

ICBB Dumps

IASSC Certified Lean Six Sigma Black Belt

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NEW QUESTION 1

The two types of data that are to be used in Statistical Analysis are Attribute and Variance.

- A. True
- B. False

Answer: B

NEW QUESTION 2

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

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

Answer: C

NEW QUESTION 3

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

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

Answer: E

NEW QUESTION 4

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

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

Answer: C

NEW QUESTION 5

One of the foundations of Lean Six Sigma is the concept that the output of a process (Y) is influenced by the process inputs (X's) and is commonly shown as which formula?

- A. $Y = Z(X^2)$
- B. $Y = f(X^3)$
- C. $Y = f(X^n)$
- D. $Y = g(X + 1.5)$

Answer: C

NEW QUESTION 6

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 7

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 8

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 9

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 10

When a Belt creates a Process Map she will use a _____ to depict a decision point requiring a Yes or No decision.

- A. Circle
- B. Square
- C. Diamond
- D. Rectangle

Answer: C

NEW QUESTION 10

For a batch manufacturing process, while assessing short term process variation, which variation category(ies) should one need to focus on?(Note:There are 2 correct answers).

- A. Variation within consecutive pieces
- B. Variation among consecutive batches
- C. Variation among groups of pieces
- D. Variation among the completed product

Answer: AB

NEW QUESTION 13

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 17

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

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 20

Using this data calculate the percentage of DPU.

- A. 2.74
- B. 3.23
- C. 4.56
- D. 5.93

Answer: B

NEW QUESTION 23

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

Answer: D

NEW QUESTION 25

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 28

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 33

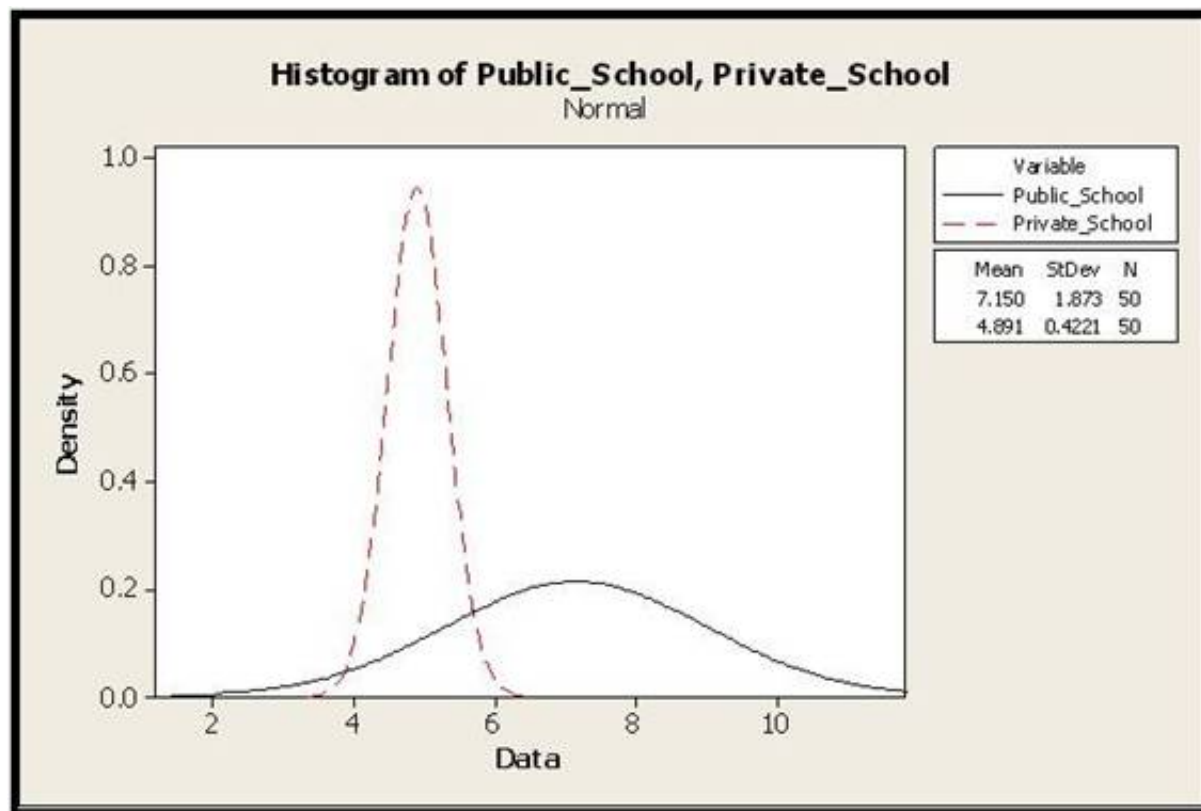
For a Kanban to be successful which of these must occur?

- A. Consistent cycle times
- B. Fairly stable process demand of product or service
- C. Low defect rate of incoming product or service
- D. All of the above

Answer: D

NEW QUESTION 35

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 40

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 44

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 47

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

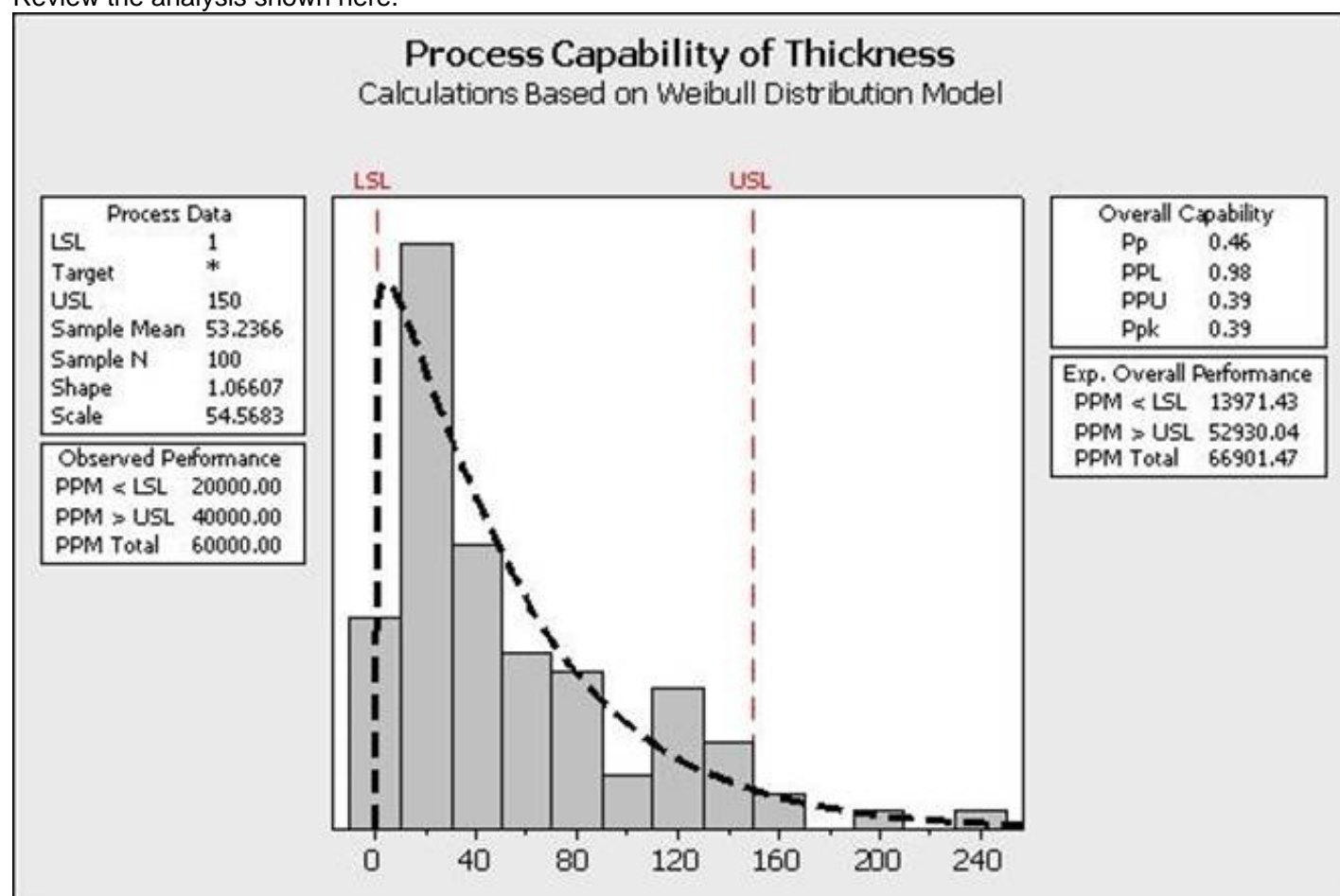
- A. A Half Fractional Design for 5 factors has the same number of experimental runs as a Full Factorial Design for 4 factors assuming no repeats or replicates or Center Points
- B. Quarter Fractional experiments can exist for those with 4 factors

- 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 49

Review the analysis shown here.



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

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

Answer: BDE

NEW QUESTION 52

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

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

Answer: B

NEW QUESTION 57

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
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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
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- 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 61

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 64

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

- A. True
- B. False

Answer: B

NEW QUESTION 67

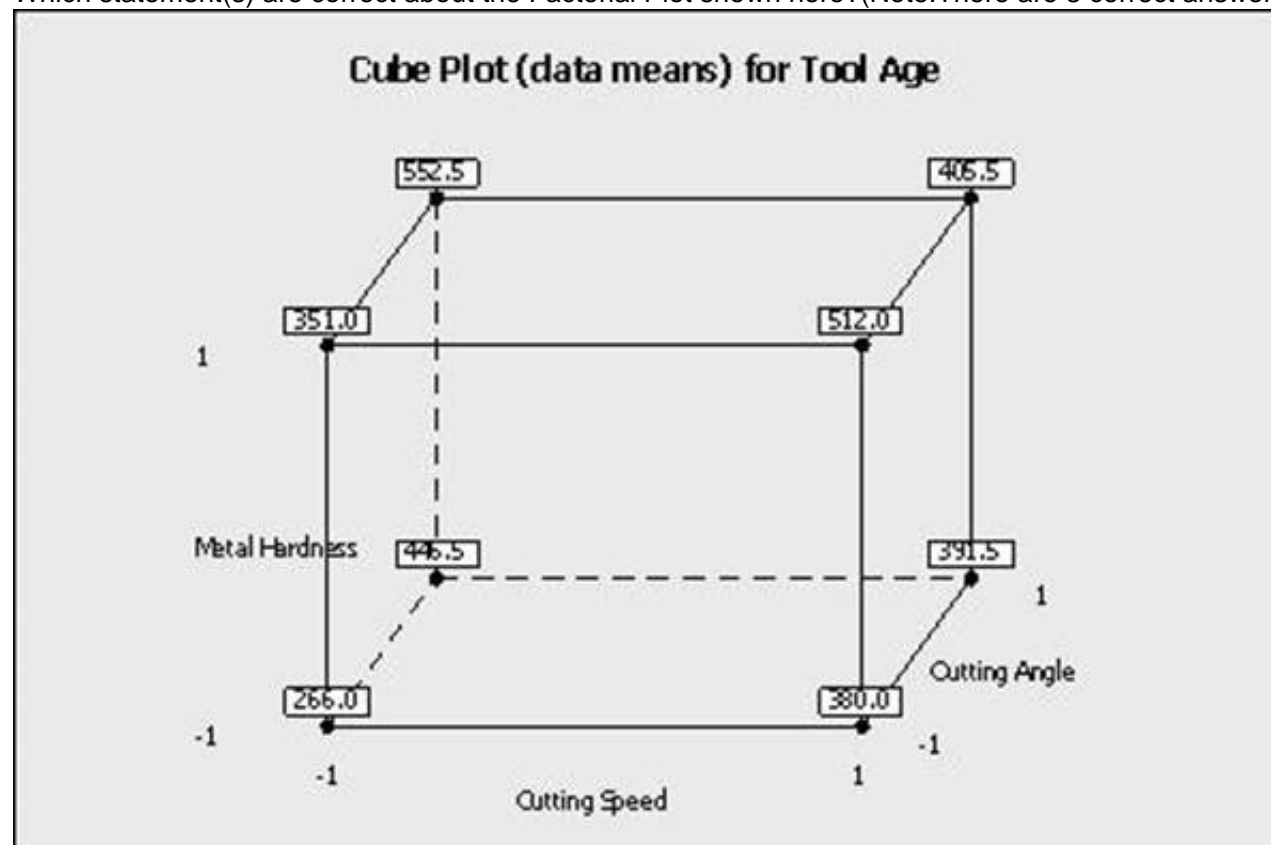
Assessing process proportion as opposed to evaluating a process with respect to a set target can be done using one or more of these.(Note:There are 2 correct answers).

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

Answer: AD

NEW QUESTION 68

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



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

Answer: ABC

NEW QUESTION 72

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

- A. Profit

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

Answer: B

NEW QUESTION 77

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

Answer: A

NEW QUESTION 80

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

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

Answer: B

NEW QUESTION 82

Sally bought a blender from her local appliance store. When she changed blades the blender would not function. For the manufacturer this would be categorized as what type of cost?

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

Answer: B

NEW QUESTION 86

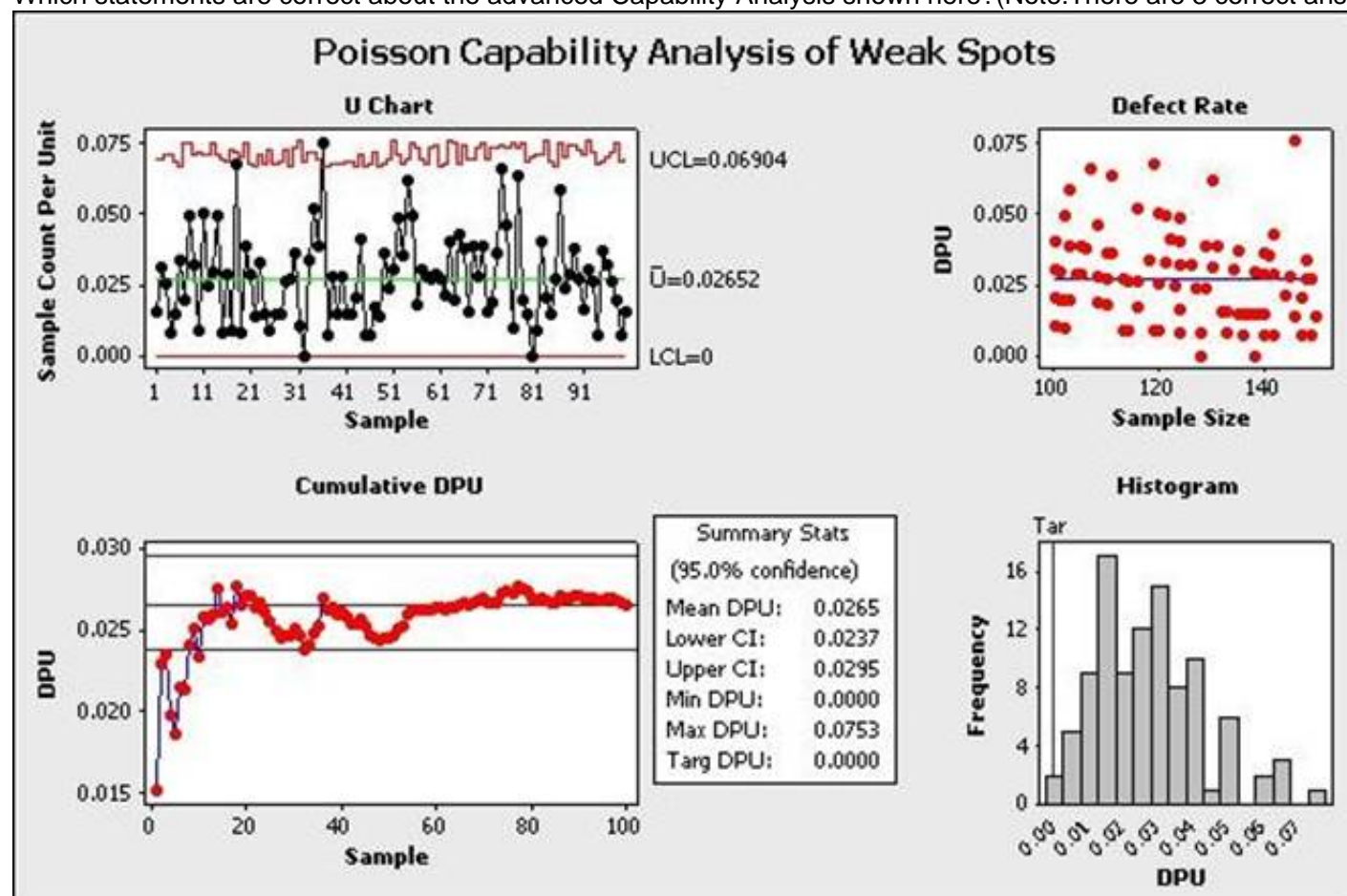
It would be more likely than not for a Belt conducting a Regression Analysis to find that the_____.

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

Answer: A

NEW QUESTION 89

Which statements are correct about the advanced Capability Analysis shown here?(Note:There are 3 correct answers).



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

Answer: BCE

NEW QUESTION 92

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

- A. True
- B. False

Answer: B

NEW QUESTION 97

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 102

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

Answer: A

NEW QUESTION 107

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 112

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 114

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

- A. True
- B. False

Answer: B

NEW QUESTION 118

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 119

Special Cause Variation falls into which two categories?

- A. Natural & Unnatural
- B. Short Term & Long Term
- C. Assignable & Pattern
- D. Attribute & Discreet

Answer: C

NEW QUESTION 122

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

Answer: A

NEW QUESTION 126

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 127

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

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

Answer: B

NEW QUESTION 128

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 133

A Personal Trainer was assessing her workout class participants for their body fat content and had to include data for her analysis. One of the columns listed the range of weight of the people included in the studies. This required plotting a Histogram of the weight of the people assessed for their body fat content. While drawing the Histogram the x-axis contained a certain scale of data. Pick the scale of data that is appropriate for Histograms.

- A. Ordinal Scale Data
- B. Ration Scale Data
- C. Nominal Scale Data
- D. Interval Scale Data

Answer: D

NEW QUESTION 134

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

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

Answer: C

NEW QUESTION 136

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 139

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

- A. True
- B. False

Answer: B

NEW QUESTION 141

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

Answer: C

NEW QUESTION 146

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

- A. True
- B. False

Answer: A

NEW QUESTION 151

Which of the items listed do not define what an X-Y Diagram is?

- 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: D

NEW QUESTION 156

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 160

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 165

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 169

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

- A. True
- B. False

Answer: A

NEW QUESTION 171

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 173

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 176

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

- A. True
- B. False

Answer: A

NEW QUESTION 179

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?

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

Answer: E

NEW QUESTION 183

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			

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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 185

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 186

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 191

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

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

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- 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 194

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

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

Answer: D

NEW QUESTION 196

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

- A. True
- B. False

Answer: A

NEW QUESTION 199

.....

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