

ICBB Dumps

IASSC Certified Lean Six Sigma Black Belt

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NEW QUESTION 1

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

- A. Length of a table
- B. Liters of solution added to a formula
- C. Number of employees wearing a uniform
- D. Miles per hour of a vehicle

Answer: C

NEW QUESTION 2

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 3

Customers make their decisions based on Features, Integrity (of the seller) Delivery and _____ ?

- A. Color
- B. Expense
- C. Season
- D. None

Answer: B

NEW QUESTION 4

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 5

A valid Multiple Linear Regression (MLR) is characterized by all of these except?

- A. It is an assumption that the X's (inputs) are not correlated to each other
- B. The X's (inputs) are assumed to be independent of each other
- C. The Residuals from MLR analysis have to be Normally Distributed
- D. MLR is conducted based on a deliberate form of experimentation
- E. It is not possible to evaluate interactions in a MLR analysis

Answer: D

NEW QUESTION 6

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 7

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 8

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 9

Kanban establishes a means of monitoring production, conveyance and delivery information such that efficient flow is established. The method used by Kanban is to require a _____ before anything moves.

- A. Sign-off
- B. Signal
- C. Bell to ring
- D. Work order

Answer: B

NEW QUESTION 10

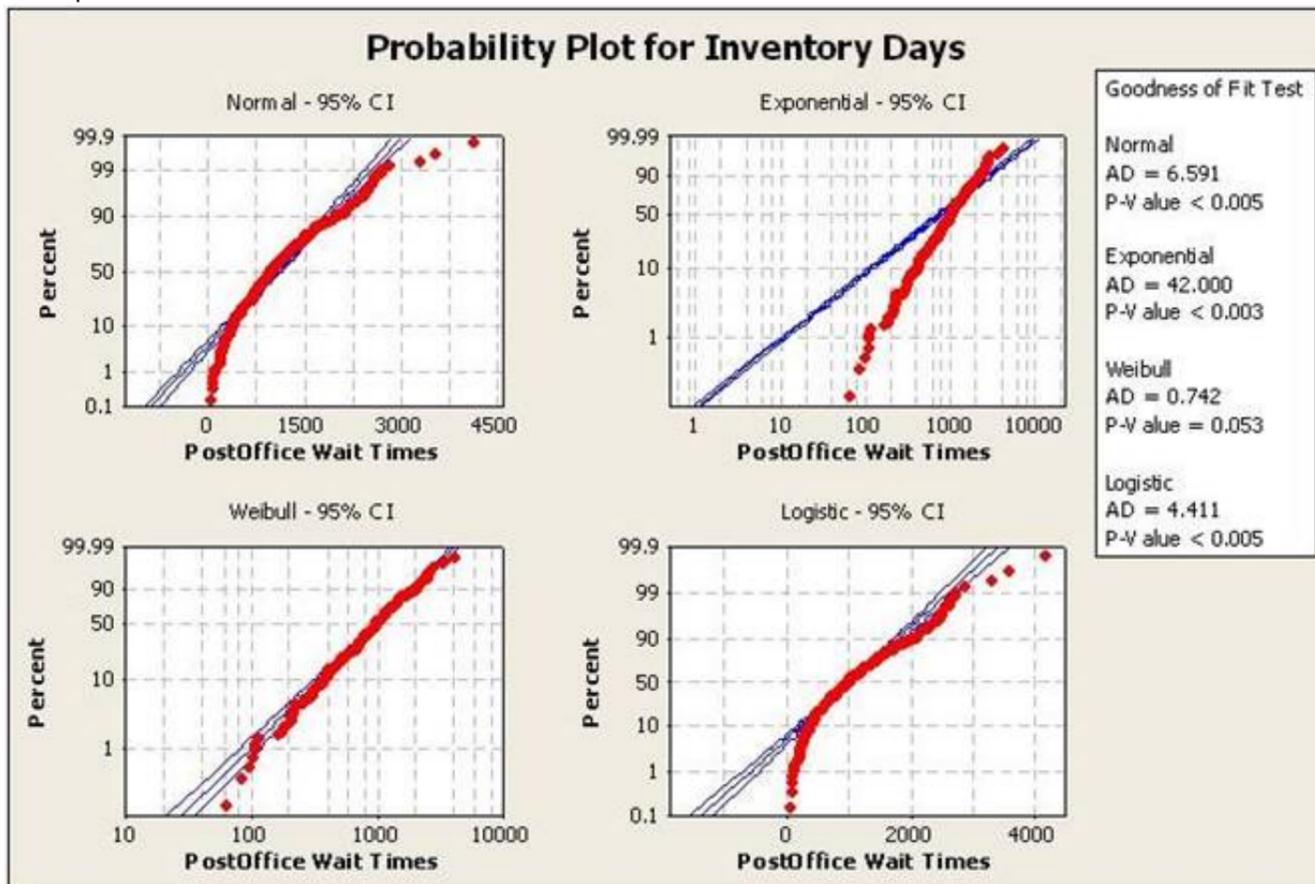
When the Inputs, X's, for your process are Normally Distributed about the Mean, the Outputs, Y's, will be Normally Distributed.

- A. True
- B. False

Answer: B

NEW QUESTION 10

A Lean Six Sigma project is attempting to reduce inventory days. The Process Capability will be monitored as part of the Control Phase to track the sustainability of the improvement.



Which distribution type is best used for performing the Capability Analysis?

- A. Weibull Distribution
- B. Normal Distribution
- C. Exponential Distribution
- D. Logistic Distribution
- E. Gaussian Distribution

Answer: A

NEW QUESTION 14

When a Belt conducts a Linear Correlation Analysis and finds that as an X increases the Y also increase then he has proven a _____ correlation.

- A. Negative
- B. Positive
- C. Monomial
- D. Single alignment

Answer: B

NEW QUESTION 19

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 24

On a _____ a Belt screens variables, or various inputs, to analyze their relative impact on the output of concern.

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

Answer: C

NEW QUESTION 29

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 33

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 35

When a Belt properly analyzes the results of an experiment he must examine the Residuals in expectation of finding all of the following except _____ .

- A. Some Residuals higher than others
- B. Some Residuals lower than others
- C. All Residuals within 2 Standard Deviations of the Mean
- D. Residuals will represent a Linear Regression

Answer: D

NEW QUESTION 40

Fractional Factorial designs are used to reduce the _____ because the number of runs has been lowered.

- A. Time and cost of experiments
- B. Number of people involved
- C. Number of data measurement points
- D. Output summary

Answer: A

NEW QUESTION 42

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 47

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

- A. Measurements

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

Answer: A

NEW QUESTION 52

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 56

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

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

Answer: D

NEW QUESTION 61

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 63

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 68

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 69

Fractional Factorial designs are used to reduce the time and cost of experiments because the _____ has been lowered.

- A. Number of data measurement points

- B. Number of runs
- C. People involved
- D. Output summary

Answer: B

NEW QUESTION 71

Accuracy can be assessed in several ways and a fairly accurate means of measurement is visual comparison.

- A. True
- B. False

Answer: B

NEW QUESTION 73

Upon completion and validation of an improvement to a process a Belt and the Project Team create a Control Plan that contains which of these?

- A. Standard operating work description of the process change
- B. Description of the monitoring system in place to assure continued compliance
- C. Summary of the targeted critical metrics for process performance measurement
- D. All of the above

Answer: D

NEW QUESTION 74

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 78

What dollar amount of savings would a project show if it reduced your outstanding Accounts Receivable by \$0.9 million dollars to \$3.5 million total and your organization's marginal cost of capital was 5.7%?

- A. \$49,250
- B. \$51,300
- C. \$117,500
- D. \$202,424

Answer: B

NEW QUESTION 81

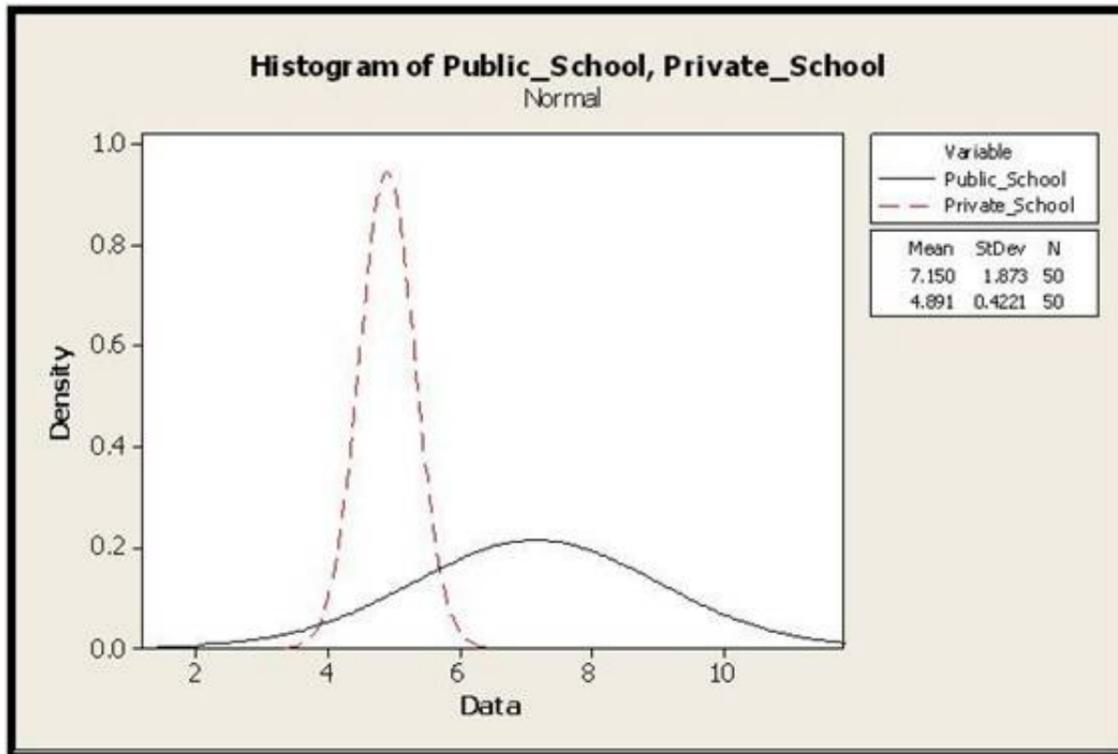
When conducting a Hypothesis Test using Continuous Data the proper sample size is influenced only by the extent to which we need to assess a Difference to be detected but not the inherent variation in the process.

- A. True
- B. False

Answer: B

NEW QUESTION 85

The class score distribution of schools in a metropolitan area is shown here along with an analysis output. Comment on the statistical significance between the Means of the two distributions. Select the most appropriate statement.



Two-sample t for Private_School vs Public_School

	N	Mean	StDev	SE Mean
Private_School	50	4.891	0.422	0.060
Public_School	50	7.15	1.87	0.26

Difference = μ (Private_School) - μ (Public_School)

Estimate for difference: -2.259

99% CI for difference: (-2.985, -1.534)

T-Test of difference = 0 (vs not =): T-Value = -8.32 p-Value = 0.000 DF = 53

- A. The two class Means are statistically different from each other
- B. The two class Means statistically not different from each other
- C. Inadequate information on class Means to make any statistical conclusions
- D. A visual comparison shows that class Means are not statistically different
- E. A visual comparison shows that class Means are statistically different

Answer: A

NEW QUESTION 88

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 89

The Mann-Whitney test is a powerful test and is unique to situations from which of the choices listed?(Note:There are 2 correct answers).

- A. Testing the identity of two populations
- B. Focuses on equality of the Median of the two populations
- C. Less powerful than the traditional "t-test"
- D. More widely applicable than the traditional "t-test"

Answer: BD

NEW QUESTION 90

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. Select the answer that best states the Practical Problem.

- A. If the average cost per component is \$4,200 or less, then the purchase manager will introduce the new product upgrade with new components.

- B. If the average cost per component is greater than \$4,200, then the purchase manager will introduce the new product upgrade with new components.
- C. Only if the average cost per product upgrade is \$4,060, will the purchase manager introduce new product upgrades with new components.
- D. If the average cost per new product upgrade is less than \$180, then the purchase manager will introduce the new product upgrade with new components.

Answer: C

NEW QUESTION 91

What dollar amount of savings would a project show if it reduced your outstanding Accounts Receivable by \$1.4 million dollars to \$5.3 million total and your organization's marginal cost of capital was 6.2%?

- A. \$43,400
- B. \$86,800
- C. \$117,500
- D. \$328,600

Answer: B

NEW QUESTION 93

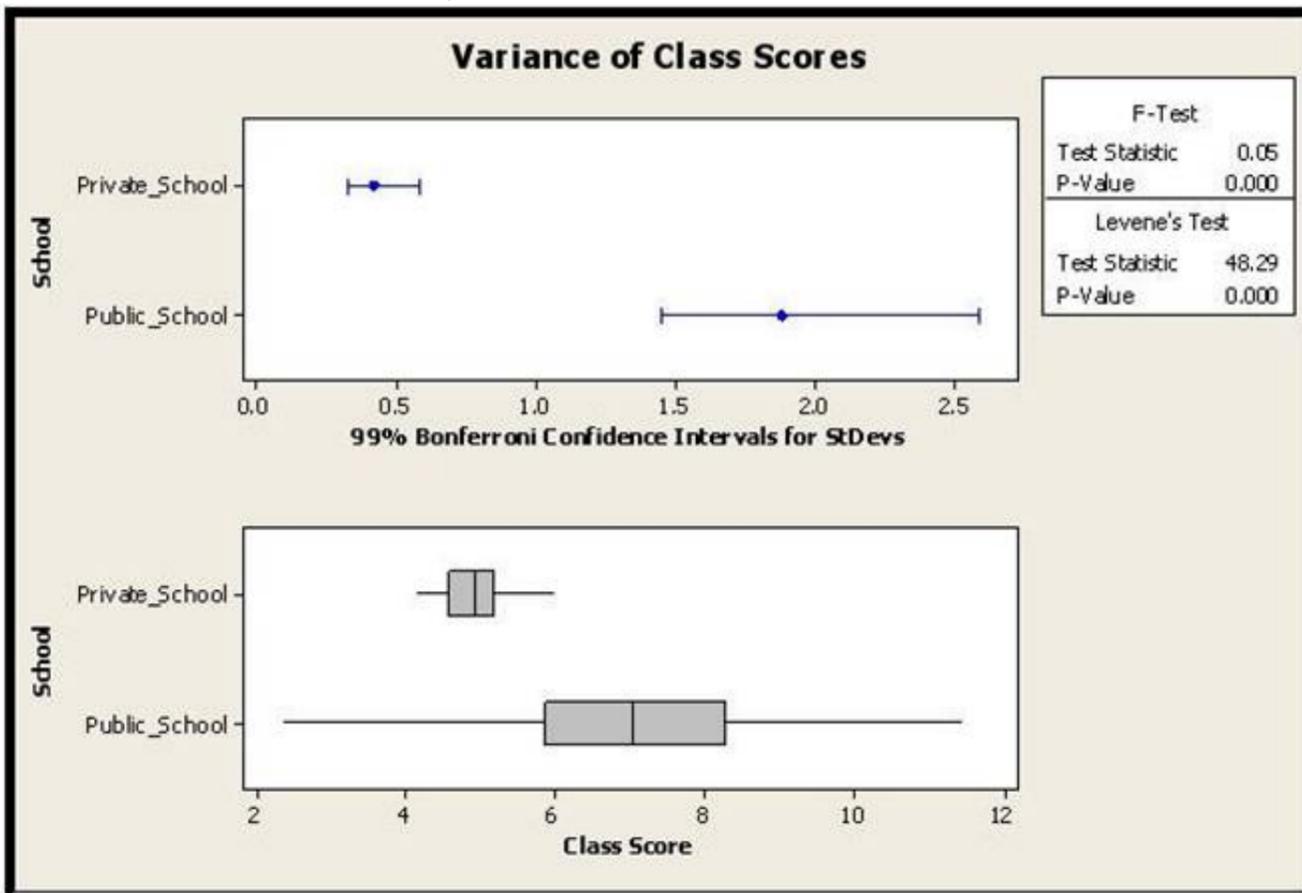
The English words used for the 5S's are _____, _____, Shining, Standardizing and Sustaining.(Note:There are 2 correct answers).

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

Answer: BD

NEW QUESTION 97

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 101

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 105

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. F-test and test of variances of 2 samples
- D. Practical and Statistical significance

Answer: D

NEW QUESTION 108

Which statement(s) are incorrect about Fractional Factorial Designs?

- A. A Half Fractional Design for 5 factors has the same number of experimental runs as a Full Factorial Design for 4 factors assuming no repeats or replicates or Center Points
- B. Quarter Fractional experiments can exist for those with 4 factors
- C. Resolution V design is desired while controlling costs of experimentation
- D. Half Fractional experiments do not exist for those designs with only 2 factors

Answer: C

NEW QUESTION 109

"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 113

Which statement is most correct for the Regression Analysis shown here?

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%

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 Regression explains 50.8% of the process variation
- B. The air-fuel ratio explains most of the TurbineOutput variation
- C. This Simple Linear Regression explains 98+% of the process variation
- D. This Multiple Linear Regression has four statistically significant independent variables

Answer: B

NEW QUESTION 116

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 120

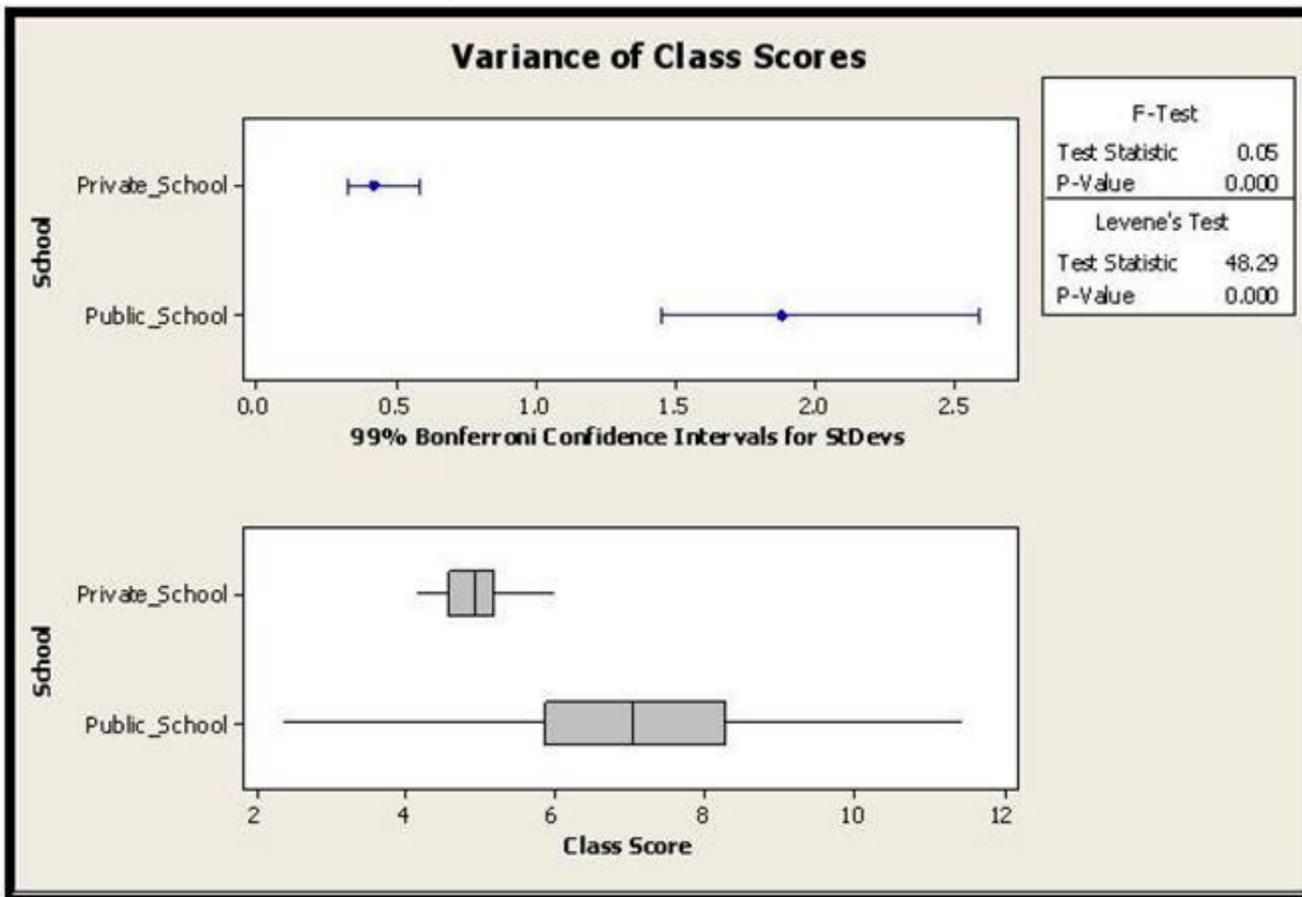
During the _____ phase of 5S is when we might implement a Red Tag program.

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

Answer: D

NEW QUESTION 123

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 128

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 132

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

- A. r2 value is smaller than the absolute value of r
- B. Correlation Coefficient equals r2
- C. Coefficient of Determination is less than r2
- D. Correlation Coefficient equals r divided by 2

Answer: A

NEW QUESTION 133

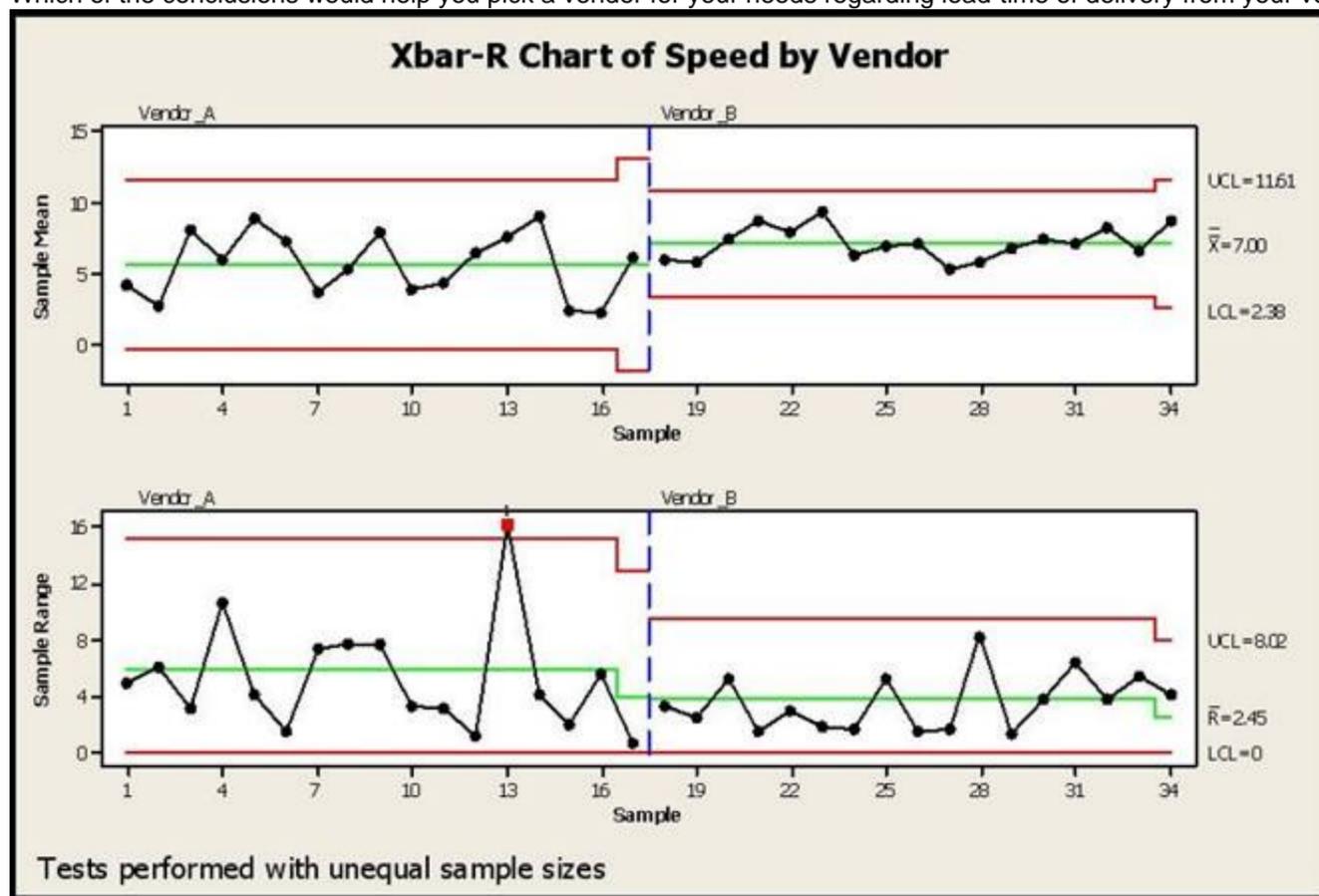
Kaizens or Kaikakus and Six Sigma projects are intended to create breakthrough, significant process improvement versus minor, incremental improvements.

- A. True
- B. False

Answer: A

NEW QUESTION 138

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 as Vendor A shows a situation out of control as shown in red
- D. Vendor B as the Control Limits are much narrower than Vendor A
- E. Vendor B with higher lead time, but a process with much narrower Control Limits

Answer: BCDE

NEW QUESTION 142

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. The statistical Degrees of Freedom for this example are?

- A. 1
- B. 29
- C. 30
- D. 31
- E. 2

Answer: B

NEW QUESTION 143

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

- A. True
- B. False

Answer: B

NEW QUESTION 147

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

- A. Spread
- B. Reliability
- C. Precision
- D. Deflection

Answer: C

NEW QUESTION 151

A valid mathematical Regression represents all of the characteristics shown except _____.

- A. The residuals when plotted follow a Normal Distribution
- B. The sum of the residuals is zero
- C. All of the standardized residuals will be within ± 3 Standard Deviations
- D. Most standardized residuals are within ± 2 Standard Deviations

Answer: A

NEW QUESTION 155

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 159

Cost of Poor Quality (COPQ) can be classified as Visible Costs and Hidden Costs. All these items are Hidden Cost except _____.

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

Answer: B

NEW QUESTION 164

The Distribution would be the most desirable for modeling the number of stitch defects in a portion of fabric.

- A. Exponential
- B. Extended
- C. Poisson
- D. Weibull

Answer: C

NEW QUESTION 165

Which one of the listed tools is frequently used to help drill down to possible causes once a Fishbone Diagram is constructed?

- A. 3 When Analysis
- B. Skeleton Diagnostic
- C. Ishikawa Diagram
- D. 5 Why Analysis

Answer: D

NEW QUESTION 169

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 171

A(n) _____ is best used to compare a Machine 1 average quality characteristic to the same quality characteristic of Machine 2.

- A. F test
- B. 1-Sample t-test
- C. 2-Sample t-test
- D. ANOVA test

Answer: C

NEW QUESTION 176

Questions that can be best answered by a Visual Factory include all of these except _____.

- A. Are downtime issues easily noted?
- B. Can extra inventory be seen easily?
- C. Are unneeded tools or supplies easily noted?
- D. Are setups optimized for lower scrap levels?

Answer: D

NEW QUESTION 180

A _____ problem in the Measurement System suggests that there is a lack of consistency in the measurement over time.

- A. Linearity
- B. Bias
- C. Stability
- D. Magnitude

Answer: C

NEW QUESTION 182

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 183

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 188

The method of Steepest Ascent guides you toward a target inside the original inference space.

- A. True
- B. False

Answer: B

NEW QUESTION 191

The distance between the Mean of a data set and the Point of Inflection on a Normal curve is called the _____.

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

Answer: B

NEW QUESTION 196

Fractional Factorial, _____ and Response Surface Method are types of planned experiments.

- A. Multi-Vari Analysis
- B. Baldrige Channels
- C. One Factor at a Time or OFAT
- D. Factorial Design

Answer: D

NEW QUESTION 200

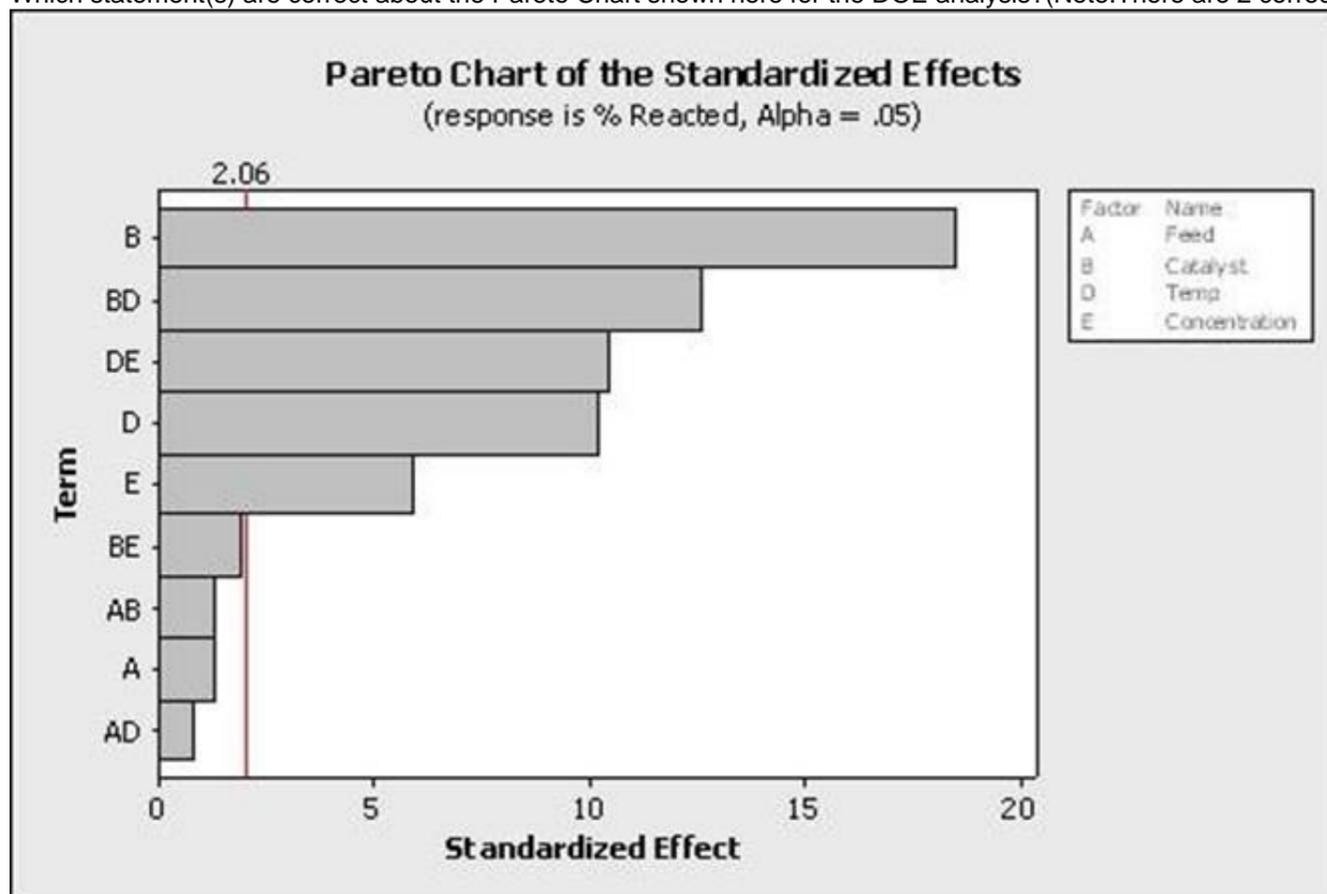
Using this partial Z Table, how many units from a month's production run are expected to not satisfy customer requirements for the following process?
Upper specification limit: 8.4 Lower specification limit: 4.7 Mean of the process: 6.2 Standard Deviation: 2.2 Monthly production: 360 units

- A. 8
- B. 13
- C. 28
- D. 57

Answer: D

NEW QUESTION 202

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 207

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 209

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 212

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 215

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 220

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 221

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

- A. Prediction
- B. Ideation
- C. Capability
- D. Variation

Answer: D

NEW QUESTION 224

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 229

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 230

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 235

When the Inputs, X's, for your process are Normally Distributed about the Mean, the Outputs, Y's, will always be Normally Distributed.

- A. True
- B. False

Answer: B

NEW QUESTION 239

A natural logarithmic base is not required for which of these distributions for probability calculations?

- A. Weibull
- B. Binomial
- C. Poisson
- D. Normal

Answer: D

NEW QUESTION 240

How many experimental runs exist in a Full Factorial and fully randomized design for 4 factors with 2 replicates for the Corner Points and no Center Points? The factors in the experiment are only at 2-levels.

- A. 10
- B. 32
- C. 256
- D. 64

Answer: B

NEW QUESTION 245

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 247

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 248

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 250

How many experimental runs exist in a Full Factorial and fully randomized design for 5 factors with 2 replicates for the Corner Points and no Center Points? The factors in the experiment are only at 2-levels.

- A. 10
- B. 128
- C. 256
- D. 64

Answer: D

NEW QUESTION 254

Which of these items contribute to what is necessary for successful Kaizen events?

- A. Analysis tools
- B. Management support
- C. Operator support
- D. All of these answers are correct

Answer: D

NEW QUESTION 255

As a means of measuring the effects on other areas of a process as a result of changes in the primary metric we also define and track _____.

- A. Parallel process metrics
- B. Secondary metrics
- C. Tertiary metrics
- D. Industry standards

Answer: B

NEW QUESTION 256

The Waste of Overproduction is defined as _____.

- A. The unnecessary movement of people and equipment
- B. The liability of materials that are bought, invested in and not immediately sold or used
- C. Producing more than the next step needs or more than the customer buys
- D. The extra movement of material

Answer: C

NEW QUESTION 257

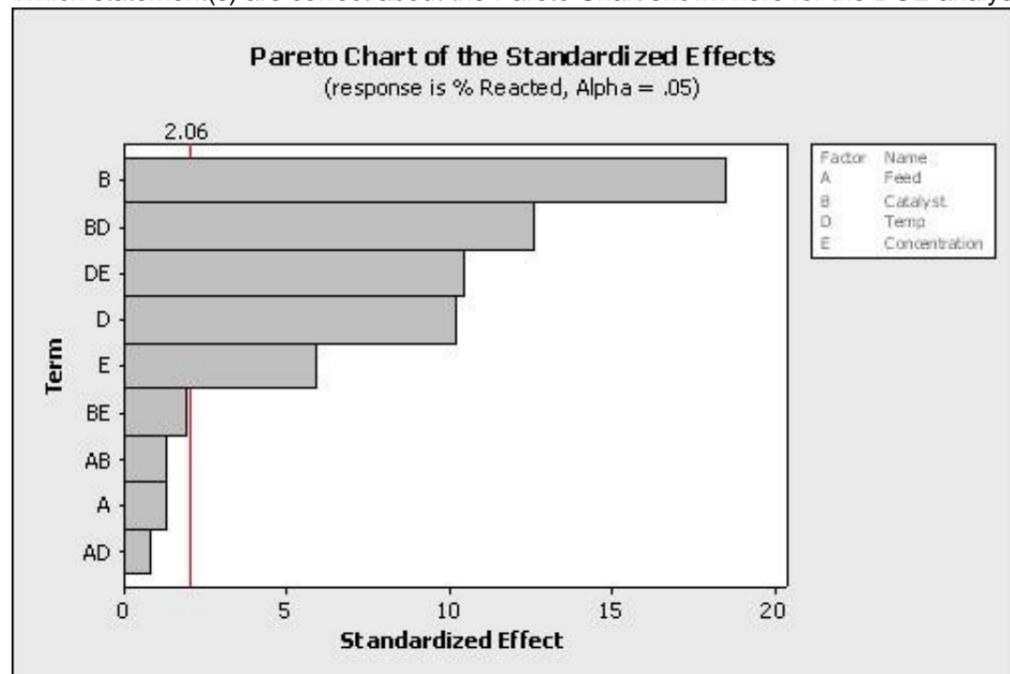
Following process modifications, the Null Hypothesis states that no improvement to the process has occurred. If we discover the Null Hypothesis Test was rejected when it was false that would be a(n) _____.

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

Answer: C

NEW QUESTION 262

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 263

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 267

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 270

Which statement(s) are incorrect about Fractional Factorial Designs?

- A. A Half Fractional Design for 5 factors has the same number of experimental runs as a Full Factorial Design for 4 factors assuming no repeats or replicates or Center Points
- B. Quarter Fractional experiments can exist for those with 4 factors
- C. Resolution V design is desired while controlling costs of experimentation
- D. Half Fractional experiments do not exist for those designs with only 2 factors

Answer: C

NEW QUESTION 275

The most appropriate type of FMEA for a product before going into manufacturing is a _____ FMEA.

- A. Design
- B. Consumer
- C. Survey
- D. Test Process

Answer: A

NEW QUESTION 280

If a Belt needed to model the data for the number of weaves in section of carpet fabric she would use the _____ Distribution approach.

- A. Poisson
- B. Extended
- C. Exponential
- D. Weibull

Answer: A

NEW QUESTION 282

All the data points that represent the total set of information of interest is called the _____.

- A. Population
- B. Sample
- C. Frame
- D. Spread

Answer: A

NEW QUESTION 285

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 288

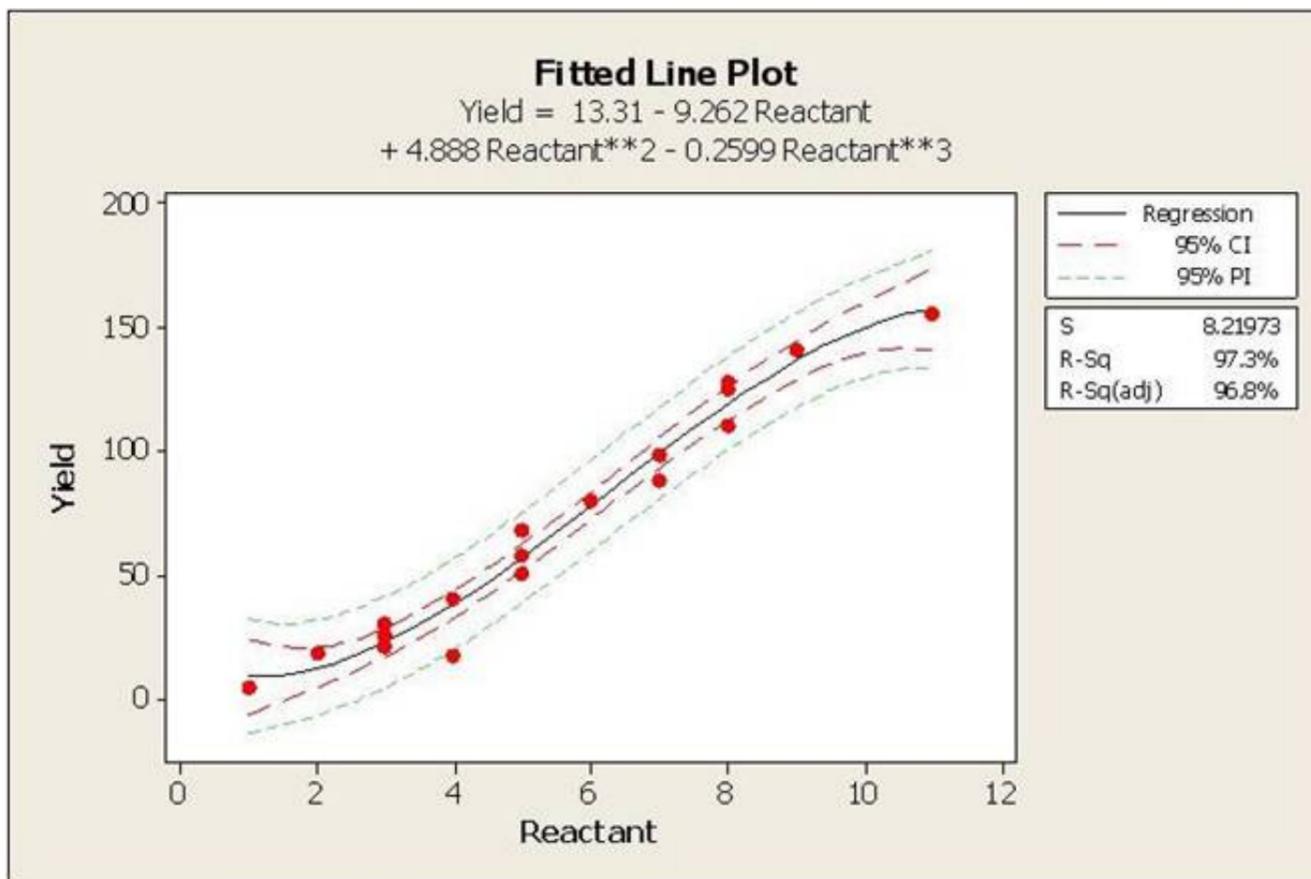
A Factorial Experiment based on a Level 2 Design with 6 factors would require 16 runs to fully assess the interactions.

- A. True
- B. False

Answer: B

NEW QUESTION 290

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 294

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 299

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 303

Sally and Sara sell flower pots at their garage sale. Martha motivates Rose mentioning that they will sell a minimum of 16 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 15.2 pots per day were sold with a Standard Deviation of 0.6 pots. What is the Z value for this sales process?

- A. 0.67
- B. 1.13
- C. 1.33
- D. 2.66

Answer: C

NEW QUESTION 306

An operator checks that all boxes being packed contain enough products to fill the box. However, each box getting filled has a different number of products in it. This is a Reproducibility problem, not a Repeatability problem.

- A. True
- B. False

Answer: B

NEW QUESTION 311

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 312

If in an experiment all possible variable pairs sum to zero the design is Orthogonal.

- A. True
- B. False

Answer: A

NEW QUESTION 317

The method of Steepest Ascent guides you toward a target inside the original inference space.

- A. True
- B. False

Answer: B

NEW QUESTION 318

When doing Hypothesis Testing on Non-normal data Belts will use a _____ to compare more than two sample proportions to each other.

- A. Z score Table
- B. Sakami Table
- C. Mean-to-Mode Analysis
- D. Contingency Table

Answer: C

NEW QUESTION 320

The relationship between a response variable and one or more independent variables is investigated and modeled by use of _____.

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

Answer: C

NEW QUESTION 322

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 323

"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 327

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

- A. True
- B. False

Answer: A

NEW QUESTION 332

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 336

Which of these are examples of business metrics or Key Performance Indicators commonly referred to as KPI's?

- A. Cycle Time
- B. Defects
- C. N
- D. of Units Reworked
- E. Labor Hours
- F. All of these answers are correct

Answer: E

NEW QUESTION 340

Which statement(s) are most correct for the Regression Analysis shown here?

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 Regression explains 50.8% of the process variation
- B. The air-fuel ratio explains most of the TurbineOutput variation
- C. This Simple Linear Regression explains 98+% of the process variation
- D. This Multiple Linear Regression has four statistically significant independent variables

Answer: B

NEW QUESTION 344

When a Belt implements an improvement that is automated thus requiring no particular understanding for use he has applied which Lean tool?

- A. Mistake Proofing
- B. Kaizen Event
- C. 5S
- D. None of the above

Answer: A

NEW QUESTION 347

To establish a sample size that will allow the proper overlap of distributions we do which of these?

- A. Multiply Alpha by 1.75
- B. Calculate one minus Beta
- C. Calculate Beta plus 2
- D. Multiply Beta by 3

Answer: B

NEW QUESTION 348

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 350

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

- A. True
- B. False

Answer: B

NEW QUESTION 353

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. Connection Principle
- C. Balance Equation
- D. Pareto Principle

Answer: D

NEW QUESTION 355

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 358

An operator checks that all boxes being packed contain enough products to fill the box. However, each box getting filled has a different number of products in it. This is a Reproducibility problem, not a Repeatability problem.

- A. True
- B. False

Answer: B

NEW QUESTION 363

A _____ is used primarily to track the stability of the average value of a metric of interest.

- A. NP Chart
- B. Xbar-R Chart
- C. I-MR Chart
- D. C Chart

Answer: B

NEW QUESTION 366

A Full Factorial experiment using a 2 level 4 factor approach has been proposed to test the viability of an extrusion machine experiment. How many treatment combinations will this approach involve?

- A. 8
- B. 16
- C. 32
- D. 64

Answer: B

NEW QUESTION 369

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 373

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 374

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 379

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 380

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

Source	DF	SS	MS	F	P
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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 385

A valid Multiple Linear Regression (MLR) is characterized by all of these except _____.

- A. It is an assumption that the X's (inputs) are not correlated to each other
- B. The X's (inputs) are assumed to be independent of each other
- C. MLR is conducted based on a deliberate form of experimentation
- D. The Residuals from MLR analysis have to be Normally Distributed

Answer: C

NEW QUESTION 386

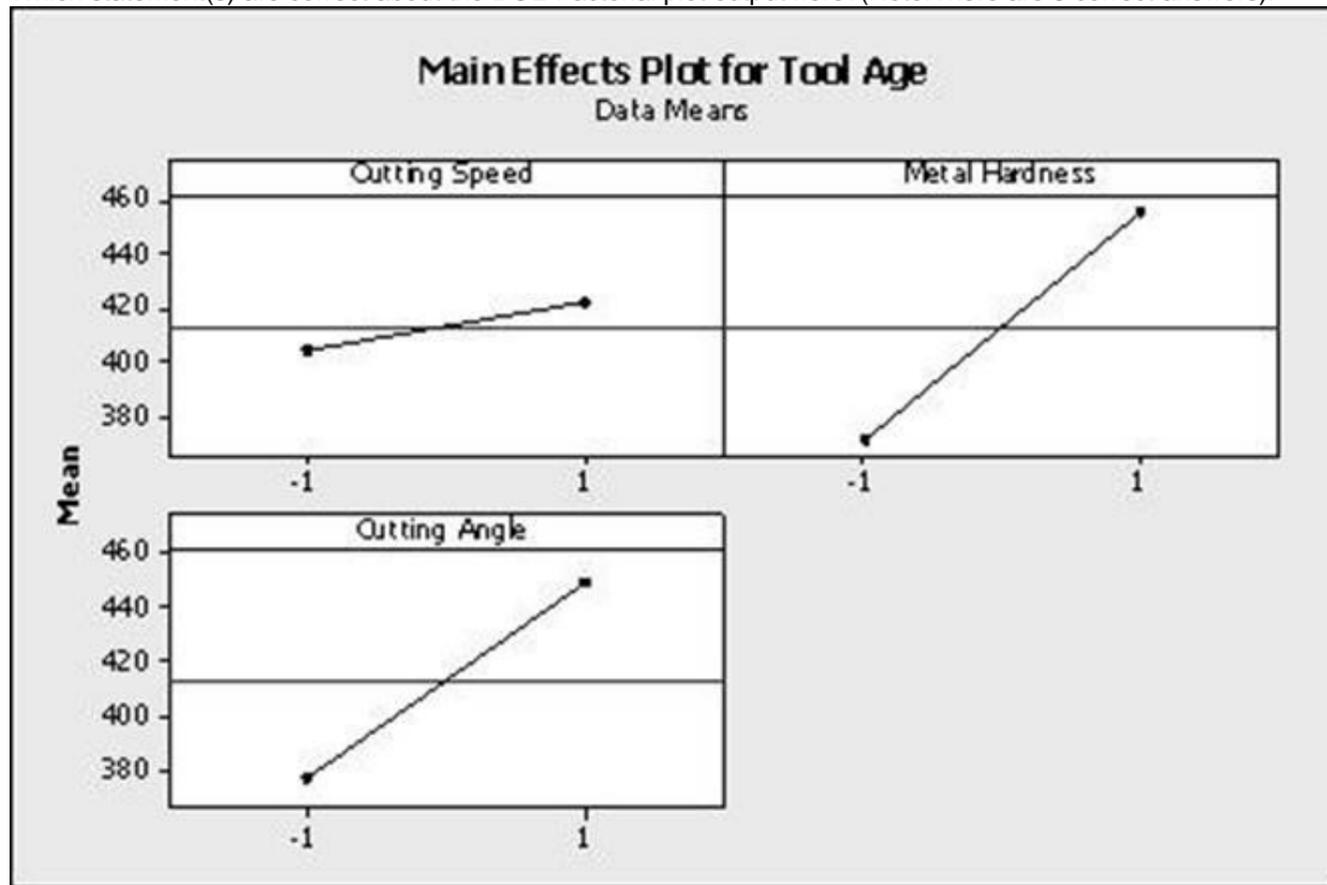
The two types of data that can be used in Statistical Analysis are Attribute and Variable.

- A. True
- B. False

Answer: A

NEW QUESTION 387

Which statement(s) are correct about the DOE Factorial plot output here?(Note:There are 3 correct answers).



- A. Two factors were operated at 3 levels each
- B. The highest tool age was achieved with metal hardness at high level while keeping the cutting speed at the low level
- C. The design indicated above is a 32 factorial design
- D. The cutting speed and cutting angle are at the low level for the least tool age achieved
- E. All factors had 2 levels in the experiment

Answer: BCE

NEW QUESTION 392

.....

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