Question #1 *Topic 1*

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

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #2 *Topic 1*

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

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #3 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #4 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #5 *Topic 1*

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

A. Uncommon

B. Ordinary

C. Special

D. Selective

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #6 *Topic 1*

Special Cause Variation falls into which two categories?

A. Natural & Unnatural

B. Short Term & Long Term

C. Assignable & Pattern

D. Attribute & Discreet

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #7 *Topic 1*

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

A. Histograms

B. SPC Charts

C. NP Charts

D. Pareto Charts

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #8 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #9 *Topic 1*

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

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #10 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #11 *Topic 1*

The Control Limits width varies if the sample size varies for which type of chart?

A. P Charts

B. NP Charts

C. Xbar-R Charts

D. Time Series Charts

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #12 *Topic 1*

Which of these elements are not included in Implementation plans?

A. Work breakdown structure

B. Risk management plans

C. Cost/Benefit ratios

D. Planned audits of work completion

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #13 *Topic 1*

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

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #14 *Topic 1*

What conclusion is most correct about the Experimental Design shown here with the response in the far right column?

Adv	Bev	Des	Crux	Response
-1	-1	-1	-1	20
1	-1	-1	1	14
-1	1	-1	1	17
1	1	-1	-1	10
-1	-1	1	1	19
1	-1	1	-1	13
-1	1	1	-1	14
1	1	1	1	10

A. No factor has enough statistical confidence greater than 95% to have an impact on the response rate

B. Constant, Adv and Bev are the only factors statistically affecting the response rate with 95% confidence or more

C. If the Adv is increased from the low level to the high level, the response rate increases

D. The response level is statistically concluded to only need the Adv and Bev factors set at the low level to get the largest response rate

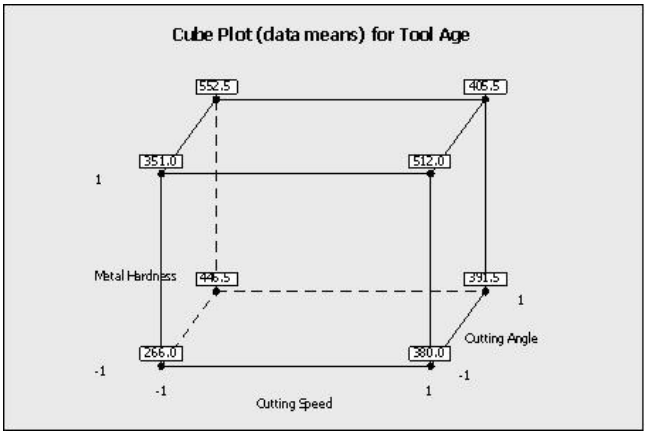
E. This design does not have enough experimental runs to conclude anything as evidenced by the lack of P-values in the MINITABTM output

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #15 *Topic 1*

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

Suggested Answer: *ABC*

Currently there are no comments in this discussion, be the first to comment!

Question #16 *Topic 1*

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

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #17 *Topic 1*

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

Suggested Answer: *C*

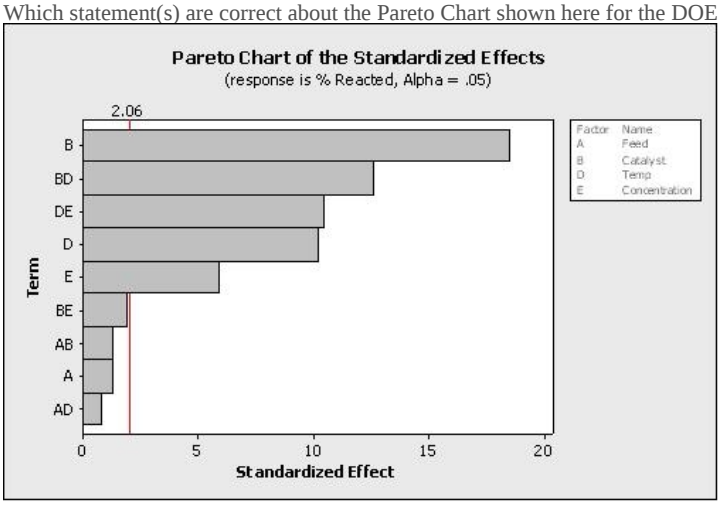
ClarkeL6S 4 years, 7 months ago

Why is C correct?

upvoted 1 times

Question #18 *Topic 1*

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

Suggested Answer: *AC*

Currently there are no comments in this discussion, be the first to comment!

Question #19 *Topic 1*

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

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

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #20 *Topic 1*

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

A. Mirror Image
B. Directly Parallel
C. Collinear
D. None of the above

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #21 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #22 *Topic 1*

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

A. True
B. False

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #23 *Topic 1*

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

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #24 *Topic 1*

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

A. True
B. False

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #25 *Topic 1*

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

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #26 *Topic 1*

The Lean toolbox includes all of these items except _____.

A. Mistake Proofing
B. Visual Factory
C. Design of Experiments
D. Inventory Management

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #27 *Topic 1*

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?

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #28 *Topic 1*

If a Six Sigma project was to reduce repair station inventory and the team found the inventory was creeping up over time which Lean tools should be considered in the Control Phase to reestablish and sustain the project success?

A. Review the Visual Factory to assure inventory in excess of desired visible
B. Improve the lighting to assure adequate visibility
C. Analyze data from supplier deliveries
D. Reword the standardized work instructions to use active verbs and not passive phrases

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #29 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #30 *Topic 1*

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

A. True
B. False

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #31 *Topic 1*

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

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #32 *Topic 1*

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

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #33 *Topic 1*

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.

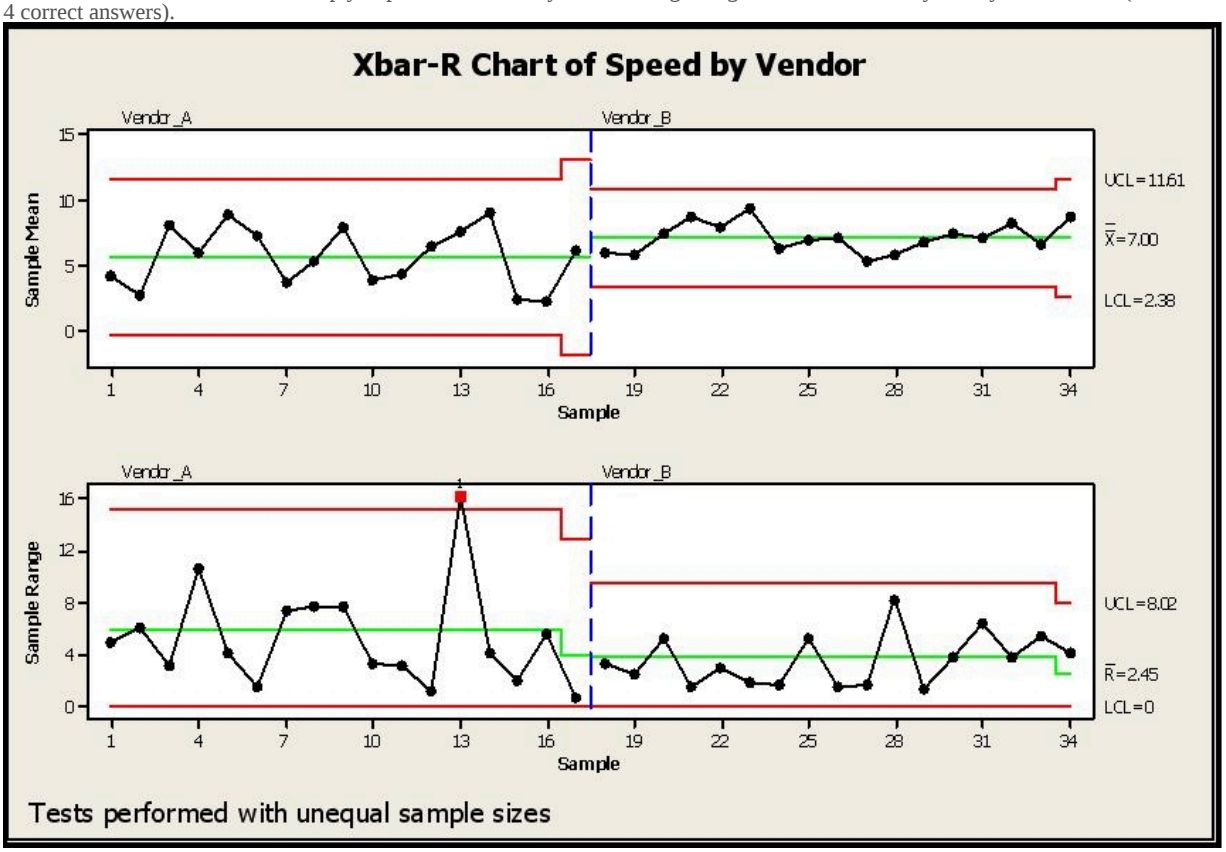
A. Sustaining
B. Sorting
C. Standardizing
D. Straightening

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #34 *Topic 1*

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

Suggested Answer: *BCDE*

Currently there are no comments in this discussion, be the first to comment!

Question #35 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #36 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #37 *Topic 1*

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

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #38 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #39 *Topic 1*

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

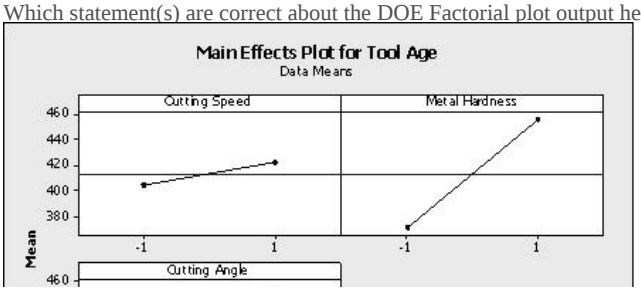
A. True
B. False

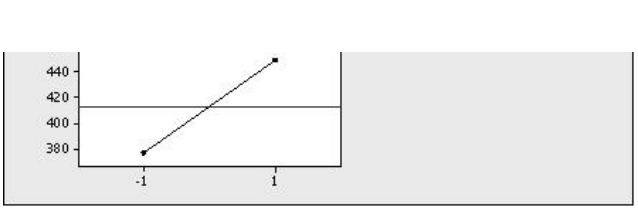
Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #40 *Topic 1*

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

Suggested Answer: *BCE*

ClarkeL6S 4 years, 7 months ago

Why are B and C correct? 3 factors at 2 levels is 2^3 = 8?

upvoted 1 times

Question #41 *Topic 1*

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
TurbineOutput = 16.5 + 3.21 Air-Fuel Ratio + 0.386 % methane
                + 0.0166 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

Suggested Answer: *DE*

Currently there are no comments in this discussion, be the first to comment!

Question #42 *Topic 1*

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
TurbineOutput = 16.5 + 3.21 Air-Fuel Ratio + 0.386 % methane
                + 0.0166 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

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #43 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #44 *Topic 1*

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

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #45 *Topic 1*

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

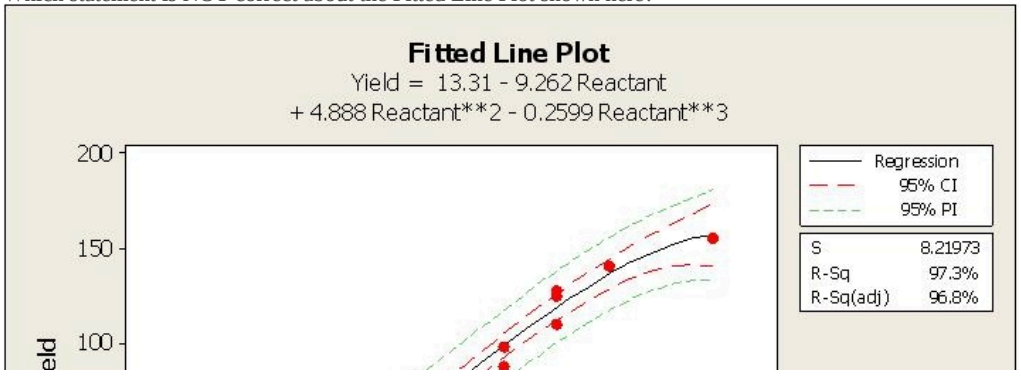
A. It is an assumption that the X's (inputs) are not correlated to each other
B. The X's (inputs) are assumed to be independent of each other
C. MLR is conducted based on a deliberate form of experimentation
D. The Residuals from MLR analysis have to be Normally Distributed

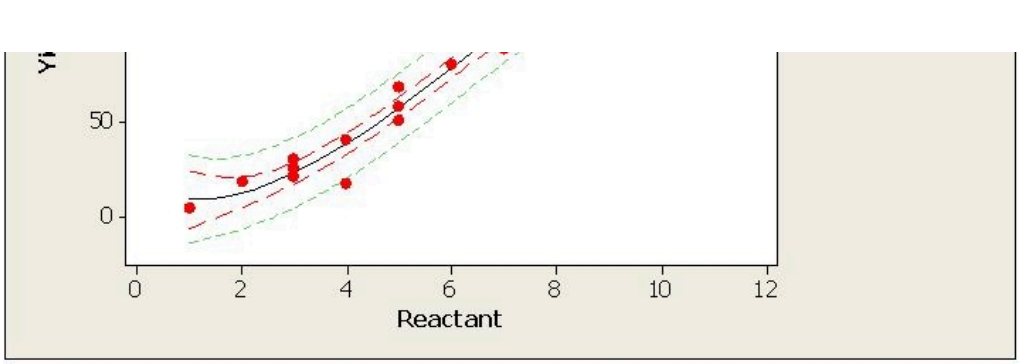
Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #46 *Topic 1*

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

Suggested Answer: *D*

Yaseen03 5 years, 1 month ago

When the reactant increases, the expected yield would increase, is also correct

upvoted 1 times

Yaseen03 5 years, 1 month ago

The independent variable is the reactant, this a correct answer

upvoted 1 times

hwang 5 years, 4 months ago

repeat

upvoted 1 times

Question #47 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #48 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #49 *Topic 1*

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

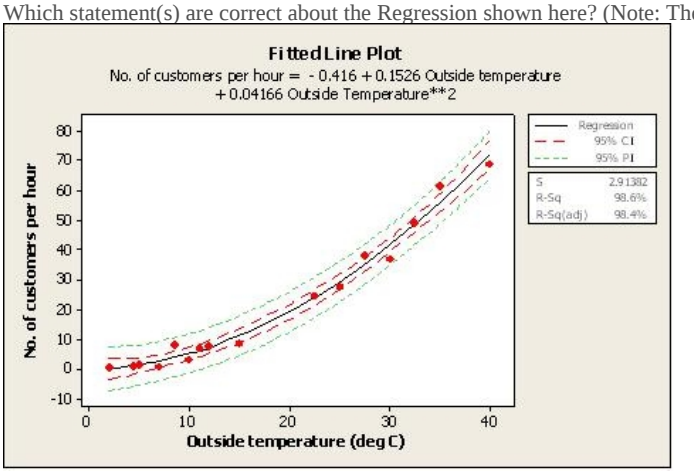
A. Some Residuals higher than others
B. Some Residuals lower than others
C. All Residuals within 2 Standard Deviations of the Mean
D. Residuals will represent a Linear Regression

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #50 *Topic 1*

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

Suggested Answer: *DE*

Currently there are no comments in this discussion, be the first to comment!

Question #51 *Topic 1*

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

A. Extreme tails
B. Outliers
C. Multiple Modes

D. All of the above

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #52 *Topic 1*

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.

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #53 *Topic 1*

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.

Suggested Answer: *E*

Currently there are no comments in this discussion, be the first to comment!

Question #54 *Topic 1*

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

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #55 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #56 *Topic 1*

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

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #57 *Topic 1*

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

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #58 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #59 *Topic 1*

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

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #60 *Topic 1*

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

A. True
B. False

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #61 *Topic 1*

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 ɹ€t-testɹ€
D. More widely applicable than the traditional ɹ€t-testɹ€

Suggested Answer: *BD*

Currently there are no comments in this discussion, be the first to comment!

Question #62 *Topic 1*

Assessing process proportion as opposed to evaluating a process with respect to a set target can be done using which of these?

A. Process proportion equals some value range
B. Process proportion equals some desired value
C. Target is current
D. Proportion of the tail is equal

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #63 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #64 *Topic 1*

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

A. True
B. False

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #65 *Topic 1*

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.

Suggested Answer: *BD*

Currently there are no comments in this discussion, be the first to comment!

Question #66 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #67 *Topic 1*

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

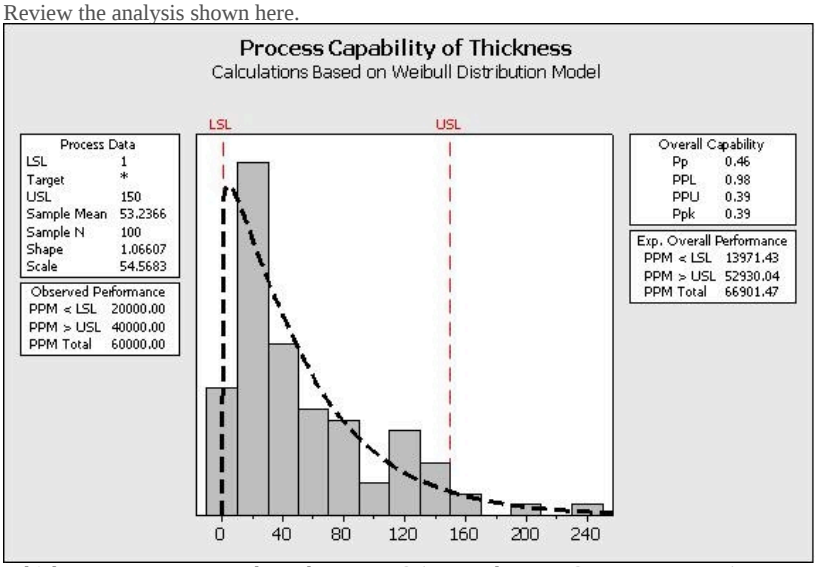
D. Grade A has a higher sample Mean than Grade B

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #68 *Topic 1*

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

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.

Suggested Answer: *BDE*

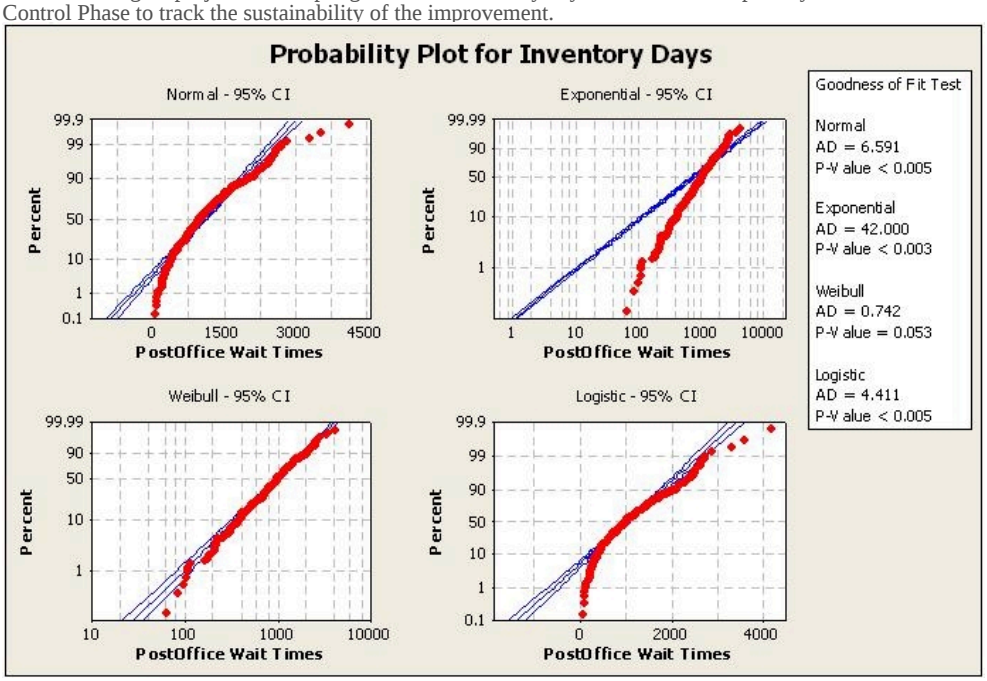
Iulia 5 years, 8 months ago

correct response CDE

upvoted 1 times

Question #69 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #70 *Topic 1*

What conclusion is most correct about the Experimental Design shown here with the response in the far right column?

Adv	Bev	Des	Crux	Response
-1	-1	-1	-1	20
1	-1	-1	1	14
-1	1	-1	1	17
1	1	-1	-1	10
-1	-1	1	1	19
1	-1	1	-1	13
-1	1	1	-1	14
1	1	1	1	10

A. No factor has enough statistical confidence greater than 95% to have an impact on the response rate

A. No factor has enough statistical confidence greater than 95% to have an impact on the response rate

B. Constant, Adv and Bev are the only factors statistically affecting the response rate with 95% confidence or more

C. If the Adv is increased from the low level to the high level, the response rate increases

D. The response level is statistically concluded to only need the Adv and Bev factors set at the low level to get the largest response rate

E. This design does not have enough experimental runs to conclude anything as evidenced by the lack of P-values in the MINITABTM output

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #71 *Topic 1*

A(n) _____ has occurred when two inputs have a greater impact on a change in the output than either of the inputs has by itself.

A. Dependency

B. Bimodal reaction

C. Interaction

D. Amplified effect

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #72 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #73 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #74 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #75 *Topic 1*

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

C. F-test and test of variances of 2 samples

D. Practical and Statistical significance

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #76 *Topic 1*

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

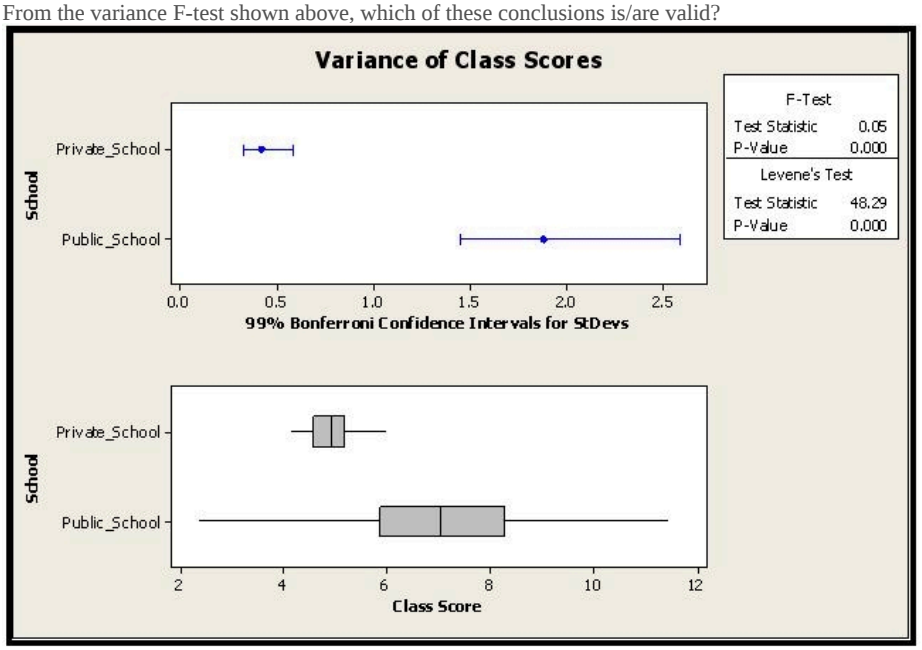
D. Any one of these

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #77 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #78 *Topic 1*

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

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #79 *Topic 1*

To properly analyze the variables impacting the output of a process we need to collect data that represents at least 80% of the variation in the process and assure ourselves we are collecting data from all three types of variation which are _____.

A. Within, Between and Temporal
B. Within, Between and Temporary
C. Without, Above and Below
D. Induced, Natural and Unavoidable

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #80 *Topic 1*

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

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #81 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #82 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #83 *Topic 1*

Some of the sources for different types of error that can be quantified using Statistical Analysis are _____.

A. Error in sampling

B. Bias in sampling
C. Error in measurement
D. All of these answers are correct

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #84 *Topic 1*

Since Normality is required if we intend to use the data collected as a predictive tool. To test for Normality of data we must determine if the P-value is _____.

A. Equal to 0.05
B. Less than 0.05
C. Greater than 0.05
D. Greater than 0.5

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #85 *Topic 1*

The Normal Distribution is considered to be the most important distribution in statistics and, among other things is defined as having a total area under the curve of
1, is mounded and symmetrical and the Mean, Median and Mode are _____.

A. All evenly divisible by 3
B. Twice the Standard Deviation
C. Within 10% of each other
D. The same number

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #86 *Topic 1*

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

Suggested Answer: *C*

Yaseen03 5 years, 1 month ago

The answer is not correct:
Type II error is about accepting false Ho

upvoted 1 times

Question #87 *Topic 1*

A statistical test or Hypothesis Test is performed to reject or fail to reject a stated hypothesis and it converts the Practical Problem into a Statistical Problem.

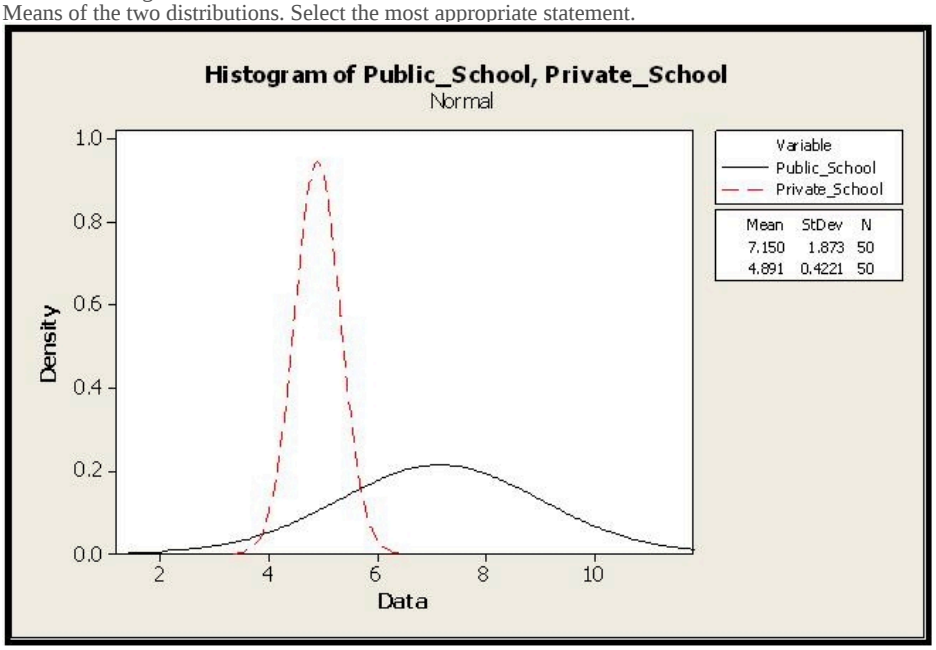
A. True
B. False

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #88 *Topic 1*

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 = mu (Private_School) - mu (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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #89 *Topic 1*

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

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #90 *Topic 1*

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

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #91 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #92 *Topic 1*

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

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #93 *Topic 1*

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).

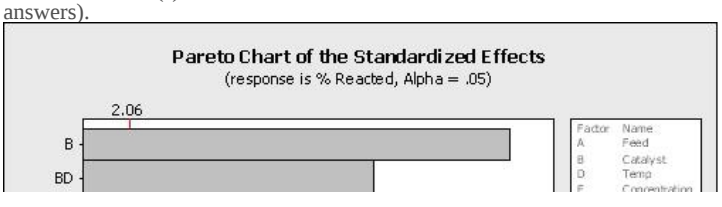
A. The Main Effects for the 5 factors are not aliased or confounded but the 2-way interactions are confounded with the 3-way interactions
B. The Main Effects are confounded with only 4-way interactions
C. The Experimental Design is half-fractional
D. The experiment has 8 experimental runs with the first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

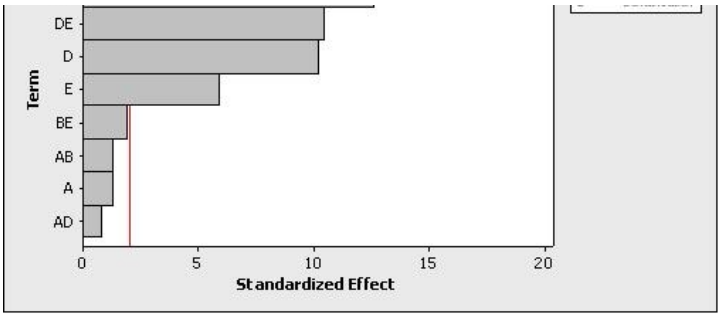
Suggested Answer: *BCD*

Currently there are no comments in this discussion, be the first to comment!

Question #94 *Topic 1*

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

Suggested Answer: *AC*

Currently there are no comments in this discussion, be the first to comment!

Question #95 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #96 *Topic 1*

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

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #97 *Topic 1*

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

A. True
B. False

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #98 *Topic 1*

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

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

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #99 *Topic 1*

Appropriate measures means that measurements are _____.

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

Suggested Answer: *E*

Currently there are no comments in this discussion, be the first to comment!

Question #100 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #101 *Topic 1*

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

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #102 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #103 *Topic 1*

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

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #104 *Topic 1*

Each of the items listed would impact the Process Capability for a process with a continuous output except _____.

A. Shape of process data distribution (e.g. Normal Distribution)
B. Process Technology
C. Process Standard Deviation
D. Seasonal variation in process

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #105 *Topic 1*

For Attribute Data, Process Capability is defined as the average proportion of nonconforming products.

A. True
B. False

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #106 *Topic 1*

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

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #107 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #108 *Topic 1*

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

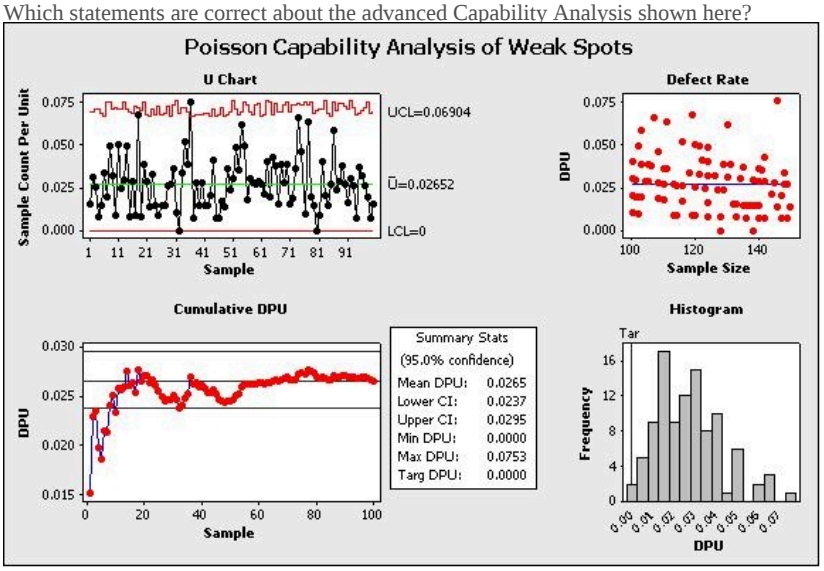
Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #109 *Topic 1*

Question #109 Topic 1

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.

Suggested Answer: *BCE*

Currently there are no comments in this discussion, be the first to comment!

Question #110 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #111 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #112 *Topic 1*

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

A. Multi-Vari Analysis

B. Baldridge Channels

C. One Factor at a Time or OFAT

D. Factorial Design

Suggested Answer: *D*

Currently there are no comments in this discussion, be the first to comment!

Question #113 *Topic 1*

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

A. True
B. False

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #114 *Topic 1*

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #115 *Topic 1*

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

A. True
B. False

Suggested Answer: *B*

ClarkeL6S 4 years, 7 months ago

Can this be explained please?

upvoted 1 times

Question #116 *Topic 1*

The Lean toolbox includes all of the following items except _____.

A. Poke-Yoke
B. Standard Operating Procedures
C. Kaizen
D. 5S the work area

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #117 *Topic 1*

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

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

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #118 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #119 *Topic 1*

If a Six Sigma project was to reduce changeover times and the team found the project success was decreasing over time since changeover times began to creep back up, which Lean tools should be considered in the Control Phase to reestablish and sustain the project success?

A. Improve the lighting to assure adequate visibility
B. Confirm a Visual Factory exists to assure proper communication of status of machines
C. Implement Kanbans to assure enough inventory for the process step
D. Reword the standardized work instructions to use active verbs and not passive phrases

Suggested Answer: *B*

Currently there are no comments in this discussion, be the first to comment!

Question #120 *Topic 1*

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

A. True
B. False

Suggested Answer: *A*

Currently there are no comments in this discussion, be the first to comment!

Question #121 *Topic 1*

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

Suggested Answer: *C*

Currently there are no comments in this discussion, be the first to comment!

Question #122 *Topic 1*

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