Exam Questions CSSBB

Certified Six Sigma Black Belt

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NEW QUESTION 1
- (Topic 1)
A pharmaceutical manufacturer is designing an experiment to test four different capsule ingredients designed to reduce dissolution time. Each ingredient will be tested at 10 milligrams and 40 milligrams. A full factorial design is used with five replications per run. The number of levels, factors and runs is, respectively:

A. 2, 4, 16
B. 4, 5, 8
C. 10, 4, 40
D. 2, 20, 16

Answer: A

NEW QUESTION 2
- (Topic 1)

Run #	A	B	Ave. Response
1	−	−	129
2	−	+	133
3	+	−	86
4	+	+	80

This experimental design is an example of:

A. full factorial
B. half fractional factorial
C. fractional factorial
D. ANOVA design

Answer: A

NEW QUESTION 3
- (Topic 1)
The management team in the above problem assigns each goal a numerical value designating its importance. The "bulls eyes," circles and triangles are replaced by the values 3, 2 and 1 respectively. Entries are made in each box by multiplying the 3, 2 or 1 by the goal value. The importance of each activity is calculated by adding the entries in its row.

	#1 (5)	#2 (8)	#3 (2)	Total
Activity #1	3 (15)			45
Activity #1		1 (8)	2 (4)	12
Activity #1	2 (10)	3 (24)		34
etc.				

A. Affinity diagram
B. Inter-relationship digraph
C. Tree diagram
D. Process decision program chart
E. Matrix diagram
F. Prioritization matrix

Answer: F

NEW QUESTION 4
- (Topic 1)
A random sample is selected from a population of measurements. The mean of the sample is not equal to the mean of the population. This is due to:

A. Type I error
B. Type II error
C. sampling error
D. the population is not normal
E. measurements were not exact

Answer: C

NEW QUESTION 5
- (Topic 1)
In a series of linked processes and associated feedback loops the product or service flows _____ and the information flows _____ .

A. rapidly, slower
B. downstream, upstream
C. evenly, digitally
D. sooner, later
E. to the customer, from the supplier
F. none of the above

Answer: B

NEW QUESTION 6
- (Topic 1)
The median is a better choice than the mean for a measure of central tendency if the data:

A. is bimodal
B. often has outliers
C. is normally distributed
D. is exponentially distributed

Answer: B

NEW QUESTION 7
- (Topic 1)
A team has been asked to reduce the cycle time for a process. The team decides to collect baseline data. It will do this by:

A. seeking ideas for improvement from all stakeholders
B. researching cycle times for similar processes within the organization
C. obtaining accurate cycle times for the process as it currently runs
D. benchmarking similar processes outside the organization

Answer: C

NEW QUESTION 8
- (Topic 1)
A team working with a plant relocation is tasked with designing a process for moving 180 pieces of equipment. Incoming orders may need to be filled during the move at either the old site or the new one. Transportation equipment availability is uncertain. Construction schedules at the new site is very weather dependent. The team designs a chart that attempts to cover these and other contingencies with appropriate measures dealing with each. The tool best fitted for this task is:

A. Affinity diagram
B. Inter-relationship digraph
C. Tree diagram
D. Process decision program chart
E. Matrix diagram
F. Prioritization matrix
G. Activity network diagram

Answer: D

NEW QUESTION 9
- (Topic 1)
Is it safe to assume that the interaction effects are negligible?

Run #	A	B	Ave. Response
1	–	–	129
2	–	+	133
3	+	–	86
4	+	+	80

A. yes
B. no
C. probably

Answer: C

NEW QUESTION 10
- (Topic 1)
A quality engineer employed by a hospital is asked to improve the process of medication storage in locked cabinets near patient doors. One defect that occurs rarely is that the medication caddy is left out when the cabinet is relocked. The engineer installs a gravity activated arm that will not permit the door to close when the caddy isn't inside. This improvement is best described by which approach to problem solving?

A. 5S
B. Poka yoke
C. Kaizen
D. PDCA
E. Re-engineering

Answer: B

NEW QUESTION 10
- (Topic 1)
A random sample of 2500 printed brochures is found to have a total of three ink splotches. The rate of ink splotches in PPM is:

A. 1,000,000 ÷ 2500 × 3
B. 2500 ÷ 1,000,000 × 3
C. 3 ÷ 2500 × 1,000,000
D. 3 × 2500 ÷ 1,000,000

Answer: C

NEW QUESTION 13
- (Topic 1)
A population is bimodal with a variance of 5.77. One hundred samples of size 30 are randomly collected and the 100 sample means are calculated. The standard deviation of these sample means is approximately:

A. 5.77
B. 2.40
C. 1.05
D. 0.44
E. 0.19

Answer: E

NEW QUESTION 14
- (Topic 1)
The team in the above problem draws arrows from Post-It® notes that are causes to notes that are the effects of these causes. This step is best described by which approach to problem solving?

A. Affinity diagram
B. Inter-relationship digraph
C. Tree diagram
D. Process decision program chart
E. Matrix diagram
F. Prioritization matrix
G. Activity network diagram

Answer: B

NEW QUESTION 15
- (Topic 1)
If the probability that event A occurs is .51, the probability that event B occurs is .64 and events A and B are statistically independent then:

A. A and B are mutually exclusive
B. the probability that both A and B occur is 0.3264
C. A and B can't both occur
D. the probability that A occurs is 1-(probability that B occurs)
E. A and B have different standard deviations

Answer: B

NEW QUESTION 20
- (Topic 1)
A team wants a technique for improving consistency of assembly operations. They should use:

A. written and diagrammed work instructions
B. flow charts and process maps
C. cause and effect diagrams
D. Pareto chart
E. relationship matrix

Answer: A

NEW QUESTION 25
- (Topic 1)
The following data were collected on the diameters of turned shafts: 2.506 2.508 2.505 2.505. These values are: I. Attribute data II. Discrete data III. Variables data IV. Continuous data

A. I and II A stable, normally distributed process with specification 3.50 .03 has = = .016. What percent of the production violates specification?
B. I only
C. II only
D. I and IV
E. III and IV

Answer: E

NEW QUESTION 29
- (Topic 1)

	size			
	.500	.625	.750	.875
Nut	146	300	74	41
Washer	280	276	29	32
Bolt	160	214	85	55

This table displays the inventory of fasteners in a storage cabinet. An item is selected at random from the fastener cabinet. Find the approximate probability it is larger than 1/2.

A. .35
B. .65
C. .1106
D. .47
E. none of the above

Answer: B

NEW QUESTION 31
- (Topic 1)
SCENARIO A Six Sigma team is measuring the moisture content of corn starch as it leaves the conveyer belt of a dryer. They collect one sample four cups of starch at times indicated in the chart at fixed locations labeled A, B, C, and D across the end of the belt. See the diagram below.
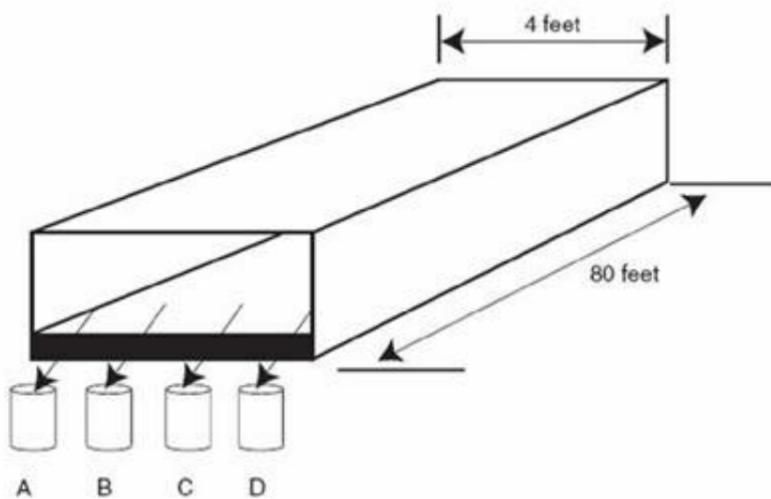
Find the equation of the regression line for these sample data points: (1, 7) (3, 3) (3, 2) (5, −1)
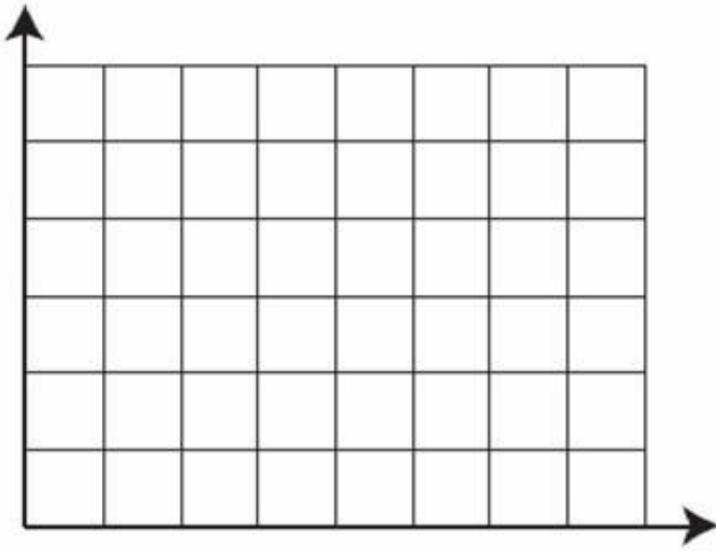
A. y = 10.8 – 2.9x
B. y = 12.9 + 5.2x
C. y = 16 – 3.7x
D. y = 8.75 – 2x
E. y = 22.6 – 4.8x

Answer: D

NEW QUESTION 32
- (Topic 1)
The quality leader responsible for the term Total Quality Management (TQM):

A. Juran
B. Ishikawa
C. Crosby
D. Feigenbaum
E. Taguchi
F. none of the above

Answer: D

NEW QUESTION 35
- (Topic 1)
SWOT is an acronym for:

A. strengths, weaknesses, opportunities, threats
B. statistics without tables
C. sensory Weibull ordinal tools
D. success wields optimal teams
E. none of the above

Answer: A

NEW QUESTION 36
- (Topic 1)
When comparing two vendors' machines it is found that a sample of 1000 parts from machine A has 23 defectives and a sample of 1300 parts from machine B has 36 defectives. Do the data indicate that machine B has a higher rate of defectives?

A. yes
B. no
C. all of the above

Answer: A

NEW QUESTION 37
- (Topic 1)
There are 14 different defects that can occur on a completed time card. The payroll department collects 328 cards and finds a total of 87 defects. DPU =

A. 87 ÷ 328
B. 87 ÷ (328 × 14)
C. 14 ÷ 87
D. 87 ÷ 14
E. 328 ÷ 87
F. 87 × 1,000,000 ÷ (14 × 328)

Answer: A

NEW QUESTION 38
- (Topic 1)
Intuitively, which factor A or B seems most likely to be significant?

| Run #	A	B	Ave. Response
1	−	−	129
2	−	+	133
3	+	−	86
4	+	+	80

A. A
B. B
C. C
D. neither
E. both about equally significant

Answer: A

NEW QUESTION 41
- (Topic 1)
SCENARIO A Six Sigma team is measuring the moisture content of corn starch as it leaves the conveyer belt of a dryer. They collect one sample four cups of starch at times indicated in the chart at fixed locations labeled A, B, C, and D across the end of the belt. See the diagram below.
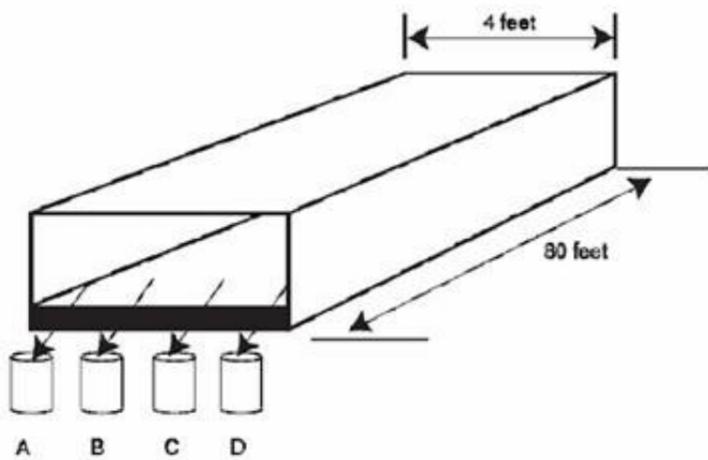
After some more work on the dryer, additional data are collected which when plotted looks like this:
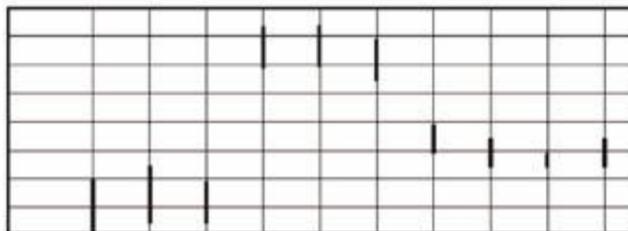
Which type of variation dominates?

A. within sample
B. sample to sample within the hour
C. hour to hour
D. none of the above

Answer: C

NEW QUESTION 43
- (Topic 1)
Calculate the main effect of factor A (i. e. A+ – A–).

Run #	A	B	Ave. Response
1	–	–	129
2	–	+	133
3	+	–	86
4	+	+	80

A. 46
B. 129
C. 83
D. –46
E. none of the above

Answer: E

NEW QUESTION 48
- (Topic 1)
A team wants a technique for obtaining a large number of possible reasons for excess variation in a dimension. They should use:

A. written and diagrammed work instructions
B. flow charts and process maps
C. cause and effect diagrams
D. Pareto chart
E. relationship matrix

Answer: C

NEW QUESTION 51
- (Topic 1)
= 0.05 A machine tool vender wants to sell an injection molding machine. The current machine produces 3.2% defectives. A sample of 1100 from the vender 's machine has 2.9% defective. Do these numbers indicate that the proposed machine has a lower rate of defectives?

A. yes
B. no

Answer: A

NEW QUESTION 55
- (Topic 1)
If the probability that an event will occur is 0.83, then the probability that the event will not occur is:

A. 0.17
B. 0.07
C. 0.6889
D. 1.20
E. 83%

Answer: A

NEW QUESTION 60
- (Topic 1)
Find the value of (7) in the ANOVA table. Assume:

$$\alpha = 0.10:$$

ANOVA Table

Source	SS	df	MS	F ratio	F crit	P-value
x	1.48	1	(1)	(2)	(3)	(4)
Y	18.6	1	(5)	(6)	(7)	(8)
xxY	12.2	1	(9)	(10)	(11)	(12)
Error	2.1	4	(13)			

A. 16.4

B. 3.2
C. 18.6
D. 23.2
E. 4.54
F. 12.2
G. 0.525
H. 2.82
I. 1.48
J. 35.4
K. 0.10<P<1
L. 0.05<P<0.10
M. 0.01<P<0.05
N. 0.005<P<0.01
O. 0<P<0.005

Answer: E

NEW QUESTION 65
- (Topic 1)
An automatic gaging system is to be installed in a process. The gage will insert data values into a data base from which machine adjustments will be made automatically. A critical factor in specifying the equipment is:

A. communication link between gage and computer
B. compatibility of software in the gage and in the computer
C. adequate manual over-rides
D. all of the above

Answer: D

NEW QUESTION 70
- (Topic 1)
= 0.05 The average weight of castings produced at the Nebraska foundry is 3.7 lbs. A new supplier from Kansas has submitted a batch of castings known to have normally distributed weights. A random sample of 10 has an average weight of 3.6 lbs. and standard deviation 0.06 lbs. Do these data indicate that the Kansas foundry produce lighter castings on average?

A. yes
B. no

Answer: A

NEW QUESTION 74
- (Topic 1)
$P(A) = .42$, $P(B) = .58$, $P(A\&B) = .10$. Are A and B (statistically) independent?

A. yes
B. no

Answer: B

NEW QUESTION 75
- (Topic 1)
$P(A) = .42$, $P(B) = .58$, $P(A\&B) = .10$ Find $P(A$ or $B)$.

A. .90
B. 1.00
C. .24
D. none of the above

Answer: A

NEW QUESTION 78
- (Topic 1)
A medicine with efficacy of .52 is given to five patients. Find the approximate probability that at least one of the patients is cured. (Hint: Use the binomial formula.)

A. .975
B. .480
C. .531
D. .416
E. none of the above

Answer: A

NEW QUESTION 83
- (Topic 1)
This table displays the inventory of fasteners in a storage cabinet. A bolt is selected at random from the fastener cabinet. Find the approximate probability it is size 7/8.

	size			
	.500	.625	.750	.875
Nut	146	300	74	41
Washer	280	276	29	32
Bolt	160	214	85	55

A. 11
B. .08
C. .09
D. .30
E. none of the above

Answer: A

NEW QUESTION 84
- (Topic 1)
The Toronto plant produces appliances in the following distribution: Type A 23% Type B 42% Type C 35% A random sample of 300 appliances from the Texas plant has the following distribution: Type A 73 Type B 111 Type C 116 Is the distribution of appliances at the Texas plant the same as that at the Toronto plant?

A. yes
B. no

Answer: B

NEW QUESTION 86
- (Topic 1)
= 0.05 A sample of size 50 from machine A has a mean of 18.2 and standard deviation 3.1. A sample of size 40 from machine B has mean 17.6 and standard deviation 2.8. Do these data indicate that the population for machine A has a larger mean? Assume the populations are normal.

A. yes
B. no

Answer: B

NEW QUESTION 89
- (Topic 1)
If DPU = 0.022, the RTU is approximately:

A. 0.022
B. 0.078
C. 0.0022
D. 0.98
E. 0.098
F. 0.0098

Answer: D

NEW QUESTION 92
- (Topic 1)
An engineer wants to try two hardening ovens to see whether they have different hardness scores. She cuts 8 pieces of bar stock in half, putting half of each in oven A and the other half in oven B. The following data are collected: Do the data indicate that the ovens have different average scores? Assume differences are normally distributed.

Piece #	1	2	3	4	5	6	7	8
Oven A	20.3	19.7	21.4	22.0	21.6	21.0	20.8	20.8
Oven B	19.7	20.0	20.1	21.2	21.4	20.7	21.0	19.6

A. yes
B. no

Answer: B

NEW QUESTION 97
- (Topic 1)
A project activity not on the critical path has required 20% longer than the time originally allocated. The project team should:

A. inform all concerned that the entire project will be delayed by 20%
B. inform all concerned that the entire project will be delayed but by less than 20%
C. study the effect this will have on other activities because the project may still be on schedule

Answer: C

NEW QUESTION 98
- (Topic 1)
Customer segmentation refers to:

A. dividing a particular customer into parts that are more easily understood
B. grouping customers by one or more criteria
C. maintaining secure customer listings to minimize communication among them
D. eliminating or "cutting off" customers with poor credit history

Answer: B

NEW QUESTION 102
- (Topic 1)
A team studies a coil steel banding process and makes five changes resulting in productivity improvements of 2%, 2.8%, 2.4%, 2% and 3% respectively. These improvements are best described by which approach to problem solving?

A. 5S
B. Poka yoke
C. Kaizen
D. PDCA
E. Re-engineering

Answer: C

NEW QUESTION 103
- (Topic 1)
Find the value of (2) in the ANOVA table. Assume:

$$\alpha = 0.10:$$

ANOVA Table

Source	SS	df	MS	F ratio	F crit	P-value
x	1.48	1	(1)	(2)	(3)	(4)
Y	18.6	1	(5)	(6)	(7)	(8)
xxY	12.2	1	(9)	(10)	(11)	(12)
Error	2.1	4	(13)			

A. 16.4
B. 3.2
C. 18.6
D. 23.2
E. 4.54
F. 12.2
G. 0.525
H. 2.82
I. 1.48
J. 35.4
K. 0.10<P<1
L. 0.05<P<0.10
M. 0.01<P<0.05
N. 0.005<P<0.01
O. 0<P<0.005

Answer: H

NEW QUESTION 106
- (Topic 1)
Find the value of (6) in the ANOVA table. Assume:

$$\alpha = 0.10:$$

ANOVA Table

Source	SS	df	MS	F ratio	F crit	P-value
x	1.48	1	(1)	(2)	(3)	(4)
Y	18.6	1	(5)	(6)	(7)	(8)
xxY	12.2	1	(9)	(10)	(11)	(12)
Error	2.1	4	(13)			

A. 16.4
B. 3.2
C. 18.6
D. 23.2
E. 4.54
F. 12.2
G. 0.525
H. 2.82
I. 1.48
J. 35.4
K. $0.10 < P < 1$
L. $0.05 < P < 0.10$
M. $0.01 < P < 0.05$
N. $0.005 < P < 0.01$
O. $0 < P < 0.005$

Answer: J

NEW QUESTION 111
- (Topic 1)
A project that lacks a clear definition of its scope and boundaries runs the risk of:

A. straying from the intended path
B. trying to solve unrelated problems
C. having difficulty in collecting baseline data
D. suffering morale problems
E. all the above
F. none of the above

Answer: E

NEW QUESTION 115
- (Topic 2)
Find Cp

A. 2.00
B. 0.56
C. 1.33
D. 0.44

Answer: B

NEW QUESTION 120
- (Topic 2)
This QFD matrix was used in the design process for a ball point pen. What symbol is appropriate for the square labeled 11?

A.
B.
C.
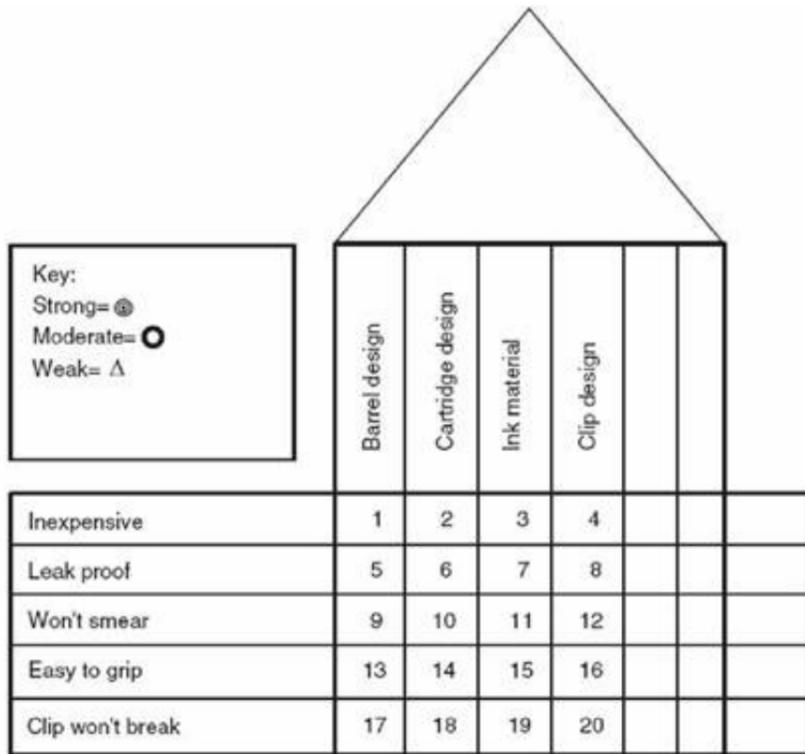
A. none of the above

Answer: B

NEW QUESTION 123
- (Topic 2)
An example of a project metric would be:

A. the decrease in defect occurrence
B. the decrease in product cost
C. the decrease in cycle time
D. all the above

Answer: D

NEW QUESTION 128
- (Topic 2)
This QFD matrix was used in the design process for a ball point pen. What symbol is appropriate for the square labeled 4?

A.
B.
C.
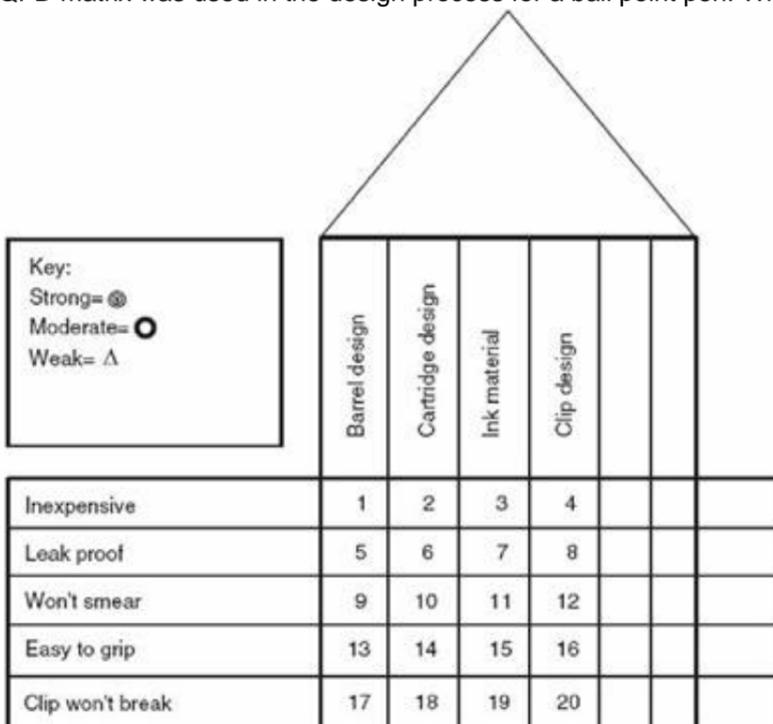
A. none of the above

Answer: B

NEW QUESTION 133
- (Topic 2)
An x-bar and R chart has four part measurements per sample The control limits on the averages chart are 2.996 and 3.256. Assume the process data form a

normal distribution. What is the probability that the next part measurement falls outside the control limits?

A. 0.00135
B. 0.0027
C. 0.0681
D. 0.1362
E. 0.2724
F. none of the above

Answer: D

NEW QUESTION 137
- (Topic 2)
"Robust design" refers to the ability of the product or service:

A. to function the same in different conditions
B. to remain strong
C. to last a long time
D. to have a high reliability

Answer: A

NEW QUESTION 140
- (Topic 2)
This will be a:

A. left-tail test
B. right-tail test
C. two-tail test

Answer: B

NEW QUESTION 142
- (Topic 2)
The critical value(s) is/are:

A. 1.645
B. 1.96
C. 1.645
D. 1.96

Answer: A

NEW QUESTION 146
- (Topic 2)
At a particular time, three components are in parallel and each has a reliability of 0.98. What is the reliability of the system?

A. 0.98
B. 0.94
C. 0.37
D. 0.26
E. none of the above

Answer: E

NEW QUESTION 149
- (Topic 2)
A process shows the following number of defects. Each sample size for this process is 85. 3 8 2 7 7 6 8 8 9 5 Find the control limits.

A. none and 13.8
B. 12.6 and 25.2
C. none and 25.2
D. none of the above

Answer: A

NEW QUESTION 150
- (Topic 2)
When Tricia empties a box of capacitors she places it at a designated spot on her work table. Sam notices the empty box and brings a full box of capacitors from the stock room. This is an example of:

A. visual factory
B. kanban
C. poka-yoke
D. standard work
E. set up time reduction (SMED)

Answer: B

NEW QUESTION 152
- (Topic 2)
A meeting is called for all three shifts to determine the settings to be used on machine #45. This is an example of:

A. visual factory
B. kanban
C. poka-yoke
D. standard work
E. set up time reduction (SMED)

Answer: D

NEW QUESTION 154
- (Topic 2)
If item A is more likely to be detected than item B which will have the highest Detection value?

A. item A
B. item B
C. cannot be determined

Answer: B

NEW QUESTION 159
- (Topic 2)
The word takt is closest to the theory of constraints word:

A. drum
B. buffer
C. rope
D. constraint

Answer: A

NEW QUESTION 164
- (Topic 2)
An important step in determining the VOC is:

A. establish viable or comprehensive process feedback loops
B. ascertain the principles that are values of the corporation
C. identify the customer
D. measure the virtual operating continuum potential
E. all of the above
F. none of the above

Answer: C

NEW QUESTION 167
- (Topic 2)
The null hypothsis should be:

A. rejected
B. not rejected
C. accepted

Answer: A

NEW QUESTION 171
- (Topic 2)
A process produced 1394 units. During this time 11 defects were detected. The Rolled Throughput Yield (RTU) is approximately:

A. 0.992
B. 7.89
C. 0.00789
D. 1.008
E. all of the above
F. none of the above

Answer: A

NEW QUESTION 174
- (Topic 2)
The team development stage characterized by expression of individual opinions and ideas often without regard for team objectives is known as:

A. performing
B. norming
C. conflicting
D. storming
E. brainstorming

Answer: D

NEW QUESTION 177
- (Topic 2)
A control chart is to be used to display the number of non-conducting diodes. Each point on the chart represent the number of bad diodes in a box of 1000. The appropriate control chart to use is:

A. x-bar and R
B. median
C. individual and moving range
D. p
E. np
F. u
G. c

Answer: E

NEW QUESTION 182
- (Topic 2)
Find the value of (12) in the ANOVA table. Assume:

$$\alpha = 0.10:$$

ANOVA Table

Source	SS	df	MS	F ratio	F crit	P-value
x	1.48	1	(1)	(2)	(3)	(4)
Y	18.6	1	(5)	(6)	(7)	(8)
xxY	12.2	1	(9)	(10)	(11)	(12)
Error	2.1	4	(13)			

A. 16.4
B. 3.2
C. 18.6
D. 23.2
E. 4.54
F. 12.2
G. 0.525
H. 2.82
I. 1.48
J. 35.4
K. 0.10<P<1
L. 0.05<P<0.10
M. 0.01<P<0.05
N. 0.005<P<0.01
O. 0<P<0.005

Answer: N

NEW QUESTION 183
- (Topic 2)
Calculate the main effect of factor A:

	A	B	Res.
1	−	−	20
2	−	+	30
3	+	−	40
4	+	+	50

A. 20
B. 25
C. 30
D. 40
E. none of the above

Answer: A

Explanation:

A factorial experiment can be analyzed using ANOVA or regression analysis[citation needed]. It is relatively easy to estimate the main effect for a factor. To compute the main effect of a factor "A", subtract the average response of all experimental runs for which A was at its low (or first) level from the average response of all experimental runs for which A was at its high (or second) level.

NEW QUESTION 187
- (Topic 2)
A process using a p-chart has pbar = 0.076 and nbar = 4.86. Find the control limits.

A. 0.069 and 0.083
B. 0.072 and 0.080
C. 0.040 and 0.112
D. 0.0756 and 0.0764
E. none of the above

Answer: C

NEW QUESTION 188
- (Topic 2)
Find the mean, median and mode of the following data set: 9, 11, 12, 12, 14, 18, 18, 18, 20, 23:

A. 15.5, 18, 18
B. 15, 14, 18
C. 14, 16, 18
D. 15, 12, 18
E. 15.5, 16, 18

Answer: E

NEW QUESTION 190
- (Topic 2)
A normal probability plot is used to:

A. determine whether the distribution is normal
B. plot z values
C. determine process capability
D. find percent out of specification

Answer: A

NEW QUESTION 194
- (Topic 2)
An full factorial experiment has three factors. Each factor has three levels. The number of test combinations or runs is:

A. 9
B. 6
C. 27
D. 36
E. 33

Answer: C

NEW QUESTION 196
- (Topic 2)
Quality Function Deployment is a tool to aid in:

A. analyzing non-paired data
B. determining if quality procedures being followed on the shop floor
C. ascertaining which processes are functioning correctly
D. linking customer requirements to product features
E. all of the above
F. none of the above

Answer: D

NEW QUESTION 201
- (Topic 2)
An x-bar and R chart is used to monitor a process. One week ago a new type of raw material was introduced and since that time 60 points have been plotted on

the xbar chart and all are in the middle third of the chart. The corresponding 60 points on the R chart are all below the average range. This indicates that:

A. the operator has been plotting the points incorrectly
B. it is time to recalibrate the gage used
C. it is time to recalculate the control limits
D. the material manager should be asked to go back to the previous raw material so thecharts will more accurately reflect the process

Answer: C

NEW QUESTION 204
- (Topic 2)
The diameters of 50 randomly selected shafts have a mean of 1.525 and standard deviation of 0.006. Find the 95% lower confidence limit for the population mean.

A. 1.523
B. 1.524
C. 1.525
D. 1.526
E. 1.527

Answer: A

Explanation:

n = 50 mean = 1.525
Standard deviation = 0.006 95% confidence interval = 1.96
$\bar{x}$
-z/2 /n
* 1.525-1.96(0.006/50)
* 1.525-0.00166=1.523

NEW QUESTION 207
- (Topic 2)
Calculate the interaction effect:

A. 20
B. 25
C. 30
D. 40
E. none of the above
F. Answer Pending

Answer: F

NEW QUESTION 210
- (Topic 2)
Find Cpk

A. 2.00
B. 0.56
C. 1.33
D. 0.44

Answer: D

NEW QUESTION 212
- (Topic 2)
In the theory of constraints the "subordinate" step refers to:

A. a listing of sub-processes
B. reducing the rate for some processes
C. the portion of the process flow chart that depends on the main flow
D. the less important product or service stream
E. none of the above

Answer: B

NEW QUESTION 214
- (Topic 2)
SMED is an acronym for activity that:

A. involves housekeeping in the work area
B. makes mistakes of a certain type impossible
C. emphasizes the pull of the customer
D. reduces set up time
E. none of the above
F. all of the above

Answer: D

NEW QUESTION 218
- (Topic 2)
One of the approaches used by TRIZ is referred to as "removing the contradiction." A project team is asked to determine how many coats of paint should be applied to a panel. In this case the contradiction is:

A. additional coats cost money but give a better finish
B. the customer wants an excellent finish at a low cost
C. the company wants to reduce costs but have an excellent finish

Answer: A

NEW QUESTION 219
- (Topic 2)
Find the average difference dbar.

Document #	Time Reqd, sec	
	Ptr #1	Ptr#2
1	4.2	3.9
2	5.6	5.5
3	2.8	2.9
4	7.1	6.7
5	11.5	11.0
6	8.2	8.1
7	12.3	11.8
8	13.5	13.0

A. 0.2875
B. 0.3502
C. 0.2714
D. 0.2295

Answer: A

NEW QUESTION 220
- (Topic 2)
This QFD matrix was used in the design process for a ball point pen. What symbol is appropriate for the square labeled 14?

A.
B.
C.
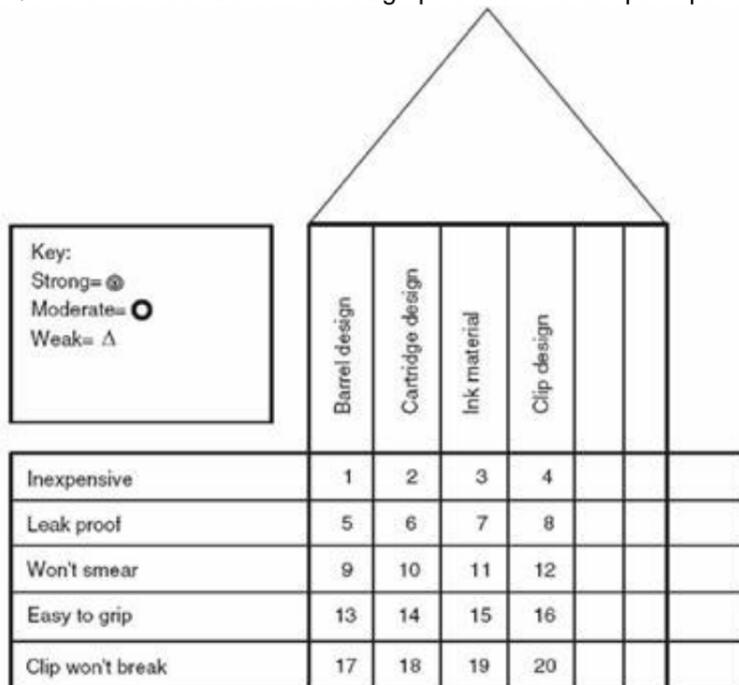
A. none of the above

Answer: D

NEW QUESTION 225
- (Topic 2)
Dr. Joseph M. Juran:

A. lectured in Japan after World War II
B. was an author of several books in the US
C. lectured widely in the US
D. is considered an expert is the quality field
E. all of the above
F. none of the above

Answer: E

NEW QUESTION 229
- (Topic 2)
This experimental design is:

A. full factorial
B. half factorial
C. quarter factorial
D. none of the above

Answer: B

NEW QUESTION 234
- (Topic 2)
A process shows the following number of defectives. Each sample size for this process is 85.3 8 2 7 7 6 8 8 9 5
What control chart should be used?

A. x-bar and R
B. median
C. individual and moving range
D. p
E. np
F. c
G. u
H. none of the above

Answer: E

NEW QUESTION 237
- (Topic 2)
A robust design is one which:

A. has high reliability
B. has low maintenance frequency
C. is simple to manufacture
D. is resistant to varying environmental conditions

Answer: D

NEW QUESTION 238
- (Topic 2)
Find sd:

A. 0.2875
B. 0.3502
C. 0.2714
D. 0.2295

Answer: D

NEW QUESTION 243
- (Topic 2)
An x-bar control chart has been established with control limits of 3.245 and 3.257, n = 5. An engineer collects the following sample and plots the average on the control chart: 3.257, 3,256, 3. 258, 3.259

A. the process is out of control
B. the process is not out of control
C. the engineer misused the control chart
D. the control limits are incorrect

Answer: C

NEW QUESTION 244
- (Topic 2)
An x-bar and R chart has four part measurements per sample The control limits on the averages chart are 2.996 and 3.256. Assume the process data form a normal distribution.What is the probability that the next plotted point falls outside the control limits?

A. 0.00135
B. 0.0027

C. 0.0054
D. none of the above

Answer: B

NEW QUESTION 247
- (Topic 2)

number of scratches	6	5	7	5	6
sample size	120	110	111	128	110

A control chart will be used to monitor the number of scratches on a product. The following data have been collected: The appropriate control chart to use is:

A. x-bar and R
B. median
C. individual and moving range
D. p
E. np
F. u
G. c

Answer: F

NEW QUESTION 250
- (Topic 2)
A principle advantage of fractional factorial experimental designs is:

A. reduced cost
B. improved accuracy
C. increased confounding
D. higher confidence level
E. reduced probability of type II errors

Answer: A

NEW QUESTION 254
- (Topic 2)
Data are collected in xy pairs and a scatter diagram shows the points are grouped very close to a straight line that tips down on its right hand end. A reasonable value for the coefficient of correlation is:

A. .8
B. −.9
C. 1
D. 1.3
E. −1.8

Answer: C

NEW QUESTION 259
- (Topic 2)
This QFD matrix was used in the design process for a ball point pen. What symbol is appropriate for the square labeled 12?

A.
B.
C.
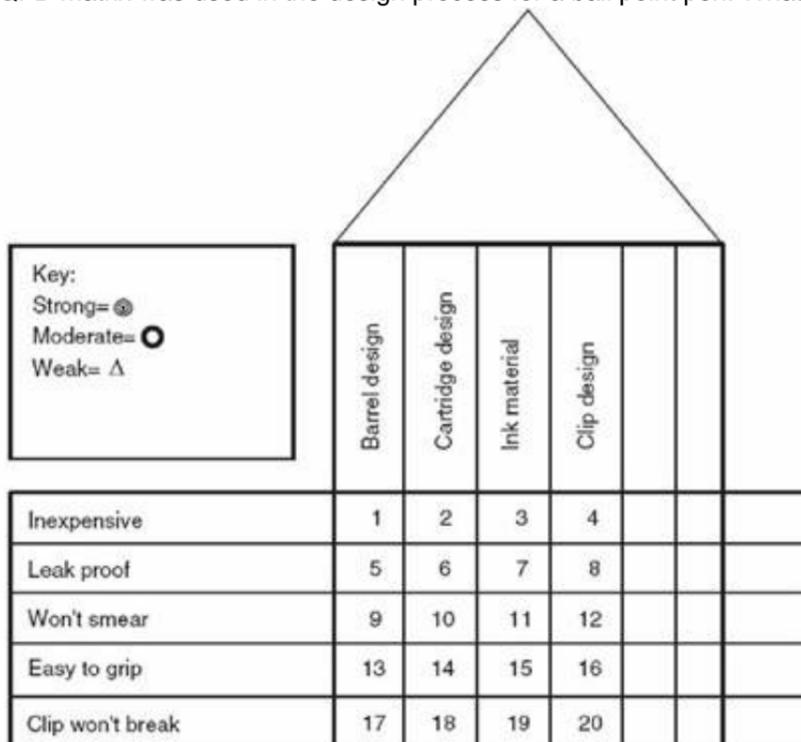
A. none of the above

Answer: D

NEW QUESTION 260
- (Topic 2)
A principle disadvantage of fractional factorial experimental designs is:

A. reduced cost
B. improved accuracy
C. confounding of effects
D. higher confidence level
E. reduced probability of type II errors

Answer: C

NEW QUESTION 263
- (Topic 2)
A newspaper article describes a high positive correlation between obesity and orange juice consumption among six-year-olds. Parents who restrict the use of orange juice for their children have:

A. made a type I error
B. made a type II error
C. misunderstood margin of error
D. confused correlation with causation

Answer: D

NEW QUESTION 268
- (Topic 2)
A team wants a technique for displaying the connection between various customer needs and various features on a product. They should use:

A. written and diagrammed work instructions
B. flow charts and process maps
C. cause and effect diagrams
D. Pareto chart
E. relationship matrix

Answer: E

NEW QUESTION 271
- (Topic 2)
An approach that would remove the contradiction identified in x.28 would be:

A. find an inexpensive way to apply multiple coats
B. find an inexpensive material that will provide an excellent finish with one coat.
C. all of the above
D. none of the above

Answer: C

NEW QUESTION 272
- (Topic 2)
A team has completed a brainstorming session that has generated a large number of ideas. The team needs to organize these ideas in natural groupings. Which tool is most appropriate?

A. matrix diagram
B. cause and effect diagram
C. process decision program chart
D. affinity diagram
E. activity network diagram
F. tree diagram
G. prioritization matrix
H. matrix diagram
I. interrelationship digraph

Answer: D

NEW QUESTION 275
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