

# ASQ

## Exam Questions CSSBB

Certified Six Sigma Black Belt



NEW QUESTION 1

- (Topic 1)  
 Calculate the interaction effect

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

- A. 1.5
- B. 205
- C. –5
- D. 17
- E. –17

Answer: C

NEW QUESTION 2

- (Topic 1)  
 Samples of size n=36 are randomly selected from a population with mean = 125 and variance 12. Find the variance of the distribution of sample means.

- A. .333
- B. .577
- C. 2
- D. 3.464
- E. 12

Answer: A

NEW QUESTION 3

- (Topic 1)  
 Causes in a cause and effect diagram often include management, measurement systems, mother nature and the four standard causes:

- A. man, material, methods, machines
- B. man, manufacturing, methods, material
- C. marketing, methods, material, machines
- D. man, material, millennium, machines
- E. none of the above

Answer: A

NEW QUESTION 4

- (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 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)

A population is bimodal. One hundred samples of size 30 are randomly collected and the 100 sample means are calculated. The distribution of these sample means is:

- A. bimodal
- B. approximately exponential
- C. approximately Poisson
- D. approximately normal
- E. approximately uniform

**Answer:** D

#### NEW QUESTION 7

- (Topic 1)

Find the value of (1) 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:** I

#### NEW QUESTION 8

- (Topic 1)

(Refer to the previous problem) The variance of the five replications for each run is calculated. Most of these variances are approximately equal but two are significantly lower than the others. The experimenters would be especially interested in those two runs if they want to optimize:

- A. dissolution time
- B. interactions
- C. main effects
- D. robustness
- E. degrees of freedom

**Answer:** D

#### NEW QUESTION 9

- (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 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)

The word "champion" in the context of Six Sigma projects refers to:

- A. the team that has had the most impact on the bottom line.
- B. the person who has coordinated teams most effectively
- C. the individual who has outpaced all others in six sigma knowledge
- D. none of the above

**Answer: D**

#### NEW QUESTION 14

- (Topic 1)

George is an employee of Black, Inc. John is George's internal customer. Which statement is true?

- A. John is employed by Black, Inc.
- B. John is employed by another company that supplies material to Black, Inc.
- C. John is employed by a company that purchases material from black, Inc.
- D. John is employed by another company that has a fiduciary agreement with Black, Inc.
- E. John is employed by another company as an internal auditor.

**Answer: A**

#### NEW QUESTION 17

- (Topic 1)

The principle disadvantage of fractional factorial experiments is that:

- A. experimental error is high
- B. robustness is compromised
- C. effects are confounded
- D. measurements are less precise
- E. analysis is more difficult

**Answer: C**

#### NEW QUESTION 21

- (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 22

- (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 24

- (Topic 1)

A team is investigating ways to reduce power outages. They determine that an outage can occur in only three ways: grid failure, local transformer failure or local overload. They then investigate each of these three events for possible causes, etc. They draw a diagram that “fans out” using the power outage as the handle of the fan. These improvements are 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: C**

#### NEW QUESTION 29

- (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 31

- (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 34

- (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 37

- (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 39

- (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 40

- (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 41

- (Topic 1)

A quality leader who did extensive work with Japanese industry is:

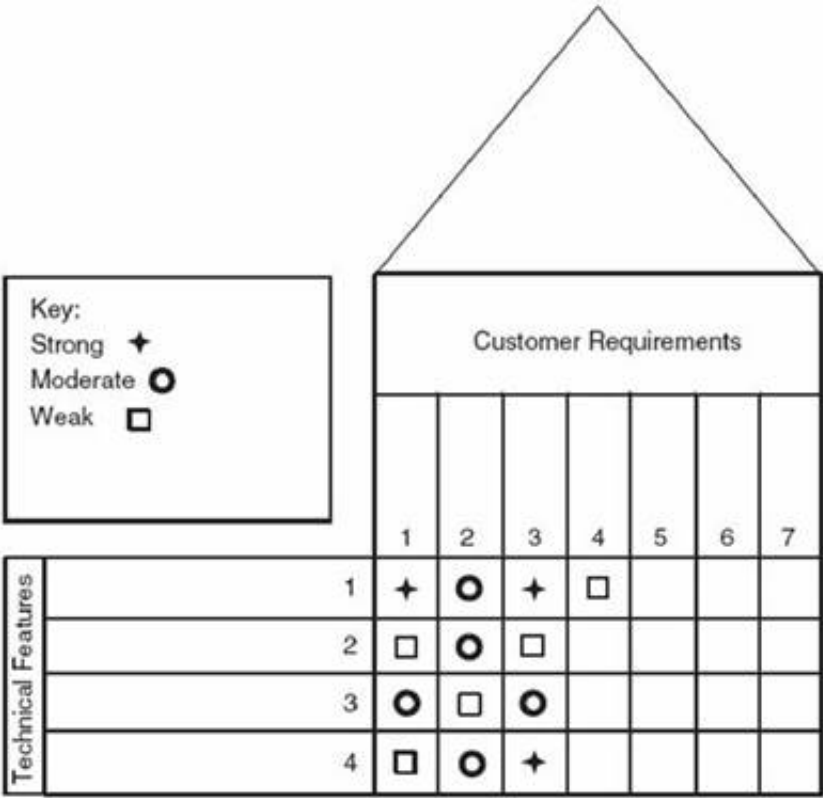
- A. Juran
- B. Ishikawa
- C. Deming
- D. Ohno
- E. Taguchi
- F. all of the above
- G. none of the above

Answer: F

NEW QUESTION 44

- (Topic 1)

Customer requirement #3 has a \_\_\_\_\_ relationship with technical feature #3.



- A. strong
- B. moderate
- C. weak

Answer: B

NEW QUESTION 45

- (Topic 1)  
Find the value of (5) 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: C

NEW QUESTION 50

- (Topic 1)  
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 51

- (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 54

- (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. DPMO =:

- A.  $87 \div 328$
- B.  $87 \div (328 \times 14)$
- C.  $14 \div 87$
- D.  $87 \div 14 \times 1,000,000$
- E.  $328 \div 87$
- F.  $87 \times 1,000,000 \div (14 \times 328)$

Answer: F

NEW QUESTION 57

- (Topic 1)

$P(A) = .42$ ,  $P(B) = .58$   $P(A \& B) = .10$ . Are A and B mutually exclusive (or disjoint)?

- A. yes
- B. no

Answer: B

NEW QUESTION 59

- (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)			

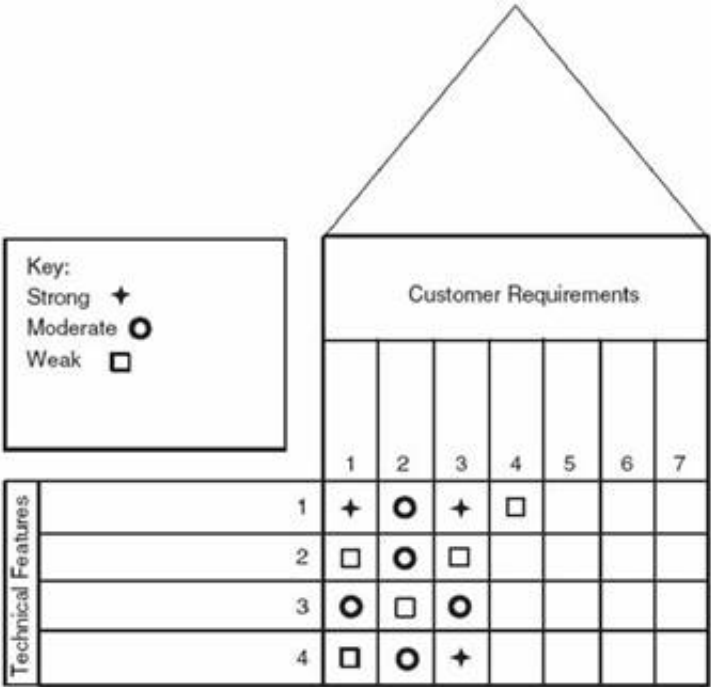
- A. 16.4
- B. 3.2
- C. 18.6
- D. 23.2
- E. 4.54
- F. 12.2
- G. 0.525
- H. 2.82
- I. 1.48
- J. 35.4
- K.  $0.10 < P < 1$
- L.  $0.05 < P < 0.10$
- M.  $0.01 < P < 0.05$
- N.  $0.005 < P < 0.01$
- O.  $0 < P < 0.005$

Answer: H

NEW QUESTION 64

- (Topic 1)





This is an example of part of a:

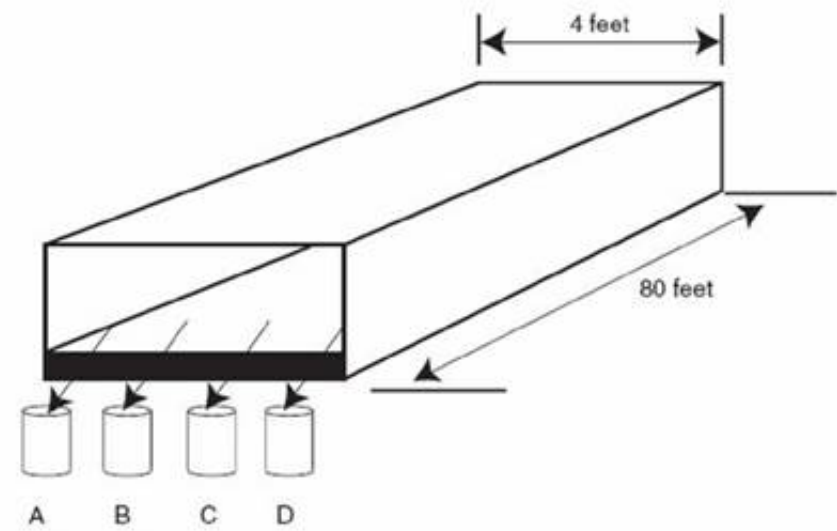
- A. QFD Matrix
- B. Activity Network Diagram
- C. Interrelationship Diagram
- D. Affinity Diagram

Answer: A

NEW QUESTION 69

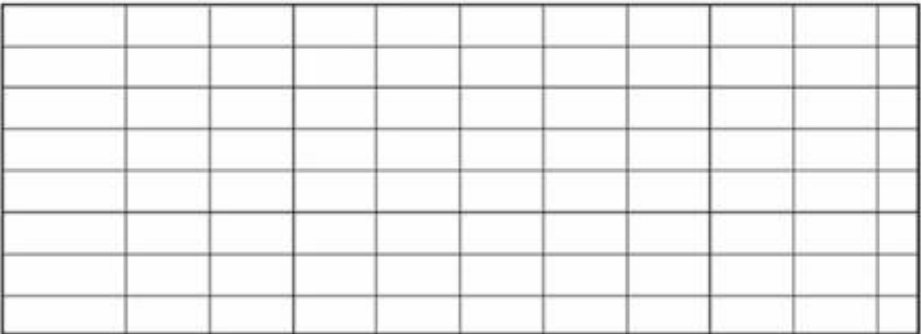
- (Topic 1)

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.



The data for a nine hour period are:

% moisture										
	12:00	12:10	12:20	4:00	4:10	4:20	8:00	8:10	8:20	8:40
A	12.0	14.2	12.9	14.1	12.5	13.8	14.4	13.0	14.2	14.3
B	15.0	15.2	15.6	15.0	13.8	15.4	15.8	16.0	15.2	15.3
C	12.3	14.8	13.2	13.2	14.9	14.0	14.5	15.3	14.0	16.0
D	12.6	12.2	14.0	12.6	13.0	14.0	13.1	14.8	13.8	12.9



Which type of variation dominates? (Hint: Plot the points on the graph above.)

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

Answer: A

#### NEW QUESTION 70

- (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 72

- (Topic 2)

In a certain sampling situation,  $\alpha = 0$ ,  $\beta = 0.08$ . The power of the sampling plan in this case is:

- A. 0.08
- B. 1.00
- C. 0.92

**Answer:** D

**Explanation:**

The formula for power of sampling plan is  $(1 - \beta) = 1 - 0.08 = 0.92$

#### NEW QUESTION 77

- (Topic 2)

The distribution is:

- A. symmetric
- B. left skewed
- C. right skewed
- D. normal
- E. uniform

**Answer:** C

#### NEW QUESTION 80

- (Topic 2)

A correct statement about the relationship between the terms parameter and statistic is:

- A. a population statistic is more accurate than a parameter
- B. a sample parameter is used to estimate a statistic
- C. a sample statistic is used to estimate a population parameter
- D. standard deviation calculations requires both statistics and parameters

**Answer:** C

#### NEW QUESTION 81

- (Topic 2)

The following is a set of individual measurements: 3 5 4 5 6 3 4 3 2 4 5 6 5 7 6 4 5 5 8 7 6 6 7 7 4

Find the control limits for the individuals chart.

- A. .7 and 11.2
- B. 1.6 and 8.6
- C. 2.7 and 7.5
- D. none of the above

**Answer:** D

#### NEW QUESTION 83

- (Topic 2)

The critical value(s) is/are:

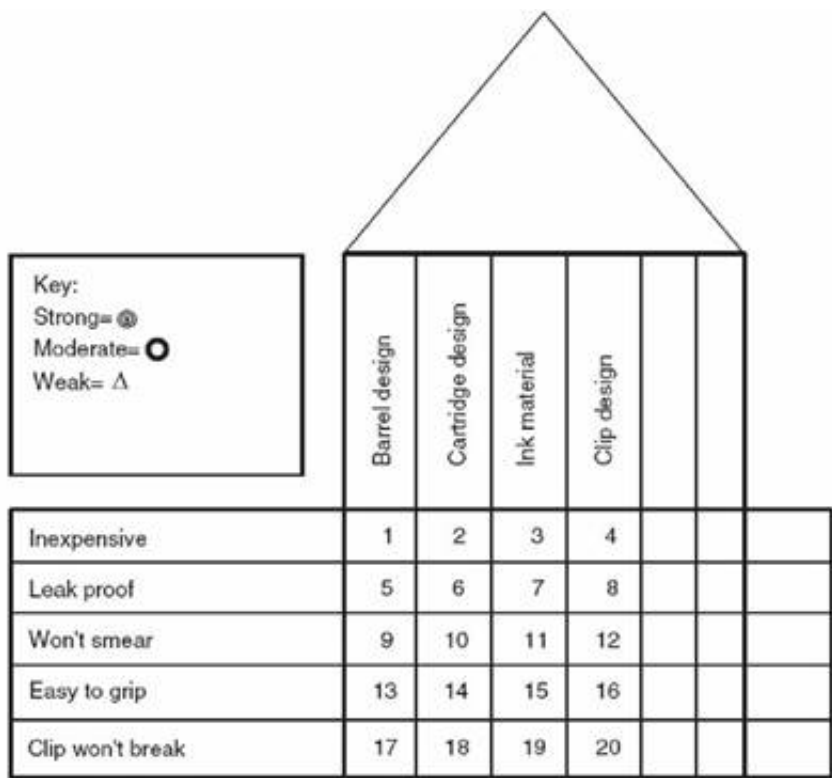
- A. 1.645
- B. 1.96
- C. 1.645
- D. 1.96

**Answer:** A

#### NEW QUESTION 86

- (Topic 2)

This QFD matrix was used in the design process for a ball point pen. What symbol is appropriate for the square labeled 1?



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

Answer: B

NEW QUESTION 89

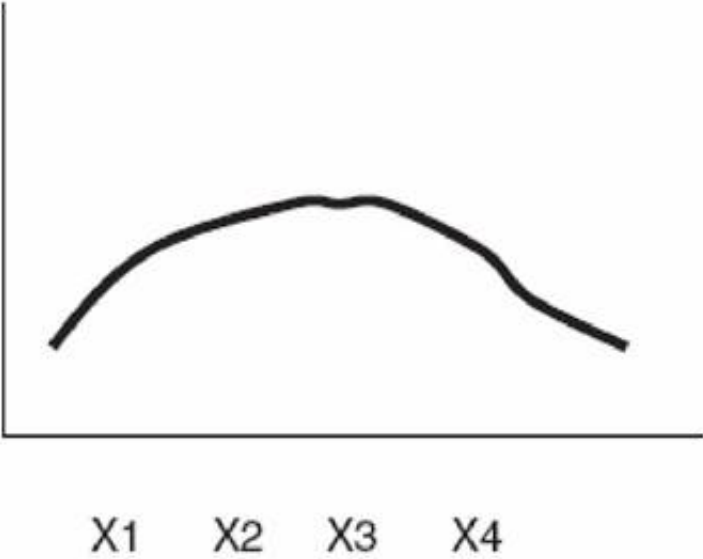
- (Topic 2)  
If item A is more likely to be detected than item B which will have the highest Detection value?

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

Answer: B

NEW QUESTION 94

- (Topic 2)  
Which value of x will minimize transmitted noise?



- A. X1
- B. X2
- C. X3
- D. X4

Answer: C

NEW QUESTION 97

- (Topic 2)  
The overall tolerance for three components in series in an electrical circuit is +10. Assuming normal, stable, capable processes produce the components, use stack tolerance techniques to find a set of tolerances for the three components.

- A. 3, 3 and 4 respectively
- B. 7, 7 and 6 respectively
- C. 8, 8 and 8 respectively
- D. 10, 10 and 14 respectively

**Answer:** D

**NEW QUESTION 101**

- (Topic 2)

A set of data from a process has 8 readings per sample and 50 samples. The mean of the 50 sample means is 12.62. The mean of the 50 ranges is 0.18. A customer requires that SPC charts be done on their forms which have spaces for only 5 readings per sample. What should be the UCL and LCL for the new averages chart?

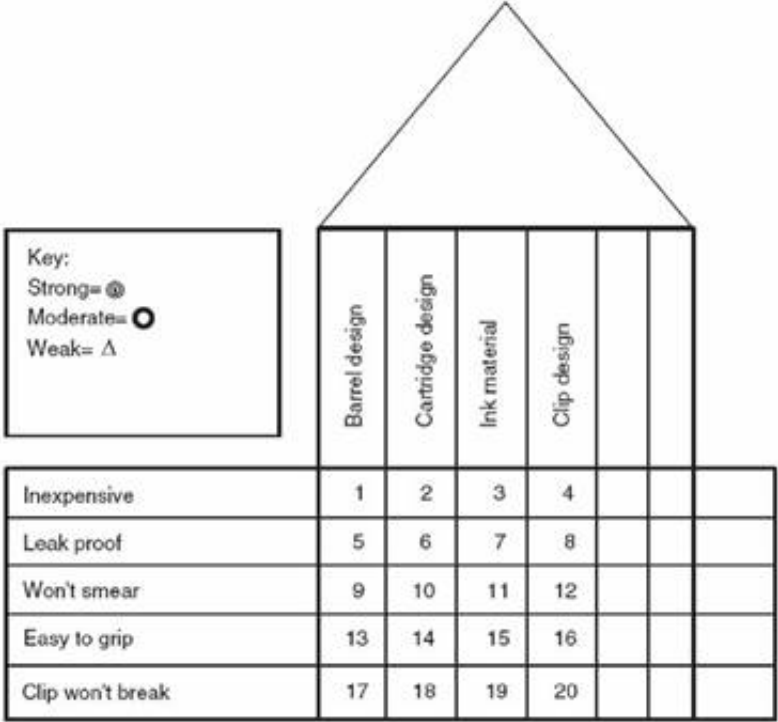
- A. 12.53 and 12.71
- B. 12.58 and 12.66
- C. 11.61 and 13.63
- D. none of the above

**Answer:** A

**NEW QUESTION 106**

- (Topic 2)

This QFD matrix was used in the design process for a ball point pen. What symbol is appropriate for the square labeled 9?



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

**Answer:** D

**NEW QUESTION 107**

- (Topic 2)

The temperature in a storage location is logged once every 30 minutes. The control chart that is appropriate for displaying these values is:

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

**Answer:** C

**NEW QUESTION 112**

- (Topic 2)

An advantage of using standard deviation rather than range for measuring dispersion of a large sample is that:

- A. standard deviation has a simpler formula
- B. calculators have a standard deviation key but not a range key
- C. standard deviation uses information from each measurement
- D. range calculations are not normally distributed

**Answer:** C

**NEW QUESTION 116**

- (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 120

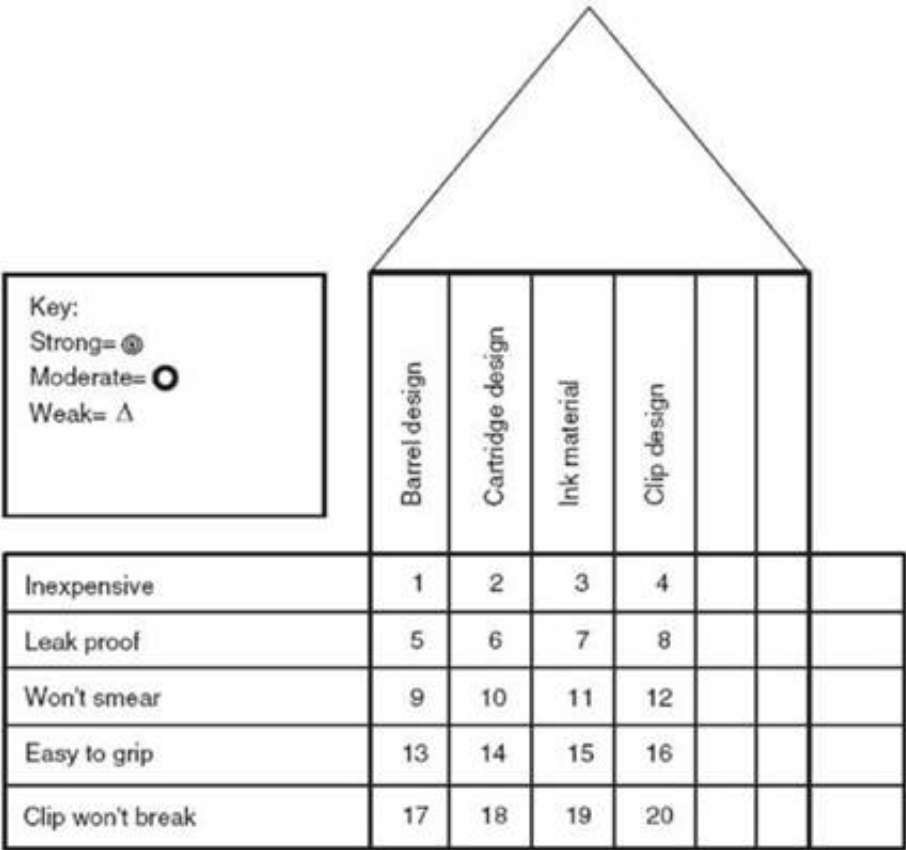
- (Topic 2)  
Is this a left-tail, right-tail or two-tail test?

- A. no
- B. left-tail
- C. right-tail
- D. two-tail

Answer: C

NEW QUESTION 125

- (Topic 2)  
This QFD matrix was used in the design process for a ball point pen. What symbol is appropriate for the square labeled 7?



- A.
- B.
- C.

A. none of the above

Answer: B

NEW QUESTION 127

- (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 128

- (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 129**

- (Topic 2)

Find the average difference  $\bar{d}$ .

Document #	Time Req'd, 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 131**

- (Topic 2)

A set of data from a process has 8 readings per sample and 50 samples. The mean of the 50 sample means is 12.62. The mean of the 50 ranges is 0.18. Find the control limits for a median chart.

- A. 12.52 and 12.72
- B. 12.54 and 12.70
- C. 0.02 and 0.33
- D. none of the above

**Answer:** A**NEW QUESTION 135**

- (Topic 2)

At a particular time, three components are in series 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:** B**NEW QUESTION 137**

- (Topic 2)

What is the value of the test statistic?

- A. 0.898
- B. 1.251
- C. 0.429
- D. 3.57
- E. none of the above

**Answer:** E**Explanation:**

As per reference to the given table in the URL, the 0.05 at 6 is 2.447. Hence none of the answers are correct.  
Reference: <http://www.medcalc.org/manual/t-distribution.php>

**NEW QUESTION 141**

- (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 in the quality field
- E. all of the above

F. none of the above

**Answer:** E

#### NEW QUESTION 142

- (Topic 2)

A project whose definition does not include performance metrics:

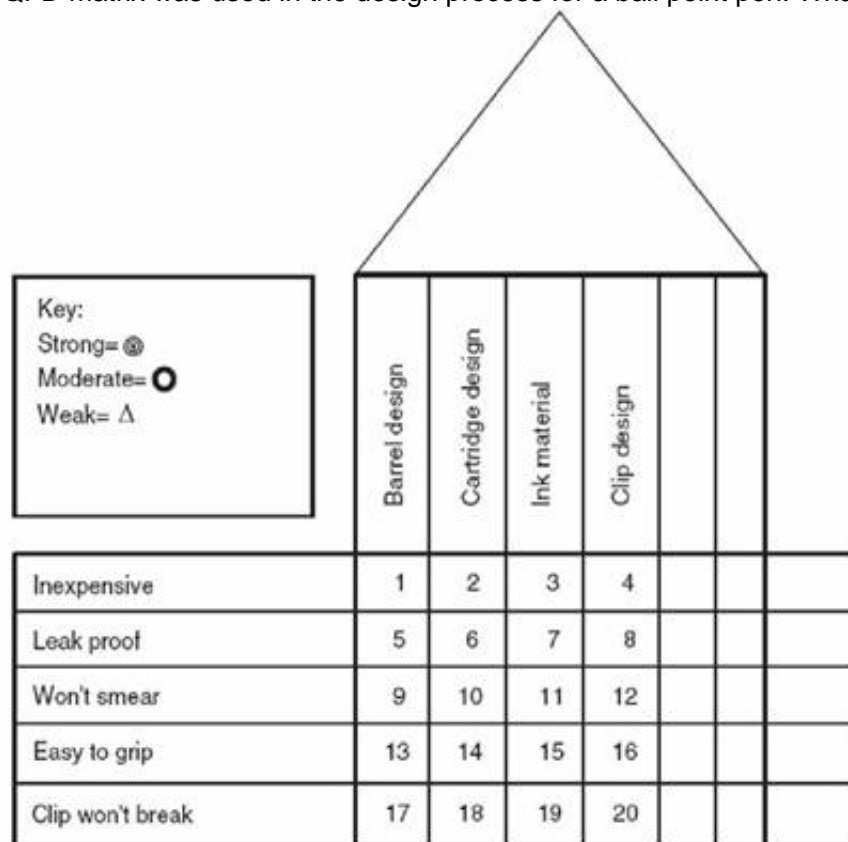
- A. will typically be short term
- B. use statistical inference
- C. have a high risk of failure
- D. should not be approved
- E. none of the above

**Answer:** D

#### NEW QUESTION 147

- (Topic 2)

This QFD matrix was used in the design process for a ball point pen. What symbol is appropriate for the square labeled 3?



- A.
- B.
- C.

A. none of the above

**Answer:** B

#### NEW QUESTION 151

- (Topic 2)

If the value of the test statistic had been 7.03, what action should have been taken regarding the null hypothesis?

- A. rejected
- B. accepted
- C. not rejected
- D. none of the above

**Answer:** A

#### NEW QUESTION 155

- (Topic 2)

A complex system has many causes and effects. These may be illustrated on which of the following:

- 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:** C



**NEW QUESTION 160**

- (Topic 2)

In an experimental design context, replication refers to:

- A. duplicating experimental results at another location
- B. repeating a test with the same factor levels
- C. obtaining the same or similar results from different factors
- D. repeating an experiment but using at least one different factor level

**Answer: C**

**NEW QUESTION 165**

- (Topic 2)

A helpful time to use a Quality Function Deployment matrix is:

- A. while planning for a new or redesigned process
- B. while planning for new or redesigned parts
- C. while planning for a new or redesigned product
- D. all of the above
- E. none of the above

**Answer: D**

**NEW QUESTION 166**

- (Topic 2)

An experiment is conducted by checking the effect that three different pressures have on the surface appearance of a product. Ten items are produced at each of the three pressures. The number of replications, factors and levels are:

- A. 10, 3, 2
- B. 10, 2, 3
- C. 2, 3, 3
- D. 10, 1, 3
- E. 10, 3, 1

**Answer: D**

**NEW QUESTION 167**

- (Topic 2)

This experimental design is:

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

**Answer: B**

**NEW QUESTION 168**

- (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 169**

- (Topic 2)

A team has been asked to reduce the occurrence of a particular defect. They begin by brainstorming all possible causes using a:

- 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: B**



**NEW QUESTION 173**

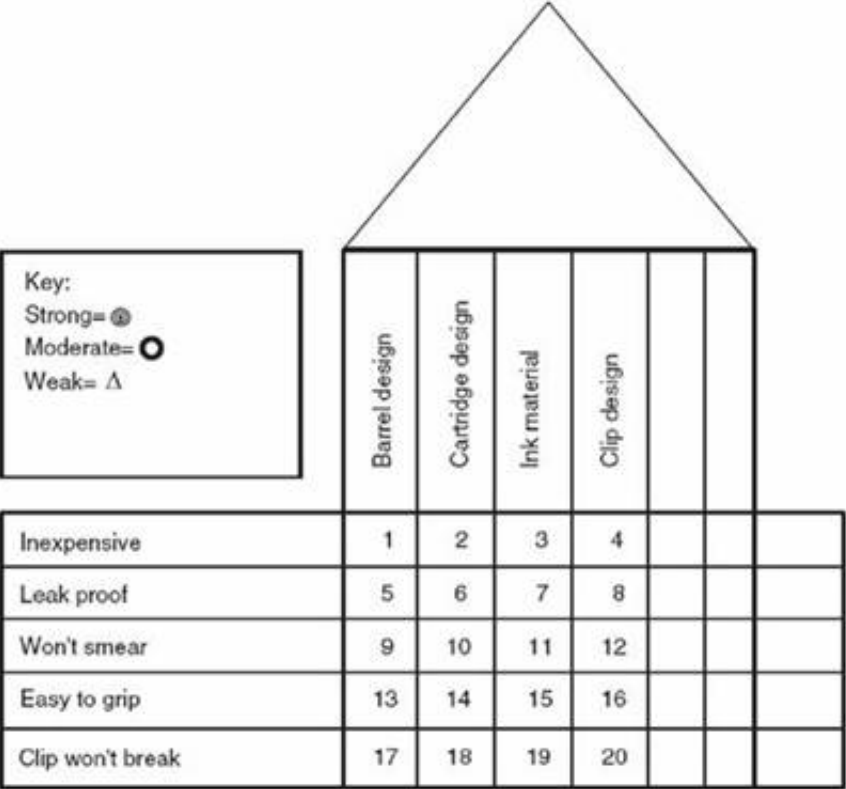
- (Topic 2)  
 Find sd:

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

**Answer: D**

**NEW QUESTION 176**

- (Topic 2)  
 This QFD matrix was used in the design process for a ball point pen. What symbol is appropriate for the square labeled 16?



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

**Answer: C**

**NEW QUESTION 178**

- (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 181**

- (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 186**

- (Topic 2)

There have been some instances in which 1.5 inch sheet metal screws are used where 1.25 inch should have been used. This produces a critical defect. The decision is made to have all 1.25 inch screws have a square reduced head and all 1.5 inch screws be Phillips. This is an example of:

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

**Answer:** C

#### NEW QUESTION 189

- (Topic 2)

If item A is more likely to be detected than item B which will have the highest Occurrence value?

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

**Answer:** C

#### NEW QUESTION 191

- (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 195

- (Topic 2)

Here is a partial ANOVA table. Use  $\alpha = 0.05$ . The values of x, y and z should be:

Source	SS	df	MS	Fstatistic	Fcritical
A	1200	6	x	y	z
B	900	6			
A × B	180	3			
Error	100	10			

- A. 200, 20, 3.22
- B. 12, 1.2, 4.06
- C. 200, 20, 4.06
- D. none of the above

**Answer:** A

#### Explanation:

The formula is as follows  $MS = SS/df = 1200/6 = 200$

For the reference, see the table to derive Fstatistic and Fcritical <http://www.sussex.ac.uk/Users/grahamh/RM1web/F-ratio%20table%202005.pdf>

#### NEW QUESTION 197

- (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 200

- (Topic 2)

The mean of a Poisson distribution is 2.94. It's variance is:

- A. Not enough information is given
- B. 1.71
- C. 8.64

- D. 74.7
- E. 1.31

**Answer:** C

**Explanation:**

The correct answer is C because the mean of poisson distribution is 2.94, hence the variance would be 8.64  
 $U =$   
 variance = 2

**NEW QUESTION 204**

- (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 208**

- (Topic 2)

Find the value of m or b1:

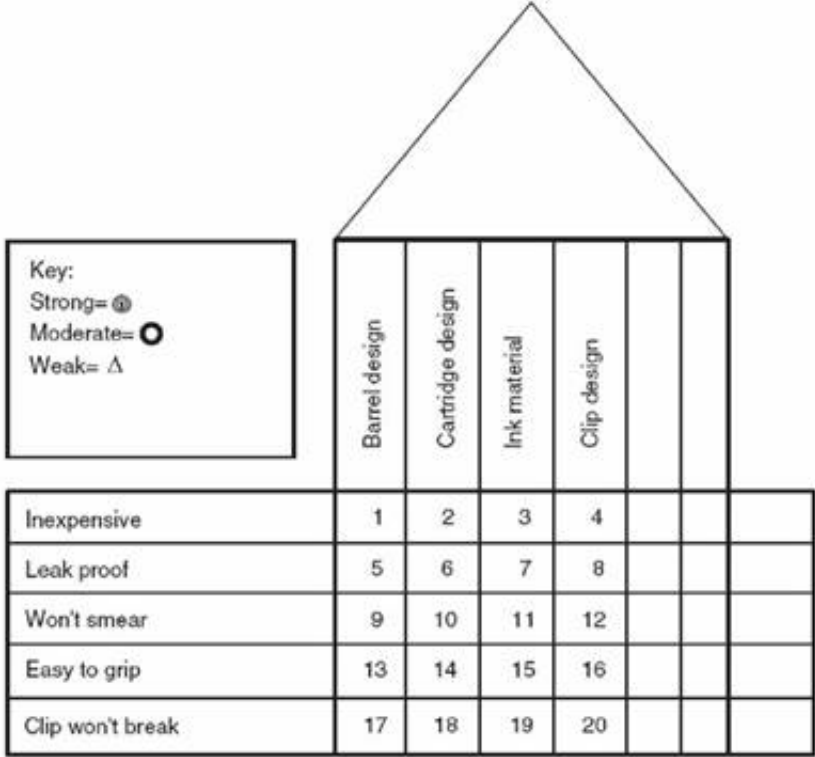
- A. 0.25
- B. 0.63
- C. 0.75
- D. 1.22

**Answer:** C

**NEW QUESTION 213**

- (Topic 2)

This QFD matrix was used in the design process for a ball point pen. What symbol is appropriate for the square labeled 13?



- A.
- B.
- C.

A. none of the above

**Answer:** B

**NEW QUESTION 216**

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