

ICBB Dumps

IASSC Certified Lean Six Sigma Black Belt

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NEW QUESTION 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

Answer: A

NEW QUESTION 2

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

- A. True
- B. False

Answer: A

NEW QUESTION 3

When variation is removed from the output of a process then the process customer can have more confidence in the experience that results from the process.

- A. True
- B. False

Answer: A

NEW QUESTION 4

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

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

Answer: C

NEW QUESTION 5

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.
- B. Normal Distribution)
- C. Process Technology
- D. Process Standard Deviation
- E. Seasonal variation in process

Answer: B

NEW QUESTION 6

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 7

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 8

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 9

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 10

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

- A. True
- B. False

Answer: B

NEW QUESTION 10

Using this data calculate the percentage of DPU.

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

Answer: B

NEW QUESTION 12

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 13

Calculate the Rolled Throughput Yield of this process using this data. Data:unit input: 1215, unit output: 1180, defectsrepaired:184, scrap: 42

- A. 80.85%
- B. 81.40%
- C. 82.23%
- D. 84.96%

Answer: B

NEW QUESTION 16

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 21

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 25

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

Answer: B

NEW QUESTION 28

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

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

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

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 29

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

- A. All of the standardized residuals will be within ± 3 Standard Deviations
- B. The sum of the residuals is zero
- C. The residuals when plotted follow a Normal Distribution
- D. Most standardized residuals are within ± 2 Standard Deviations
- E. The Residual is equal to the difference between the observed and predicted values

Answer: A

NEW QUESTION 34

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 39

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 44

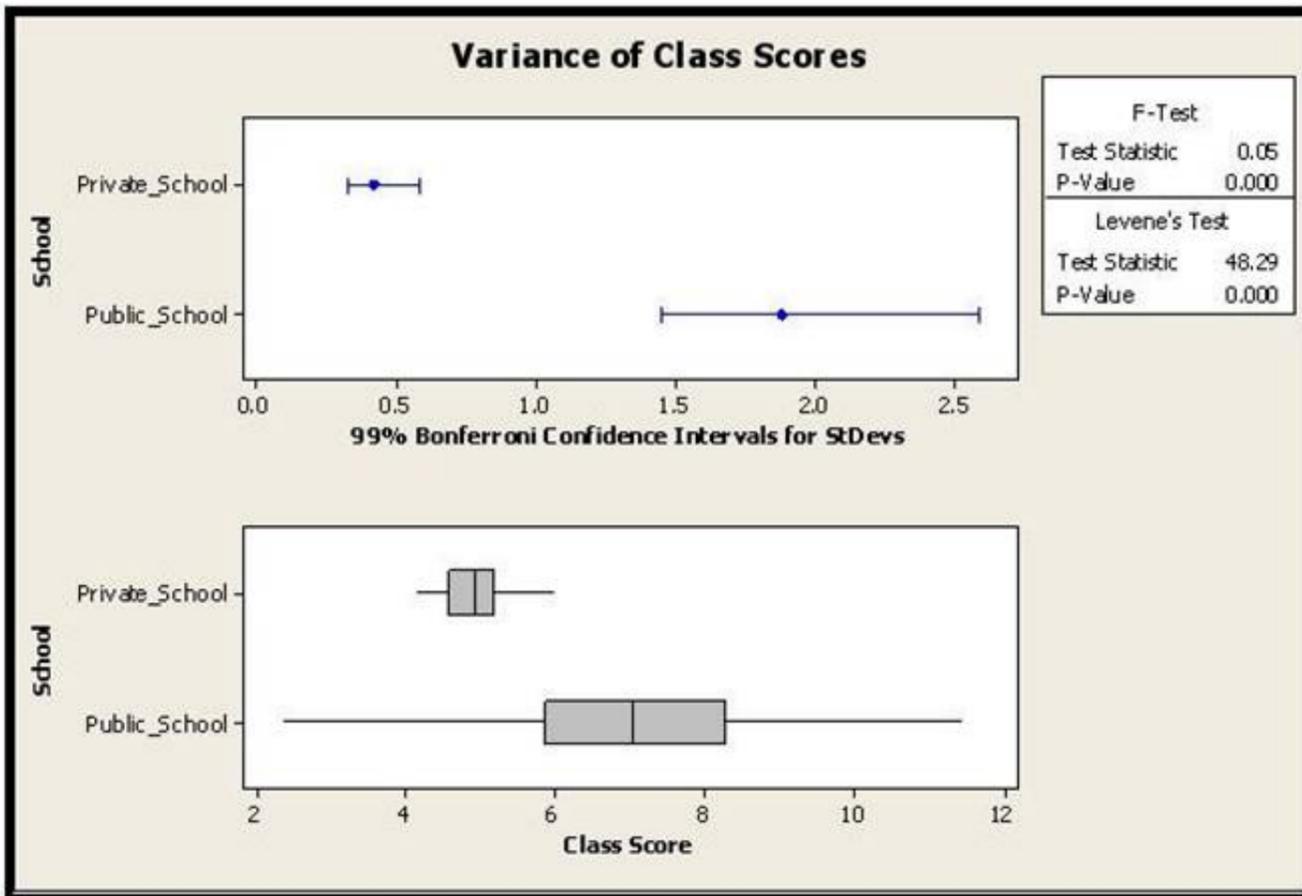
If a Six Sigma project was to reduce repair station inventory and the team found the inventory was creeping up over time which Lean tools should be considered in the Control Phase to reestablish and sustain the project success?

- 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

Answer: A

NEW QUESTION 45

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 47

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

Answer: B

NEW QUESTION 51

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

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

Answer: D

NEW QUESTION 53

Which item(s) listed would impact the Process Capability for a process with a continuous output?(Note:There are 4 correct answers).

- A. Shape of process data distribution (e.

- B. Normal Distribution)
- C. Process Technology
- D. Process Standard Deviation
- E. Presence of Special Causes or solely Common Causes
- F. Seasonal variation in process

Answer: ACDE

NEW QUESTION 56

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 61

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 62

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

Answer: D

NEW QUESTION 64

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

- A. True
- B. False

Answer: B

NEW QUESTION 66

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 71

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

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

Answer: C

NEW QUESTION 76

Sally and Sara sell flower pots at their garage sale. Sally motivates Sara mentioning that they will sell a minimum of 15 pots per day if the outside temperature exceeds 60o F. From a sample, whose population is assumed to follow a Normal Distribution, taken for 30 days at 60 degrees or more an average of 13.6 pots per day were sold with a Standard Deviation of 0.7 pots. For the sales accomplished above, what test would validate if they met their requirements?

- A. F Test
- B. Test for Equal Variance
- C. Chi Square Test

D. One-Sample t-Test

Answer: D

NEW QUESTION 80

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 82

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 87

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

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

Answer: A

NEW QUESTION 92

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

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

Answer: C

NEW QUESTION 94

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 96

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

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

Answer: BCD

NEW QUESTION 100

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 102

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

- A. Shaping
- B. Shining
- C. Standardizing
- D. Signing

Answer: BC

NEW QUESTION 103

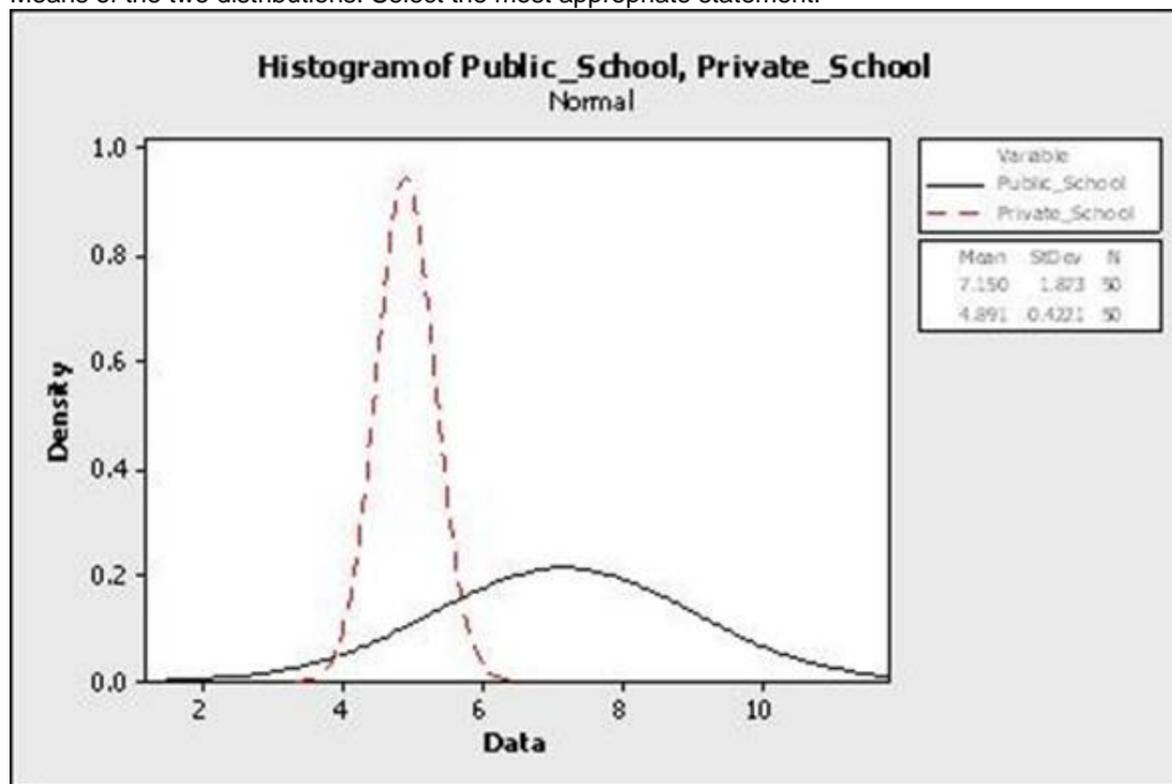
The Waste of Overproduction is defined as _____.

- 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 107

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)

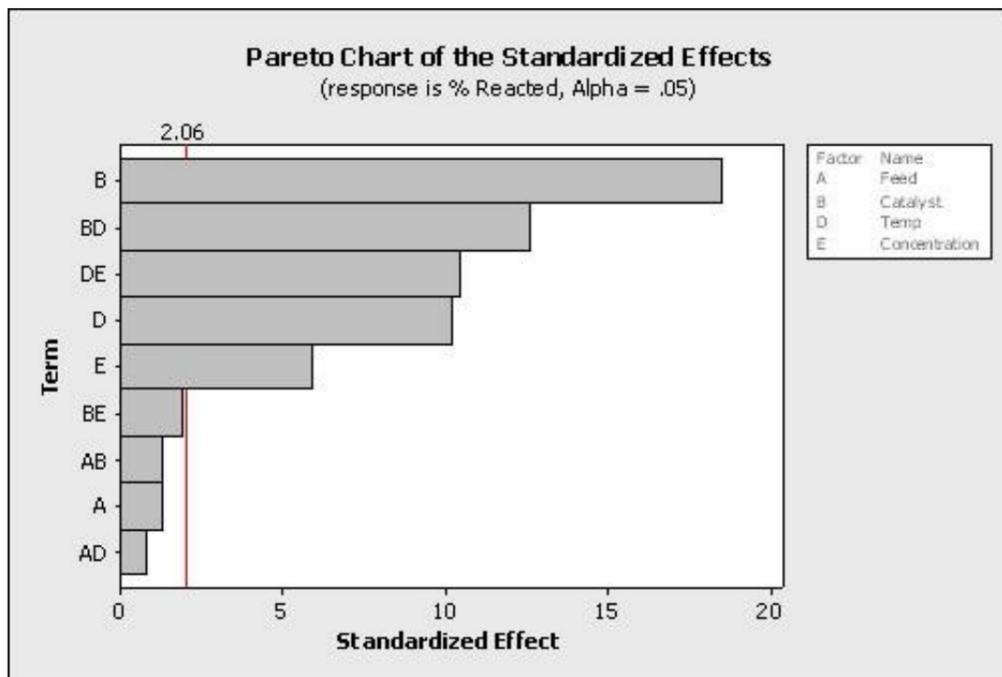
T-Test of difference = 0 (vs not =): T-Value = -8.32 p-Value = 0.000 DF = 53

- 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

Answer: A

NEW QUESTION 111

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 114

Sally and Sara sell flower pots at their garage sale. Sally motivates Sara mentioning that they will sell a minimum of 15 pots per day if the outside temperature exceeds 60o F. From a sample, whose population is assumed to follow a Normal Distribution, taken for 30 days at 60 degrees or more an average of 13.6 pots per day were sold with a Standard Deviation of 0.7 pots. For the sales accomplished above, what test would validate if they met their requirements?

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

Answer: D

NEW QUESTION 118

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 123

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

Answer: A

NEW QUESTION 124

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 125

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

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

Answer: C

NEW QUESTION 127

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

Answer: C

NEW QUESTION 130

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 132

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 133

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 136

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 139

Use this data to calculate the Z Score. Average of:92, Standard Deviation: 2, Upper Spec Limit: 101

- A. 0.75
- B. 1.5
- C. 2.25
- D. 4.50

Answer: D

NEW QUESTION 142

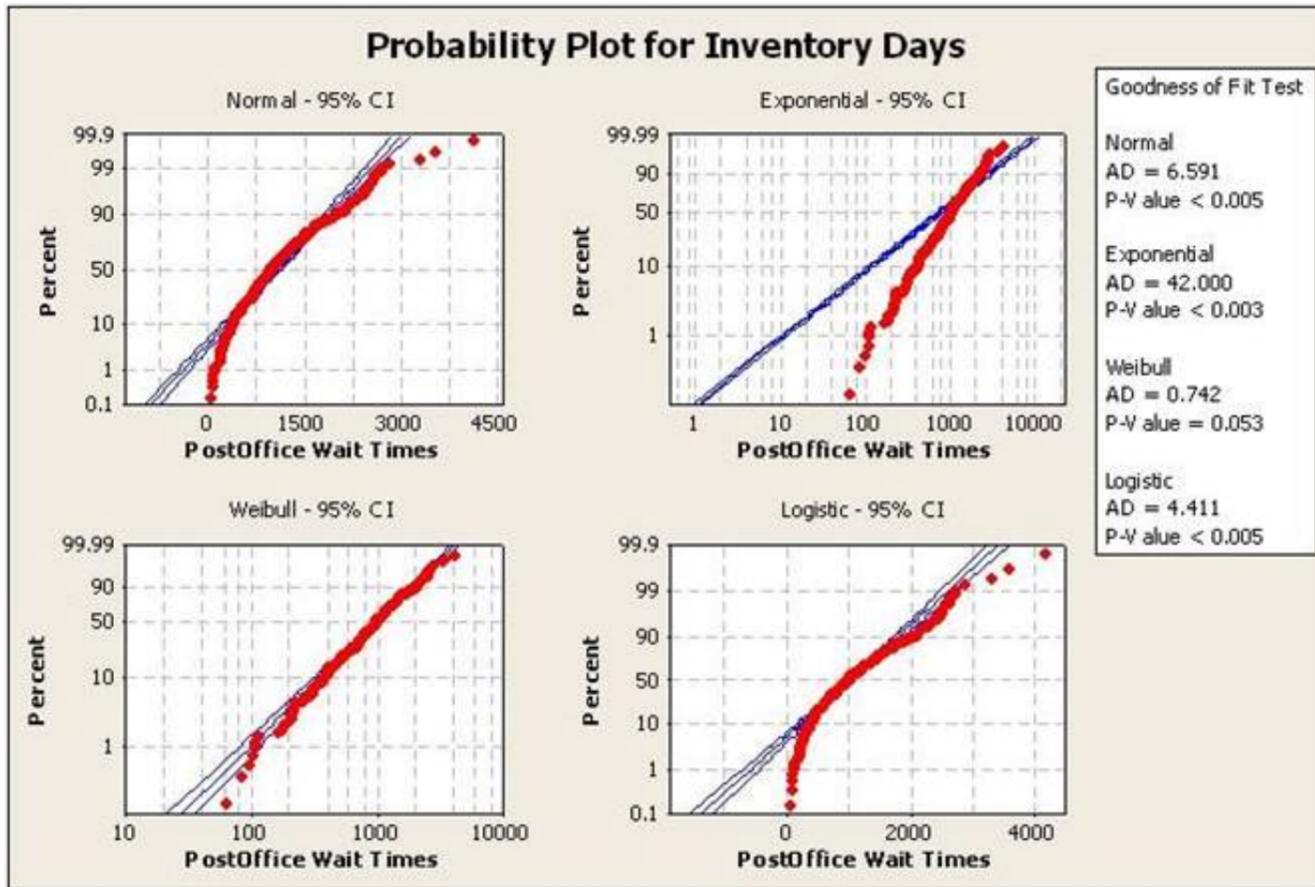
A valuable tool to use during the Measure Phase to show material and information flow throughout an entire process is the _____.

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

Answer: A

NEW QUESTION 144

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 147

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 149

Which of these is not a primary cause for Non-normal Data?

- A. Skewness
- B. Mixed Distributions
- C. Kurtosis
- D. Formulosis
- E. Granularity

Answer: D

NEW QUESTION 154

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 156

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 161

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 166

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 168

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 170

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 174

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 178

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

- A. True
- B. False

Answer: A

NEW QUESTION 179

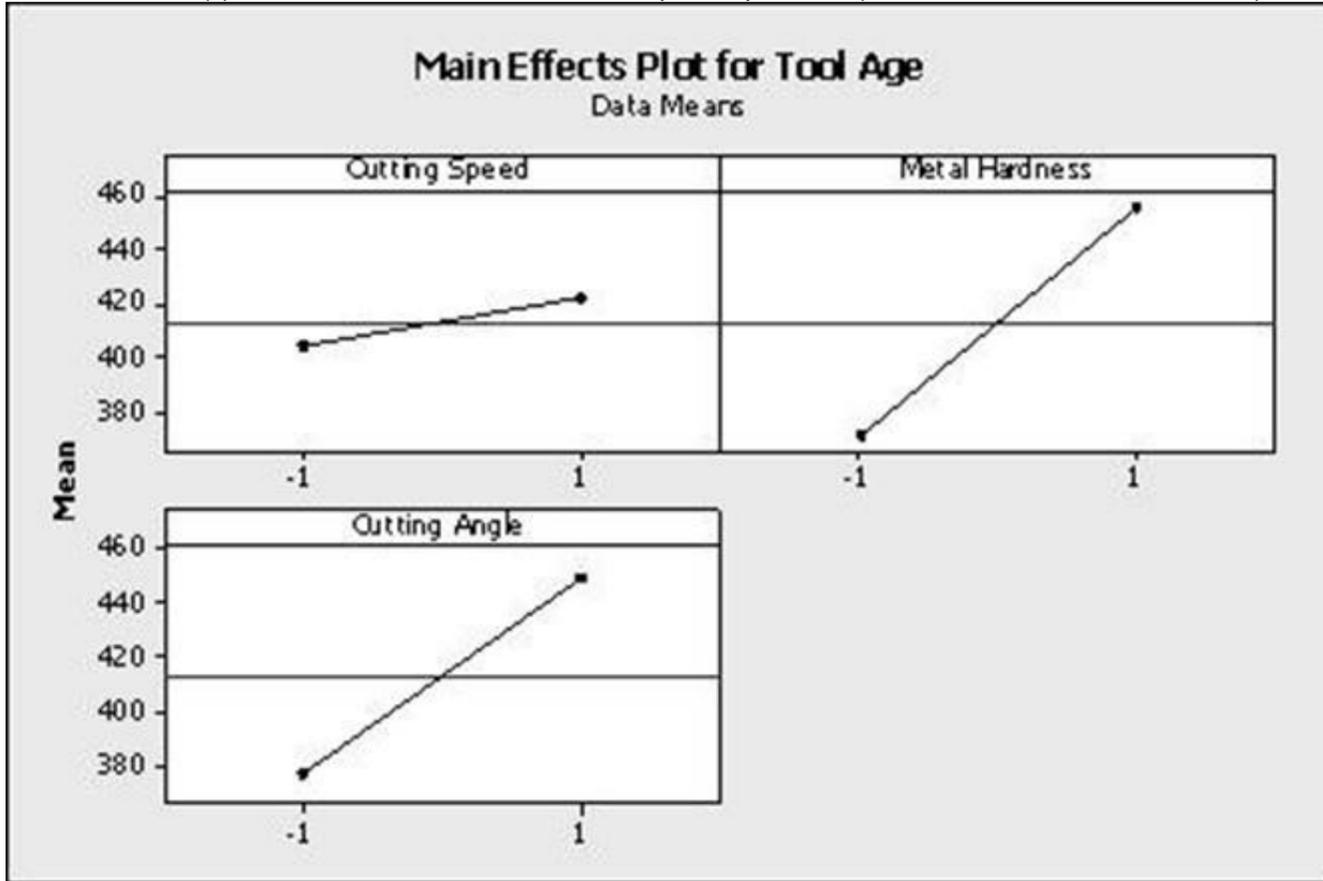
The two types of data that can be used in Statistical Analysis are Attribute and Variable.

- A. True
- B. False

Answer: A

NEW QUESTION 183

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 185

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