributions.
- C. If we wanted to compare the Central Tendencies of these three samples we would use the one way ANOVA test.
- D. If we wanted to compare the Central Tendencies of these three samples we could use Mood's Median test.

Answer: BD

NEW QUESTION 7

A Full Factorial experiment using a 3 level 3 factor approach has been proposed to test the viability of an extrusion machine experiment. How many treatment combinations will this approach involve?

- A. 6
- B. 9
- C. 27
- D. 54

Answer: C

NEW QUESTION 8

A Process Map is created in order that a Belt can _____.

- A. Follow the product to the end
- B. Get the line people's names correct
- C. Capture all the activities comprising the process
- D. Manage the input inventory delivery schedule

Answer: C

NEW QUESTION 9

Control Charts were developed by Dr. Shewhart to track data over time. To detect Special Cause variation the Control Charts use which of these?

- A. Data shift analysis
- B. Outlier analysis methods
- C. Center Line and Control Limits
- D. None of the above

Answer: C

NEW QUESTION 10

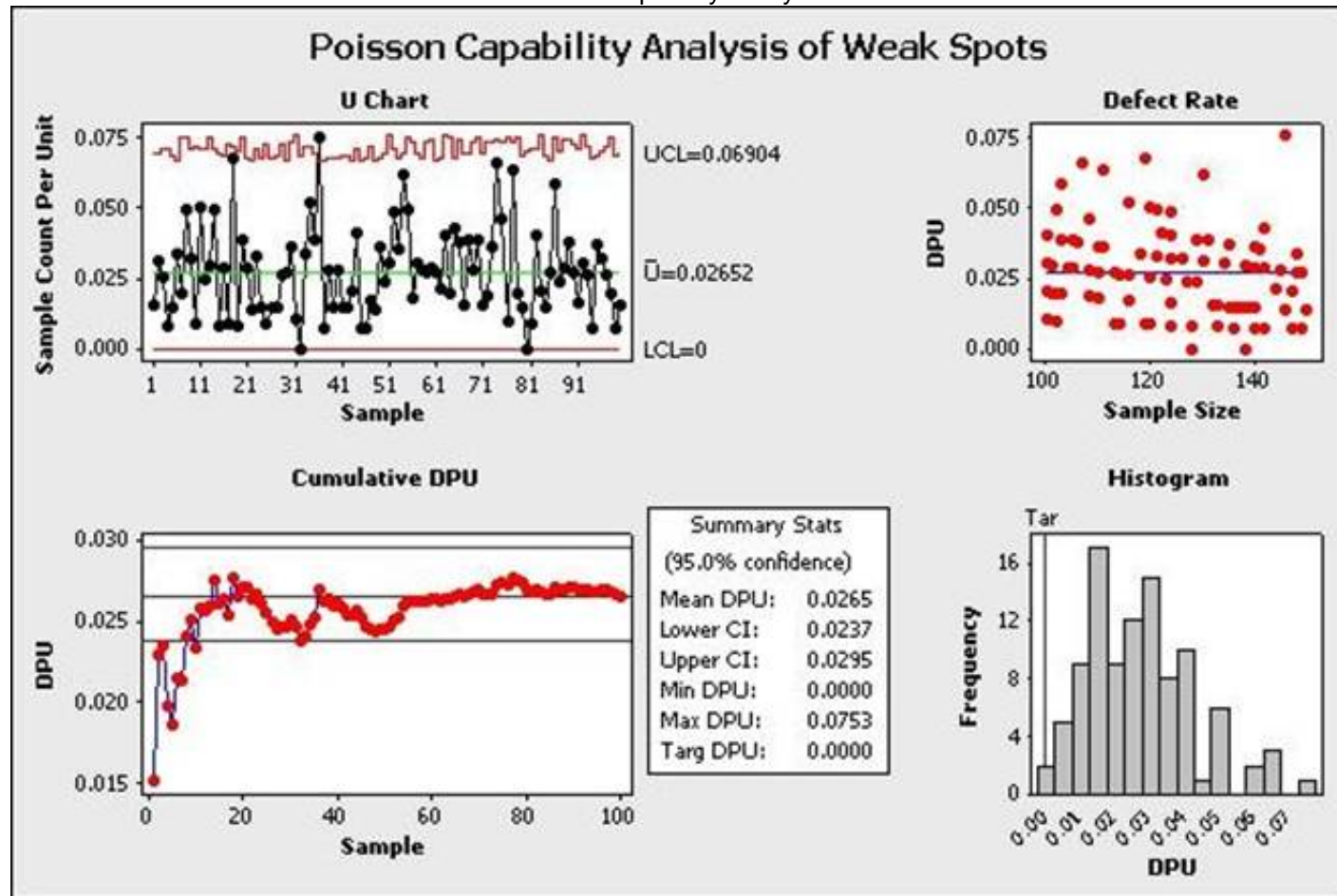
Which of these graphical presentations displays the values of each individual reading?

- A. Histogram
- B. Box Plot
- C. Stem and Leaf Plot
- D. X-Y Diagram

Answer: C

NEW QUESTION 10

Which statements are correct about the advanced Capability Analysis shown here?



(Note: There are 3 correct answers).

- A. This is a Poisson Capability Analysis.
- B. The average DPU with 95% confidence is between 0.024 and 0.0295.
- C. The DPU does not seem to vary depending on sample size.
- D. The process shows only one instance of being out of control statistically so we have confidence in the estimated DPU of this process.
- E. The maximum DPU in one observation was nearly 0.0753.

Answer: BCE

NEW QUESTION 15

A Belt working in a supply chain environment has to make a decision to change suppliers of critical raw materials for a new product upgrade. The purchasing manager is depending on the Belt's effort requiring that the average cost of an internal critical raw material component be less than or equal to \$3,600 in order to stay within budget. Using a sample of 42 first article components, a Mean of the new product upgrade price of \$3,200 and a Standard Deviation of \$180 was estimated. Based on the data provided, the Z value for the data assuming a Normal Distribution is?

- A. 1.11
- B. 2.22
- C. 4.30
- D. 5.42

Answer: B

NEW QUESTION 16

If you can Poka-Yoke a defect out of the process entirely then you do not need use SPC on the characteristic of interest in the defect.

- A. True
- B. False

Answer: A

NEW QUESTION 20

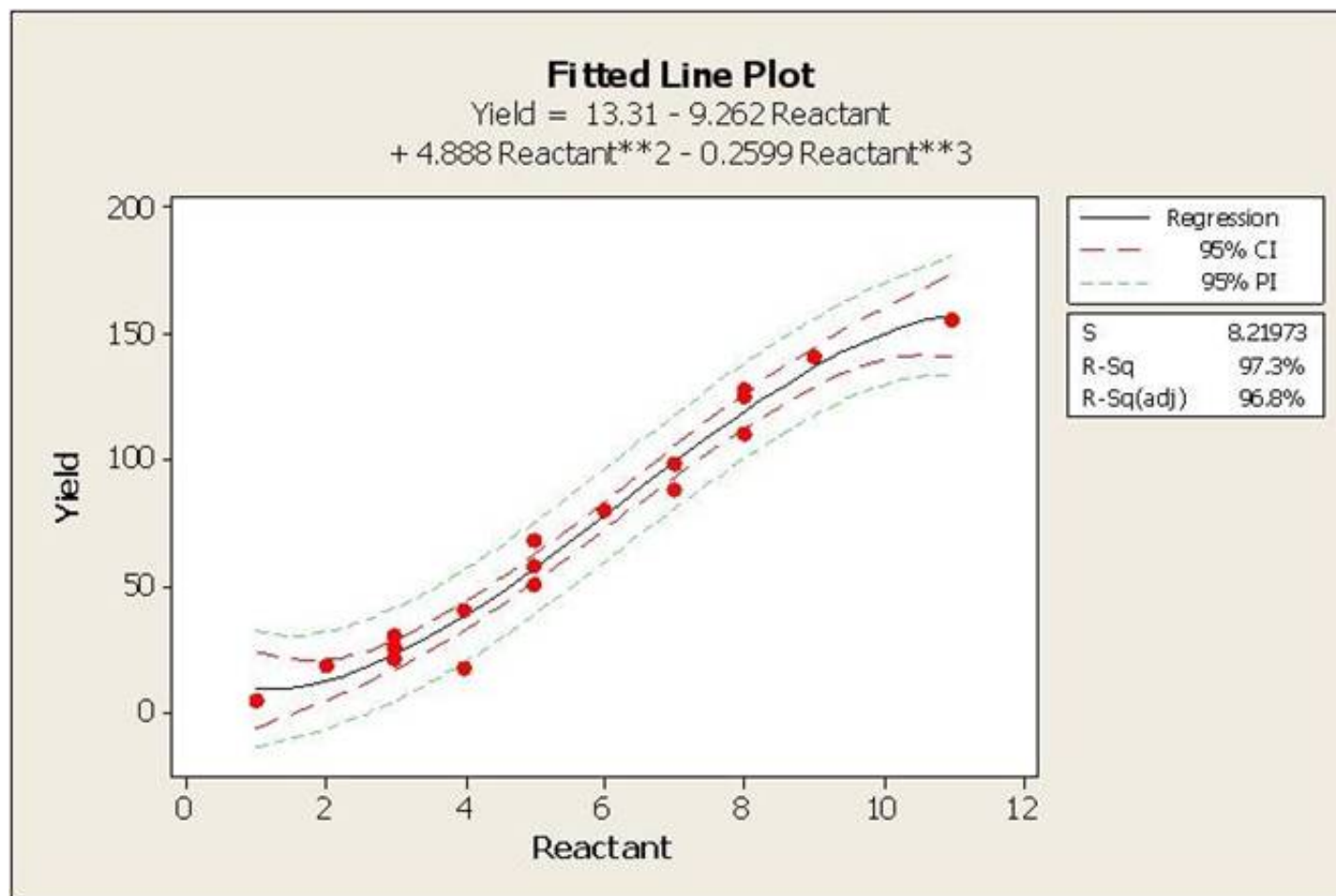
Data that can be measured on a continuum and has meaningful decimal subdivisions are _____ data.

- A. Continuous
- B. Surplus
- C. Discrete
- D. Variable

Answer: A

NEW QUESTION 23

Which statement is NOT correct about the Fitted Line Plot shown here?



- A. The independent variable is the reactant
- B. If the reactant was 6 units, with 95 % confidence we would expect a minimum yield of 100 units
- C. With at least 95% confidence, we can expect less than 10 units of Yield when the reactant is at a value of 1
- D. A reactant value between 2 and 4 units yields around 20 to 40
- E. When the reactant increases, the expected yield would increase

Answer: D

NEW QUESTION 24

Situations where standardized work needs to be incorporated include all of these except _____ .

- A. Changeover instructions incomplete
- B. Lack of a system to assure proper inventory levels at repair stations
- C. Machines continually operating to reduce the labor cost per piece
- D. Process flow for the same product assembly taking various cycle time for completion

Answer: C

NEW QUESTION 26

A valuable tool to use during the Measure Phase to show material and information flow throughout an entire process is the _____ .

- A. Value Stream Map
- B. FMEA
- C. Pareto Chart
- D. Standard Operating Procedure

Answer: A

NEW QUESTION 27

If the production is for higher volume and monitoring and the Mean and variability is to be monitored for four machines producing product and the characteristic to be monitored is Variable Data, which SPC Chart is best to be selected?

- A. Xbar-R Chart
- B. Individual-MR Chart
- C. NP Chart
- D. CUSUM Chart

Answer: A

NEW QUESTION 30

Those people who have a interest in the outputs of a process are known as _____ .

- A. Stakeholders
- B. Senior management
- C. Co-workers
- D. Process owners

Answer: A

NEW QUESTION 34

Statistical Difference is the magnitude of difference or change required to distinguish between a true difference, brought about by change or improvement, and one that could have occurred by chance.

- A. True
- B. False

Answer: A

NEW QUESTION 35

A Belt rearranged the location of the parts inventory for a rework station locating the most often used parts to be within hand reach of the repair person. This rearrangement resulted in quicker repair times by eliminating one of seven major elements of waste which is the Waste of _____ .

- A. Motion
- B. Conveyance
- C. Inventory
- D. Waiting

Answer: A

NEW QUESTION 40

For her injection molding project a Belt needed to track the percentage of defectives of a particular sample set so she used a _____ to display the data?

- A. Individual Chart
- B. C Chart
- C. Xbar Chart
- D. P Chart

Answer: D

NEW QUESTION 43

An operator is measuring the distance between two points. Which is most likely to be influenced by the operator?

- A. Precision of the measurement
- B. Accuracy of the measurement
- C. Calibration of the instrument
- D. All of these answers are correct

Answer: D

NEW QUESTION 46

An ANOVA used across many dependent variables could increase the Beta risk.

- A. True
- B. False

Answer: B

NEW QUESTION 50

Range Charts are the technique used to determine if _____ are occurring within the subgroups of the SPC Charts.

- A. Common Causes
- B. Special inspections
- C. Unnatural forces
- D. Special Causes

Answer: D

NEW QUESTION 55

Which of these items are not part of what is necessary for successful Kaizens?

- A. Good lighting
- B. Management support
- C. Operator support
- D. Analysis tools

Answer: A

NEW QUESTION 59

Cost of Poor Quality (COPQ) can be classified as Visible Costs and Hidden Costs. Which of these items is a Visible Cost?

- A. Lost Customer Loyalty
- B. Time Value of Money
- C. Returns
- D. Late Delivery

Answer: C

NEW QUESTION 64

The validity of the decision made with Hypothesis Testing is dependent upon all of these except _____ .

- A. Beta risk
- B. Alpha risk
- C. Range of data
- D. Sample size

Answer: C

NEW QUESTION 67

The calculation of Column Total times Row Total divided by Grand Total yields expected values from what type of chart?

- A. Pareto Chart
- B. Sakami Table
- C. Contingency Table
- D. None

Answer: C

NEW QUESTION 69

Using this partial Z Table, how many units from a month's production run are expected to not satisfy customer requirements for the following process?
Upper specification limit: 7.2 Lower specification limit: 4.3 Mean of the process: 5.9 Standard Deviation: 0.65 Monthly production: 450 units

- A. 3
- B. 7
- C. 10
- D. 12

Answer: C

NEW QUESTION 71

A Non-parametric Test should be used if just one distribution is not Normal out of the two or more gathered.

- A. True
- B. False

Answer: A

NEW QUESTION 76

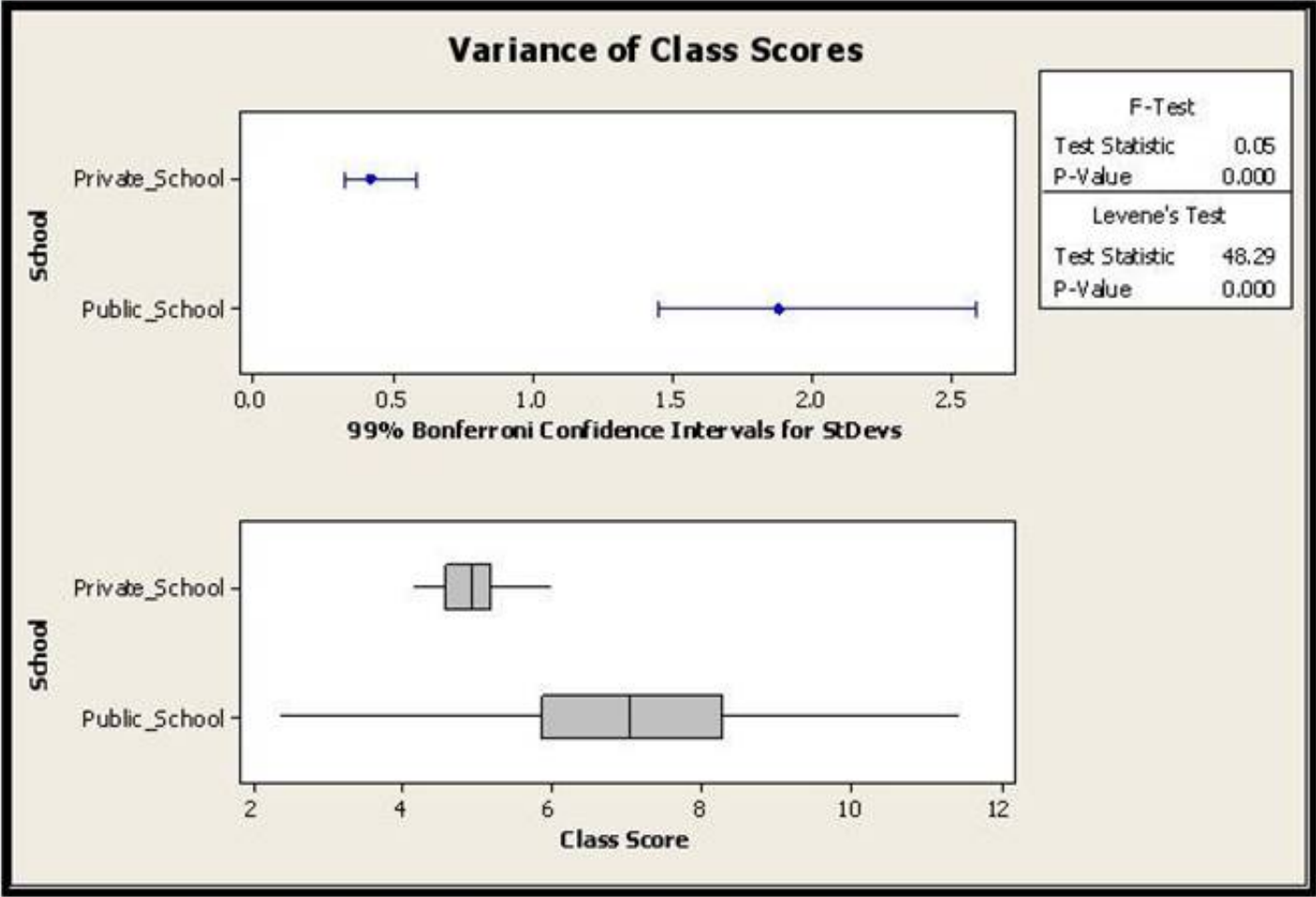
The English words used for the 5S's are _____, _____, Shining, Standardizing and Sustaining.(Note:There are 2 correct answers).

- A. Shaping
- B. Sorting
- C. Shifting
- D. Straightening

Answer: BD

NEW QUESTION 80

From the variance F-test shown above, which of these conclusions is/are valid?



Test for Equal Variances: Class Score versus School

99% Bonferroni confidence intervals for standard deviations

School	N	Lower	StDev	Upper
Private_School	50	0.32753	0.42210	0.58233
Public_School	50	1.45338	1.87303	2.58404

F-Test (Normal Distribution)
Test statistic = 0.05, p-value = 0.000

- A. The variance between the class score distribution is not significantly different
- B. This test applies only to Normal Distributed data at 99 % confidence
- C. The variance between the class score distribution is significantly different
- D. There are not enough data points to make any statistical conclusions

Answer: C

NEW QUESTION 83

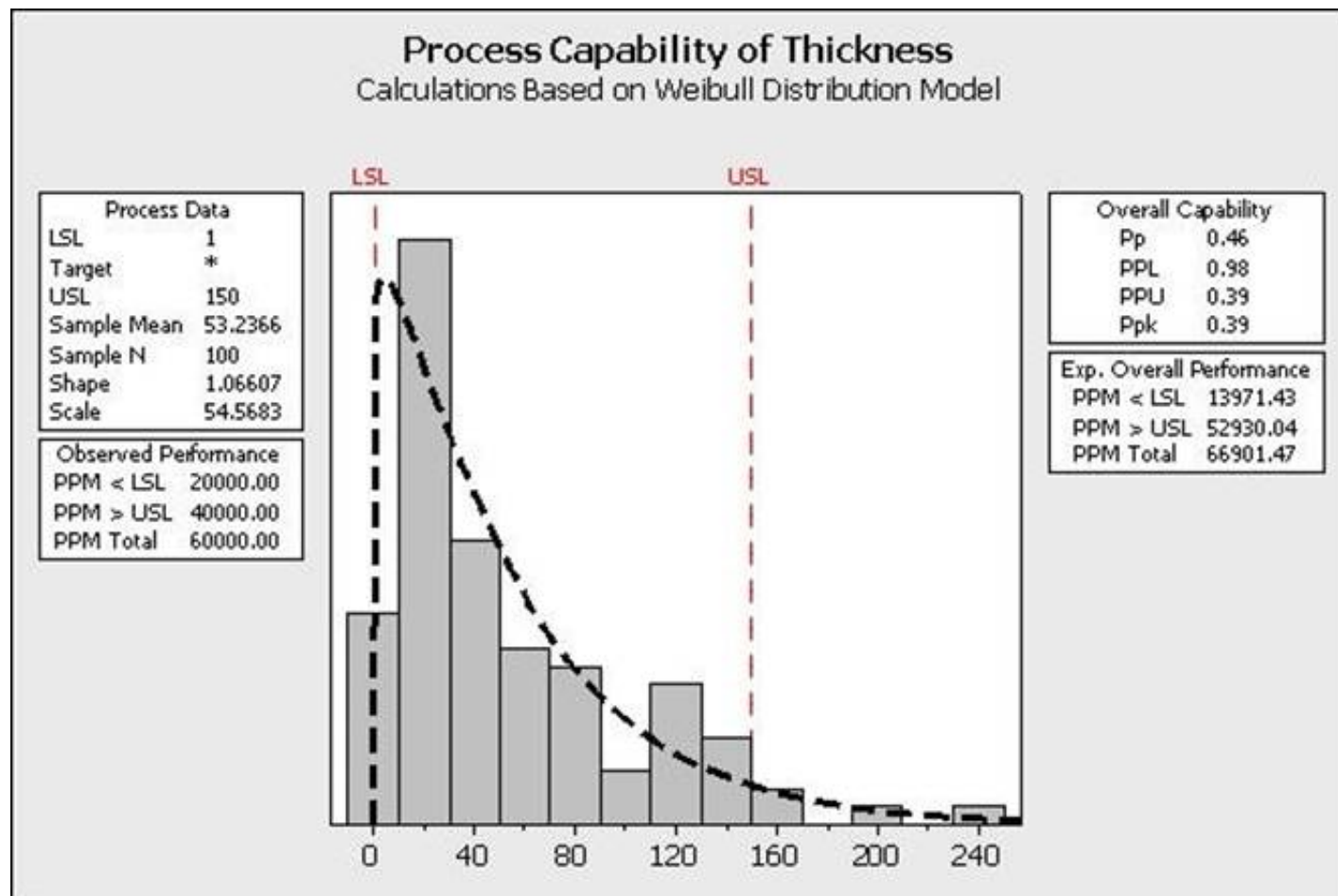
Time is always the metric on the horizontal scale of a(n) _____ Chart .

- A. Pareto
- B. Xbar
- C. Multi-Vari
- D. NP

Answer: C

NEW QUESTION 85

Review the analysis shown here.



Which statements are true about the process?(Note:There are 3 correct answers).

- A. The initial focus for this project would be to determine why the thicknesses are so frequently too low.
- B. The majority of the process is closer to the lower specification limit.
- C. This process is described with the Weibull Distribution.
- D. The process has more problems with Variation than Centering.
- E. The process follows a non-normal distribution with the given data.

Answer: BDE

NEW QUESTION 89

The relationship between a response variable and one or more independent variables is investigated and modeled by use of which of these?

- A. X-Y Matrix
- B. Baldrige Assessment
- C. Critical X's Definition
- D. Analysis of Variance (ANOVA)

Answer: D

NEW QUESTION 91

When one speaks of 20% of something contributing 80% of the affect they are referring to what is known as the _____.

- A. Shewhart Example
- B. Pareto Principle
- C. Balance Equation
- D. Connection Principle

Answer: B

NEW QUESTION 96

With Measurement System Analysis we are concerned with two issues that impact the potential variability of the data. They are _____.

- A. Precision and Accuracy
- B. Reliability and Repeatability
- C. Error and Spread
- D. Sensitivity and Deflection

Answer: A

NEW QUESTION 98

An example of the waste of mismanaged Inventory is _____.

- A. Capital costs of money
- B. Value decrease from aged inventory
- C. Cost of storage space
- D. All of these answers are correct

Answer: D

NEW QUESTION 100

Early in a project a Belt will want to begin to identify and evaluate risk factors for the subject process and will therefore begin building a(n) _____.

- A. FMEA
- B. SIPOC
- C. X-Y Diagram
- D. Team Charter

Answer: A

NEW QUESTION 105

In a Fishbone Diagram the 6M's stand for Methods, Measurements, Machine, Man, Mother Nature and _____.

- A. Management
- B. Merger
- C. Materials
- D. Medical

Answer: C

NEW QUESTION 109

The Japanese born function of a Kanban event utilizes a specific, step-by-step approach meant to bring about major changes to a process.

- A. True
- B. False

Answer: B

NEW QUESTION 113

Assessing process proportion as opposed to evaluating a process with respect to a set target can be done using one or more of these.(Note:There are 2 correct answers).

- A. Process proportion equals some desired value
- B. Process proportion equals some value range
- C. Target is current
- D. When we deal with Attribute type data
- E. Proportion of the tail is equal

Answer: AD

NEW QUESTION 118

Contingency Tables are used to test for association, or dependency, between two or more classifications.

- A. True
- B. False

Answer: A

NEW QUESTION 121

Six Sigma is a business improvement discipline whose fundamental view is based on a _____ oriented approach of the business.

- A. Profit
- B. Performance
- C. Process
- D. Predatory

Answer: B

NEW QUESTION 124

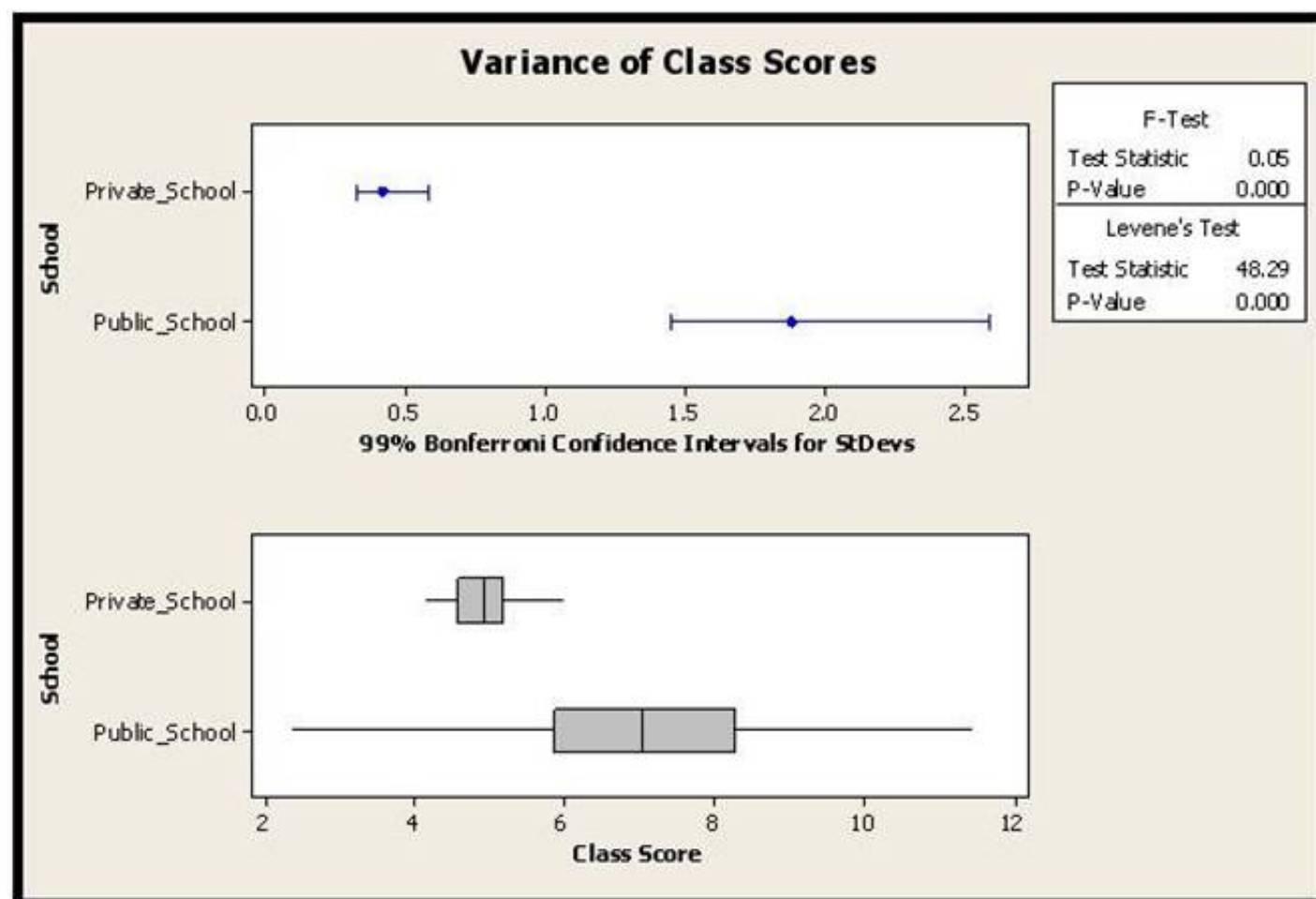
Of the various types of data shown which is NOT representative of Variable Data.

- A. Child's height is 4 foot 3 inches
- B. Three employees wore hard hats
- C. Car burned 2.7 gallons of gasoline
- D. Train was going 140 kilometers per hour

Answer: B

NEW QUESTION 127

From the variance F-test shown above, which of these conclusions is/are valid?



Test for Equal Variances: Class Score versus School

99% Bonferroni confidence intervals for standard deviations

School	N	Lower	StDev	Upper
Private_School	50	0.32753	0.42210	0.58233
Public_School	50	1.45338	1.87303	2.58404

F-Test (Normal Distribution)

Test statistic = 0.05, p-value = 0.000

- A. The variance between the class score distribution is significantly different
- B. The variance between the class score distribution is not significantly different
- C. This test applies only to Normal Distributed data at 99 % confidence
- D. This test applies only to Non-normal Data at 99 % confidence
- E. There are not enough data points to make any statistical conclusions

Answer: A

NEW QUESTION 131

Measurement _____ is defined as the difference between the observed and the expected values for a given set of data.

- A. Bias
- B. Linearity
- C. Range
- D. Breadth

Answer: A

NEW QUESTION 136

It would be more likely than not for a Belt conducting a Regression Analysis to find that the_____.

- A. r^2 value is smaller than the absolute value of r
- B. Correlation Coefficient equals r^2
- C. Coefficient of Determination is less than r^2
- D. Correlation Coefficient equals r divided by 2

Answer: A

NEW QUESTION 139

A Belt working in a supply chain environment has to make a decision to change suppliers of critical raw materials for a new product upgrade. The purchasing manager is depending on the Belt's effort requiring that the average cost of an internal critical raw material component be less than or equal to \$2,800 in order to stay within budget. Using a sample of 55 first article components, a Mean of the new product upgrade price of \$2,240 and a Standard Deviation of \$120 was estimated. Based on the data provided, the Z value for the data assuming a Normal Distribution is?

- A. 2.33
- B. 4.67
- C. 6.48
- D. 8.28

Answer: B

NEW QUESTION 142

A Belt working in a supply chain environment has to make a decision to change suppliers of critical raw materials for a new product upgrade. The purchasing manager is depending on the Belt's effort requiring that the average cost of an internal critical raw material component be less than or equal to \$3,800 in order to stay within budget. Using a sample of 38 first article components, a Mean of the new product upgrade price of \$3,680, and a Standard Deviation of \$120 was estimated. In order to increase the Long Term Z value to 5, what is the maximum long term variation in pricing the Belt can accept for his upgraded critical raw material component?

- A. \$6
- B. \$12
- C. \$24
- D. \$48

Answer: C

NEW QUESTION 146

A Belt is analyzing data and upon creation of the graphical analysis sees multiple modes. One of the primary reasons this could occur is because the process has experienced a _____.

- A. Significant change from one shift to another
- B. Sizable Measurement System error
- C. Catastrophic failure of some sort
- D. Any one of these

Answer: D

NEW QUESTION 151

From this list select the items that define what an X-Y Diagram is.(Note:There are 4 correct answers).

- A. Created for every project
- B. Based on team's collective opinions
- C. Updated whenever a parameter is changed
- D. Used to show each step in a process
- E. A living document throughout project lifecycle

Answer: ABCE

NEW QUESTION 156

Sally and Sara sell flower pots at their garage sale. Sally motivates Sara mentioning that they will sell a minimum of 22 pots per day if the outside temperature exceeds 60o F. From a sample, whose population is assumed to follow a Normal Distribution, taken for 30 days at 60 degrees or more an average of 18.2 pots per day were sold with a Standard Deviation of 0.9 pots. What is the Z value for this sales process?

- A. 1.23
- B. 1.62
- C. 2.11
- D. 4.22

Answer: D

NEW QUESTION 158

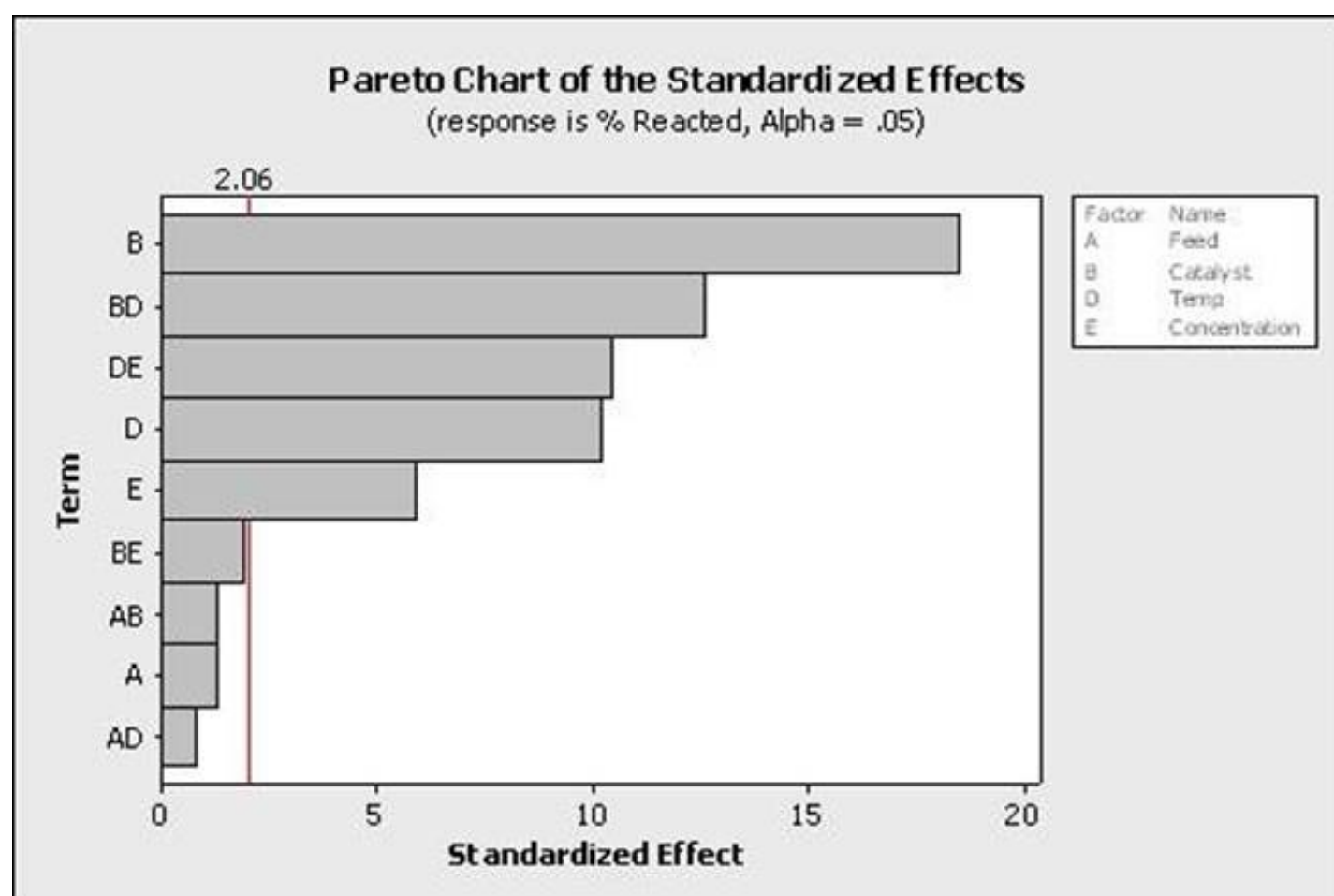
Early in a project a Belt will want to begin to identify and evaluate risk factors for the subject process and will therefore begin building a(n) _____ .

- A. SIPOC
- B. FMEA
- C. Business Case
- D. Team charter

Answer: B

NEW QUESTION 161

Which statement(s) are correct about the Pareto Chart shown here for the DOE analysis?(Note:There are 2 correct answers).



- A. It is unknown from this graph how many factors were in the Experimental Design
B. The factors to keep in the mathematical model are E, D, DE, BD and B with an alpha risk equal to 2.06
C. The effects to keep in the mathematical model are E, D, DE, BD and B with an alpha risk equal to 0.05
D. The factors to keep in the mathematical model with a 5% alpha risk are BE, AB, A and AD

Answer: AC

NEW QUESTION 166

Following the completion of a LSS project the Belt not only creates a Control Plan he also develops a _____ so those involved in the process know what to do when the critical metrics move out of spec.

- A. Response Plan
B. Call List
C. Chain-of-Command
D. Defect Analysis Plan

Answer: A

NEW QUESTION 168

The Central Limit Theorem says that as the sample size becomes large the sample Mean distribution will form a Normal Distribution, _____.

- A. If the Measurement System is properly calibrated
B. When the data is collected accurately
C. If the shape is evenly spread
D. No matter what the shape of the population distribution of individuals

Answer: D

NEW QUESTION 170

When a Belt Poka-Yoke's a defect out of the process entirely then she should track the activity with a robust SPC system on the characteristic of interest in the defect as an early warning system.

- A. True
B. False

Answer: B

NEW QUESTION 175

Common and _____ Cause Variation are the focus of Statistical Process Control.

- A. Uncommon
B. Ordinary
C. Special
D. Selective

Answer: C

NEW QUESTION 177

When we compare short-term and long-term Capability which of these is true?

- A. Cp is better for the short term
- B. Both short-term and long-term performance are alike
- C. Performance tends to improve over time
- D. Cp is better for the long-term

Answer: A

NEW QUESTION 182

Statistical Difference is the magnitude of difference or change required to distinguish between a true difference, brought about by change or improvement, and one that could have occurred by chance.

- A. True
- B. False

Answer: A

NEW QUESTION 185

For a Normal Distribution as samples size increases the Range in Mean and Standard Deviation decrease relative to the Mean and Standard Deviation of the population.

- A. True
- B. False

Answer: A

NEW QUESTION 189

Much of the Six Sigma methodology is used to identify and remove causes for _____.

- A. Process Variation
- B. Material Costs
- C. Excess Inventory
- D. Lost Sales

Answer: A

NEW QUESTION 190

The primary objective in removal of waste is to improve the Order Production Cycle where the time from _____ to the time of receipt of payment is compressed.

- A. Shift start
- B. Product development
- C. Receipt of an order
- D. New fiscal year

Answer: C

NEW QUESTION 192

Relative to a Design of Experiments the term Collinear refers to variables being a _____ of each other.

- A. Linear combination
- B. Directly parallel
- C. Mirror image
- D. None of the above

Answer: A

NEW QUESTION 196

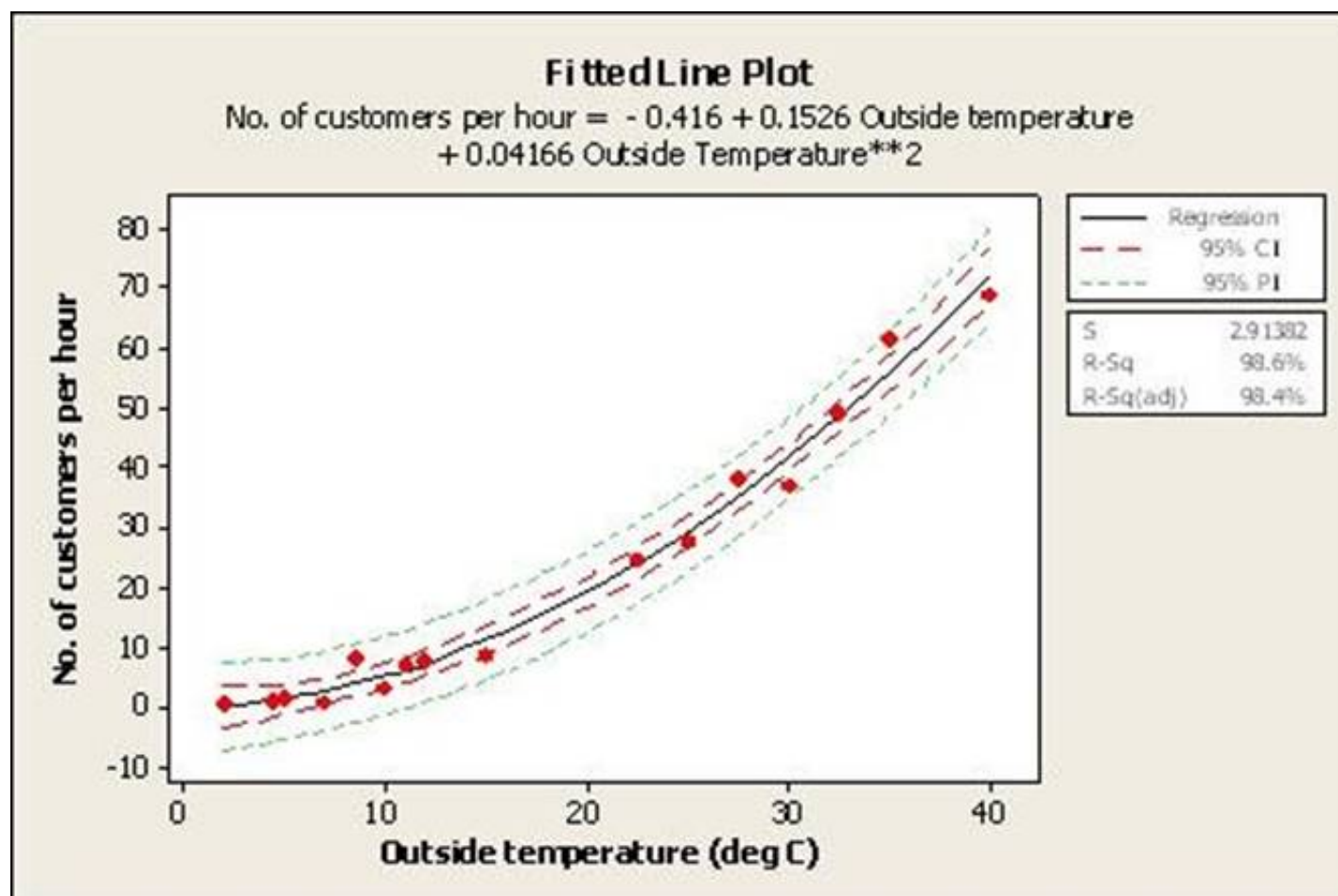
What is the Ppk of a process with a spread of 24 units, an average of 68, an upper limit of 82 and a lower limit of 54?

- A. 1.68
- B. 2.00
- C. 4.00
- D. 4.42

Answer: C

NEW QUESTION 200

Which statement(s) are correct about the Regression shown here?(Note:There are 2 correct answers).



- A. The dependent variable is the outside temperature
- B. The relationship between outside temperature and number of customers per hour is a Linear Regression
- C. The dashed lines indicate with 95% confidence where all of the process data should fall between
- D. The dashed lines indicate with 95% confidence the estimate for the Quadratic Regression Line
- E. The predicted number of customers per hour is close to 5 if the outside temperature is 10 deg C

Answer: DE

NEW QUESTION 205

If an experiment has 5 factors and no replicates for a 2-level Experimental Design with 16 experimental runs which statement(s) are correct?(Note:There are 3 correct answers).

- A. The Main Effects for the 5 factors are not aliased or confounded but the 2-way interactions are confounded with the 3-way interactions
- B. The Main Effects are confounded with only 4-way interactions
- C. The Experimental Design is half-fractional
- D. The experiment has 8 experimental runs with the first factor at the high level
- E. The experiment has only 4 experimental runs with the 5th factor at the high level

Answer: BCD

NEW QUESTION 207

Following process modifications, the Null Hypothesis states that no improvement to the process has occurred. If we discover the Null Hypothesis Test was rejected when it was false that would be a(n) _____.

- A. Type I Error
- B. Type II Error
- C. Type III Error
- D. Alpha Error

Answer: B

NEW QUESTION 211

Screening experiments are the proper choice when a Belt is faced with the situation of highly Fractional Factorial Designs.

- A. True
- B. False

Answer: A

NEW QUESTION 213

When analyzing the behavior of our process to assess customer satisfaction we are concerned about both the variation such that it stays within the spec limits and how well the Mean is _____ the process requirements.

- A. Balanced against
- B. Over and above
- C. Twice as great as
- D. Centered relative to

Answer: D

NEW QUESTION 216

The Hardware Store ordered ten lawn mower from the manufacturer and just before shipping the manufacturer found one to have a motor that wouldn't start. For the manufacturer this would be categorized as what type of cost?

- A. Internal Failure Costs
- B. External Failure Costs
- C. Prevention Costs
- D. Appraisal Costs

Answer: A

NEW QUESTION 217

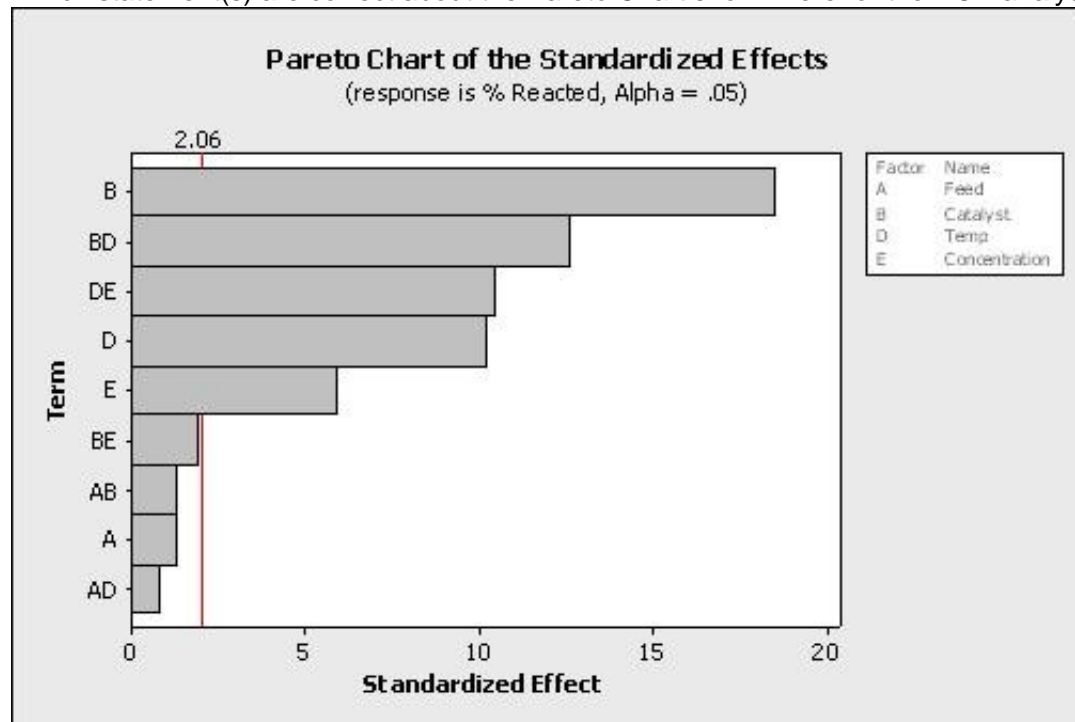
If an experiment has 5 factors and no replicates for a 2-level Experimental Design with 16 experimental runs which statement is incorrect?

- A. The Experimental Design is half-fractional
- B. The Main Effects are confounded with only 4-way interactions
- C. The Main Effects for the 5 factors are not aliased or confounded but the 2-way interactions are confounded with the 3-way interactions
- D. The experiment has 8 experimental runs with the first factor at the high level

Answer: C

NEW QUESTION 220

Which statement(s) are correct about the Pareto Chart shown here for the DOE analysis?(Note:There are 2 correct answers).



- A. It is unknown from this graph how many factors were in the Experimental Design
- B. The factors to keep in the mathematical model are E, D, DE, BD and B with an alpha risk equal to 2.06
- C. The effects to keep in the mathematical model are E, D, DE, BD and B with an alpha risk equal to 0.05
- D. The factors to keep in the mathematical model with a 5% alpha risk are BE, AB, A and AD

Answer: AC

NEW QUESTION 222

If a process has subgroups for Variable data and the process runs for a long period of time, then the best pair of SPC Charts to use would be an Xbar and _____.

- A. NP Chart
- B. Individuals Chart
- C. R Chart
- D. C Chart

Answer: C

NEW QUESTION 226

Choose those characteristics of a Simple Linear Regression (SLR) Analysis that are applicable.(Note:There are 3 correct answers).

- A. The Correlation Coefficient is always greater than the Regression Coefficient in a SLR
- B. General Regression Analysis deals only with Continuous Data
- C. Non-linear Regressions can explain curvature when with more statistical confidence than Linear Regressions
- D. SLR can help quantify the significance of variation in X that influences the variation in Y via a mathematical equation
- E. A Correlation does not explain causation but a Regression Analysis with a statistically valid mathematical equation does explain causation

Answer: ADE

NEW QUESTION 228

Sally and Sara sell flower pots at their garage sale. Sally motivates Sara mentioning that they will sell a minimum of 15 pots per day if the outside temperature exceeds 60o F. From a sample, whose population is assumed to follow a Normal Distribution, taken for 30 days at 60 degrees or more an average of 13.6 pots per

day were sold with a Standard Deviation of 0.7 pots. For the sales accomplished above, what test would validate if they met their requirements?

- A. F Test
- B. Test for Equal Variance
- C. Chi Square Test
- D. One-Sample t-Test

Answer: D

NEW QUESTION 232

When a Belt decides to use written procedures and visual controls to improve the consistency of the tasks that must occur in the process he is improving he has utilized the _____ activity of 5S.

- A. Sustaining
- B. Sorting
- C. Standardizing
- D. Straightening

Answer: C

NEW QUESTION 233

Which Experimental Design typically is most associated with the fewest number of input variables or factors in the design?

- A. Response Surface design
- B. Full Factorial design
- C. Simple Linear Regression
- D. Fractional Factorial design

Answer: A

NEW QUESTION 237

Kaizens or Kaikakus and Six Sigma projects are intended to create incremental process improvements versus breakthrough, significant improvements.

- A. True
- B. False

Answer: B

NEW QUESTION 239

Control Charts were developed by Dr. Shewhart to track data over time. To detect Special Cause variation the Control Charts use which of these?

- A. Data shift analysis
- B. Outlier analysis methods
- C. Center Line and Control Limits
- D. None of the above

Answer: C

NEW QUESTION 244

A fundamental rule is that both Standard Deviation and Variance can be added.

- A. True
- B. False

Answer: B

NEW QUESTION 247

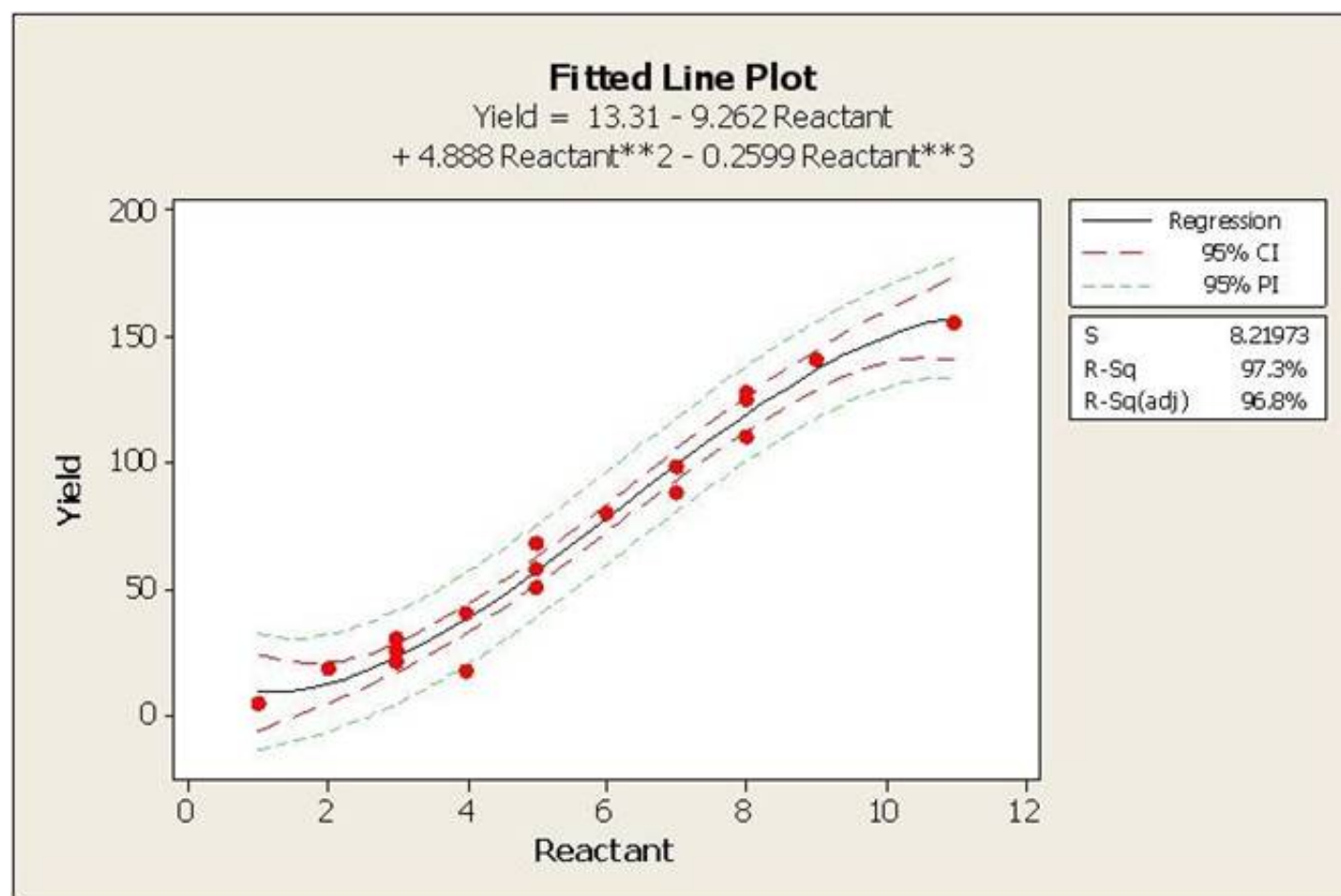
A Factorial Experiment based on a Level 2 Design with 6 factors would require 16 runs to fully assess the interactions.

- A. True
- B. False

Answer: B

NEW QUESTION 248

Which statement is NOT correct about the Fitted Line Plot shown here?



- A. The independent variable is the reactant
- B. If the reactant was 10 units, with 95% confidence we would expect a minimum yield of 148 units
- C. With at least 95% confidence, we can expect less than 10 units of Yield when the reactant is at a value of 1
- D. A reactant value between 6 and 8 units yields around 40 to 60
- E. When the reactant increases, the expected yield would increase

Answer: D

NEW QUESTION 251

Use this data to calculate the Z score. Average oF.65, Standard Deviation: 3, Upper Spec Limit: 72

- A. 0.27
- B. 1.5
- C. 2.33
- D. 4.12

Answer: C

NEW QUESTION 256

On a _____ one can see a pattern from the graphed points such that conclusions can be drawn about the largest family of Variation.

- A. Multi-Vari Chart
- B. Weighted Scale
- C. X-Y Matrix
- D. Poisson Chart

Answer: A

NEW QUESTION 260

The Greek letter "sigma" is used by mathematicians to signify _____.

- A. Curve Width
- B. Numerical Average
- C. Standard Deviation
- D. Data Spread

Answer: C

NEW QUESTION 261

For the data set shown here which of these statements is/are true?

Grade A	Grade B	Grade C
0.917	1.1	0.63
0.68	0.173	4.17
1.74	0.24	0.6
0.3	0.67	0.84
0.33	6.94	0.22
4.13		

- A. Hypothesis Testing of Means or Medians cannot be done since there are an unequal number of observations for the 3 samples
- B. A Paired T-test would be applicable for comparing Grade B and Grade A since they follow each other in the data set
- C. Grade A has the lowest sample Mean of the 3 samples
- D. Grade A has a higher sample Mean than Grade B

Answer: C

NEW QUESTION 263

“A calculated time frame that matches customer demand” is a definition of what Lean Principles term?

- A. Value Stream
- B. Kaizen event
- C. Takt time
- D. Kanban

Answer: C

NEW QUESTION 265

Contingency Tables are used to test for association, or dependency, between two or more classifications.

- A. True
- B. False

Answer: A

NEW QUESTION 268

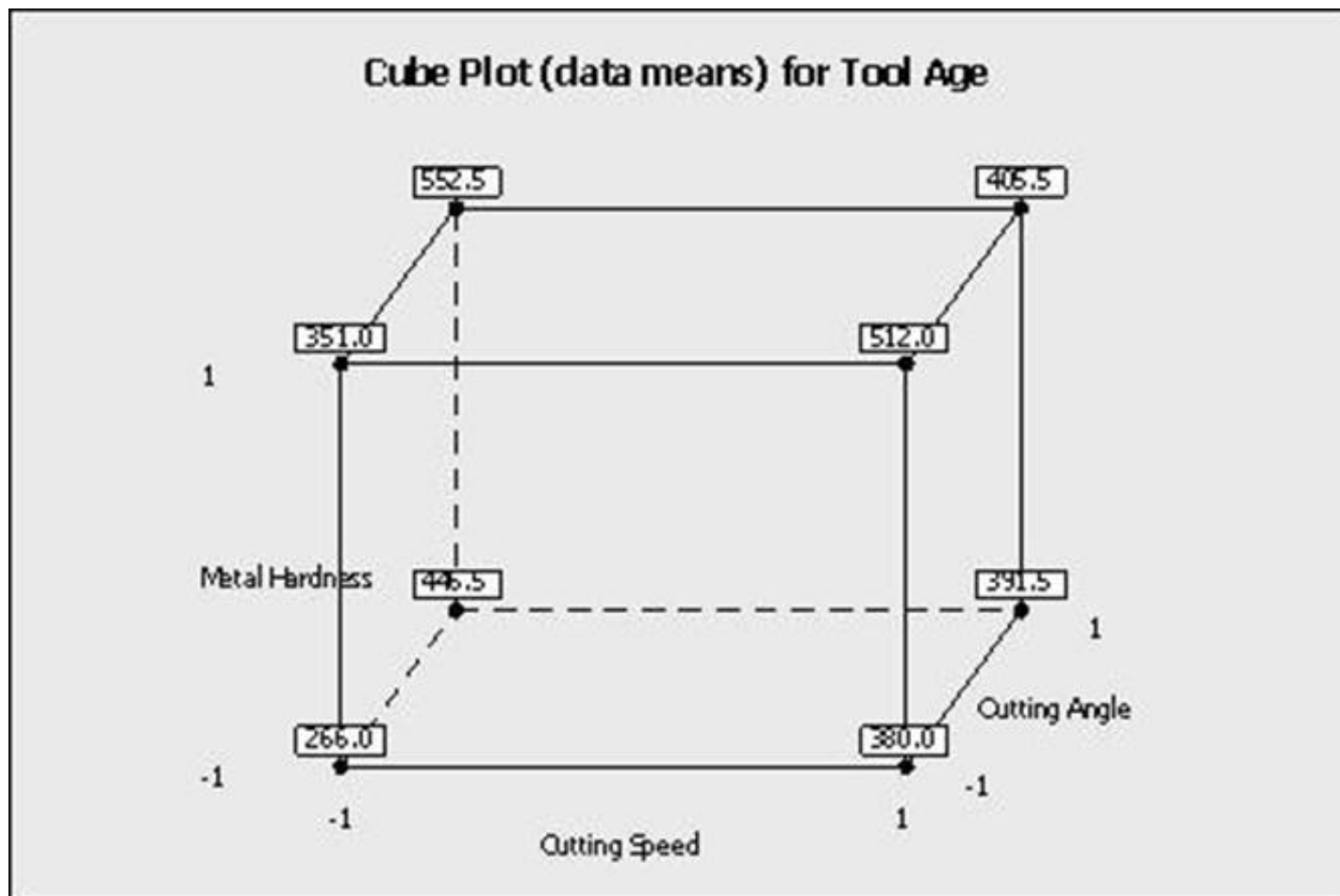
Two of the key deliverables for the Measure Phase are a robust description of the process and its flow and an assessment of the Measurement System.

- A. True
- B. False

Answer: A

NEW QUESTION 269

Which statement(s) are correct about the Factorial Plot shown here?(Note:There are 3 correct answers).



- A. When the cutting speed increased from low to high level, the tool age increases
- B. The coefficient of the metal hardness is positively related to the output of tool age
- C. The coded coefficient is lower for cutting speed than the cutting angle related to the output of tool age
- D. These plots prove a statistically significance factor with 95% confidence
- E. These plots are an example of interaction plots

Answer: ABC

NEW QUESTION 273

When conducting a Hypothesis Test using Continuous Data the proper sample size is influenced by the extent to which we need to assess a Difference to be detected and the inherent variation in the process.

- A. True
- B. False

Answer: A

NEW QUESTION 277

Fractional Factorial Designs are used to analyze factors to model the output as a function of inputs if Hypothesis Testing in the Analyze Phase was inadequate to sufficiently narrow the factors that significantly impact the output(s).

- A. True
- B. False

Answer: A

NEW QUESTION 279

From this list select the best example of Bias in Sampling.

- A. Testing the completeness of cooking a cake but the testers cannot agree on how to measure internal temperature
- B. Testing the sharpness of a razor blade while the sample of 500 are from the same model razor
- C. Testing the weight of participants at a wrestling event and only measuring those who finished second or better
- D. Testing a hand-held GPS models for durability using samples only from Nokia Model P120

Answer: C

NEW QUESTION 281

What aspects of Measurement Systems Analysis (MSA) studies are applicable when the process used to measure does not damage the part?

- A. Destructive variable gage R&R and Crossed Study
- B. Destructive variable gage R&R and Nested Study
- C. Nondestructive variable gage R&R and Crossed Study
- D. Nondestructive variable gage R&R and Nested Study

Answer: D

NEW QUESTION 285

Production Line 1 is able to complete 500 units per shift. Production Line 2 is able to finish 1,500 units per shift. Production Line 2 is 3 times faster than Production

Line 1. This analysis is an example of _____ Scale Data.

- A. Nominal
- B. Ratio
- C. Ordinal
- D. Interval

Answer: B

NEW QUESTION 286

The reported Cpk for a process with an average of 104 units, a spread of 18 units and upper and lower specification limits of 122 and 96 units would be?

- A. 0.5
- B. 0.89
- C. 1.00
- D. 2.00

Answer: B

NEW QUESTION 288

The _____ is the most frequently occurring value in a distribution of data.

- A. Median
- B. Mean
- C. Center Point
- D. Mode

Answer: D

NEW QUESTION 290

To be an effective Lean Six Sigma practitioner one must understand the difference between _____ .

- A. ANOVA and the Analysis of Variance
- B. Nonparametric tests and tests of Non-normal Data
- C. Practical and Statistical significance
- D. F-test and test of variances of 2 samples

Answer: C

NEW QUESTION 291

One of the primary deliverables from performing a SIPOC is to begin to understand which outputs have the greatest affect on the customer most valued inputs.

- A. True
- B. False

Answer: B

NEW QUESTION 294

In a good Measurement System the most variation will be with part-to-part measurements. What should you do if the majority of variation is associated with the Gage R&R assuming the gage is technically capable?

- A. Focus on fixing the Repeatability and Reproducibility of the measurement device
- B. Purchase a new machine
- C. Focus on trimming the Part-to-Part variation
- D. Run another MSA test with the machine

Answer: A

NEW QUESTION 298

A Belt working in a supply chain environment has to make a decision to change suppliers of critical raw materials for a new product upgrade. The purchasing manager is depending on the Belt's effort requiring that the average cost of an internal critical raw material component be less than or equal to \$4,200 in order to stay within budget. Using a sample of 35 first article components, a Mean of the new product upgrade price of \$4,060, and a Standard Deviation of \$98 was estimated. In order to increase the Long Term Z value to 4, what is the maximum long term variation in pricing the Belt can accept for his upgraded critical raw material component?

- A. \$20
- B. \$35
- C. \$70
- D. \$110

Answer: B

NEW QUESTION 303

Which statement(s) are incorrect for the Regression Analysis shown here?(Note:There are 2 correct answers).

Regression Analysis: Turbine Output versus Air-Fuel Ratio, % steam, ...

The Regression Equation is

$$\text{TurbineOutput} = 16.5 + 3.21 \text{ Air-Fuel Ratio} + 0.386 \% \text{ methane} + 0.0166 \text{ SteamExitTemp}$$

Predictor	Coef	SE Coef	T	P
Constant	16.488	2.918	5.65	0.000
Air-Fuel Ratio	3.2148	0.2377	13.52	0.000
% methane	0.38637	0.07278	5.31	0.000
SteamExitTemp	0.016576	0.004273	3.88	0.004

S = 0.508616 R-Sq = 98.6% R-Sq(adj) = 98.2%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	3	170.003	56.668	219.06	0.000
Residual Error	9	2.328	0.259		
Total	12	172.331			

Source	DF	Seq SS
Air-Fuel Ratio	1	159.048
% methane	1	7.062
SteamExitTemp	1	3.892

- A. The air-fuel ratio explains most of the TurbineOutput variation
- B. The Regression explains over 98% of the process variation
- C. This Multiple Linear Regression has three statistically significant independent variables
- D. If the air-fuel ratio increases by 1, the TurbineOutput more than triples
- E. The SteamExitTemp explains the most variation of the TurbineOutput

Answer: DE

NEW QUESTION 307

Which of these might contribute to similar distributions having Unequal Variance?

- A. Extreme tails
- B. Outliers
- C. Multiple Modes
- D. All of the above

Answer: D

NEW QUESTION 311

The two types of data that can be used in Statistical Analysis are Attribute and Variable.

- A. True
- B. False

Answer: A

NEW QUESTION 312

Which of these elements are not included in Implementation plans?

- A. Work breakdown structure
- B. Cost/Benefit ratios
- C. Risk management plans
- D. Planned audits of work completion

Answer: B

NEW QUESTION 317

Appropriate measures means that measurements are .

- A. Representative
- B. Sufficient
- C. Contextual
- D. Relevant
- E. All of these answers are correct

Answer: E

NEW QUESTION 321

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