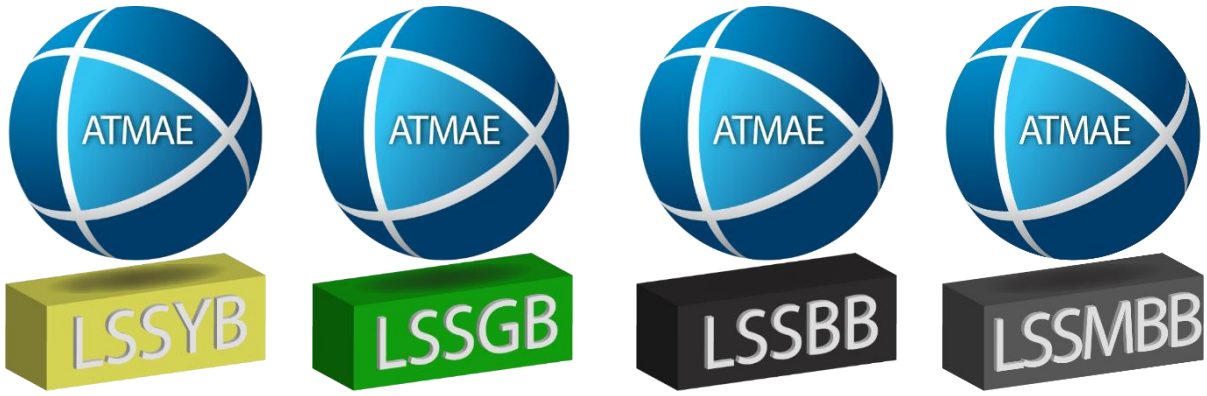
ATMAE

LEAD • INNOVATE • COLLABORATE

STUDY GUIDE FOR THE LEAN SIX SIGMA (LSS) CERTIFICATION EXAM



NOTE: An individual can become lean six sigma black belt certified by earning an 80% or higher on this exam. An individual can become lean six sigma green belt certified by earning a 60-79% on this exam. Individuals can become lean six sigma yellow belt certified by earning a 40-59% on this exam. It should be noted that these percentages will vary due to annual cutoff pass rate score analyses.

© 2014 Association of Technology, Management, and Applied Engineering

Last updated: 7.27.15

TABLE OF CONTENTS

Content for the ATMAE Lean Six Sigma Certification Exam 3-5
Content Determination for the ATMAE Lean Six Sigma Certification Exam 6
Belt Distinction for the ATMAE Lean Six Sigma Certification Exam 6
Composition of the ATMAE Lean Six Sigma Certification Exam 6
Sample Questions 7-12
References Used for Developing Exam Questions 13
Recommendations for Taking the ATMAE Lean Six Sigma Certification Exam 13
Answers to Sample Questions 14

ATMAE Certification Examination General Information 15
- Policy 15
- Examination Information 15
- Individual Examinations 15
- Certification after Examination 15
- Program Assessment 15
- Certificates 15

CONTENT FOR ATMAE LEAN SIX SIGMA CERTIFICATION EXAM

The 12 major content areas from which the exam is comprised are as follows:

	Content	Number of Questions
1.	Lean – Fundamentals	7
1.1	7 Wastes (motion, delay, conveyance, correction, overprocessing, inventory, overproduction)	
1.2	Gemba	
1.3	Muda, Mura, & Muri	
1.4	5 Whys	
1.5	Jidoka, Poka-yoke	
1.6	Hoshin Planning (A3, PDCA)	
2.	Lean - Value Stream Mapping	14
2.1	Purpose and Types	
2.2	Major Parts	
2.3	Icons/Symbols	
2.4	Task, Subtask Diagrams, & Terminators	
2.5	Current State & Future State Maps	
3.	Lean – Stability	14
3.1	4 Ms (man, machine, material, method)	
3.2	5S (sort, set in order, shine, standardize, sustain)	
3.3	TPM (total productive maintenance)	
3.4	OEE (overall equipment effectiveness)	
3.5	Heijunka	
3.6	Kanbans (signal, production, withdrawal)	
3.7	Kaizen, Kaizen Blitz	
3.8	Visual Management	
4.	Lean - Standardized Work (Charts, Tables, etc.)	6
4.1	Production Capacity Charts	
4.2	Standardized Work Combination Tables	
4.3	Standardized Work Analysis Chart	
4.4	Job Element Sheets	
4.5	Cycle Time Table	
4.6	Value-added Time Report Log	
4.7	Process Master Document	
4.8	Document Tagging Worksheet	
4.9	Distribution Report	

	Content	Number of Questions
5.	Lean – Production (Calculations)	16
5.1	Lead Time & Calculations	
5.2	Cycle Time Calculations	
5.3	Inventory Types and Calculations	
5.4	Calculating Takt Time	
5.5	Calculating Pitch	
5.6	Production Matrix	
5.7	Transactional Matrix	
5.8	Operators per Process Calculations	
5.9	On time Delivery Calculations (OTD)	
6.	Six Sigma – Project Management	8
6.1	Project Charter	
6.2	Project Deliverables	
6.3	Selecting Projects	
6.4	Building a Business Plan	
6.5	Cost Benefit Analysis	
6.6	Return on Investment (ROI)	
6.7	Net Present Value (NPV)	
6.8	Internal Rate of Return (IRR)	
6.9	Key Performance Indicators (KPIs)	
6.10	Understand Define, Measure, Analyze, Improve, & Control (DMAIC)	
7.	Six Sigma – Team Management	4
7.1	Types of Teams	
7.2	Team Members	
7.3	Team Tools	
7.4	Decision Making Processes	
8.	Six Sigma – Design Phase Statistics	8
8.1	Problem Solving Strategy Y = f(x)	
8.2	Voice of the Customer (VOC)	
8.3	Defining a Process	
8.4	Critical to Quality (CTQ)	
8.5	Cost of Poor Quality (COPQ)	
8.6	Pareto Analysis (80:20 rule)	
8.7	DPU, DPMO, FTY, RTY	

	Content	Number of Questions
9.	Six Sigma – Measure Phase Statistics	26
9.1	Cause & Effect Diagrams	
9.2	Process Mapping, SIPOC	
9.3	Failure Modes & Effects Analysis (FMEA)	
9.4	Descriptive Statistics	
9.5	Normal Distributions & Normality	
9.6	Graphical Analysis	
9.7	Precision & Accuracy	
9.8	Gage Repeatability & Reproducibility	
9.9	Variable & Attribute MSA	
9.10	Capability Analysis	
9.11	Measuring Scales	
9.12	YX Diagrams	
10.	Six Sigma – Analyze Phase Statistics	14
10.1	Inferential Statistics	
10.2	Root Cause Analysis	
10.3	Multi-Vari Analysis	
10.4	Sampling Techniques & Uses	
10.5	Central Limit Theorem	
10.6	Hypothesis Testing with Normal Data	
10.7	Hypothesis Testing with Non-Normal Data	
11.	Six Sigma – Improve Phase Statistics	2
11.1	Simple Linear Regression	
11.2	Multiple Regression Analysis	
11.3	Designed Experiments	
11.4	Full Factorial Experiments	
11.5	Fractional Factorial Experiments	
12.	Six Sigma – Control Phase Statistics	5
12.1	Control Charts (SPC, EWMA, CUSUM)	
12.2	I-MR Chart	
12.3	Xbar-R Chart	
12.4	U Chart	
12.5	P Chart	
12.6	NP Chart	
12.7	X-S chart	

NOTE: Individual content mastery data of examinees can be provided for all of the 88 subsections listed under the 12 major content areas for programs using this exam for assessment purposes.

Content Determination for the ATMAE Lean Six Sigma Exam

The content for this exam was derived by surveying certified lean six sigma black belts from across the United States from a wide range of companies and government entities that varied in size, products produced, and services provided. It should be noted that all the information on this exam is important, however, certain content areas are used more often on the job than others, thereby, those content areas received more emphasis on this exam. This was noted by the order the content areas were ranked and by the comments from those surveyed.

Belt Distinctions for the ATMAE Lean Six Sigma Exam

Depending upon the grade earned by the examinee taking this exam, an examinee can earn one of three different belt distinctions. If the examinee earns approximately a 40-59% on the exam (cutoff passing scores are evaluated annually), then he or she will be classified as a Lean Six Sigma Yellow Belt. An examinee earning a score of 60-79% will be classified as a Lean Six Sigma Green Belt. All examinees earning a score of 80% or higher on the exam will be classified as a Lean Six Sigma Black Belt. Individuals who would like to be classified as Lean Six Sigma Master Black Belts will have to submit a lean six sigma project that they have completed as well as one from an individual that they are assisting with on a project. All projects must be preapproved by the ATMAE Certification Board before being initiated. Candidates will have up to three years to complete the projects once final approval is given by the ATMAE Certification Board. An additional fee is charged for reviewing the projects. In addition, all projects must have the approval by the candidate's supervisors and a financial statement must be included with the submission of the project. Further details regarding project format can be obtained by contacting the ATMAE office.

Composition of the ATMAE Lean Six Sigma Exam

The ATMAE Lean Six Sigma exam covers 12 main content areas and is further divided into 88 subcategories. The exam is divided into two main parts: the first part consists of 100 multiple choice questions that are worth 1 point each. The second part of the exam is composed of 25 multiple choice questions that require an examinee to solve a production or statistical problem that may take several minutes. Because of the time constraints, these questions are worth 4 points each. Therefore, each of the parts is worth 100 points and the combined scores from these two parts are used to calculate the examinee's final score on the exam. A printout of how well the examinee performed on each of the 12 main areas and 88 subcategories is emailed to them once all their fees have been paid. The emailed printout is a useful instrument to the examinee for reviewing any areas of weakness in case he or she would like to retake the exam to earn a higher belt distinction. Textbooks from which the content for this exam was developed from are listed after the sample questions section of this study guide.

Sample Questions from Some of the Sections of the Exam

NOTE: The following questions are just a sample of the questions that you may find on the exam. These questions were either used on previous versions or did not meet the psychometric standards required for accrediting the exam. At any rate, these questions provide the examinee with a general idea as to the breadth of content covered on this exam, however, all the content areas are not represented with these sample questions.

1. Which of the following is true? (Best answer)
   A. A VSM is often difficult to follow for shop floor personnel.
   B. A VSM is only a preliminary tool for restructuring labor and management.
   C. A VSM is a tool to improve product quality.
   D. A VSM enables all stakeholders of an organization from the ground up to easily visualize and understand the process.

2. How are similar products usually grouped when value stream mapping?
   A. By having a commonality of 70% or more
   B. By having a commonality of 50% or more
   C. By having similar profiles
   D. By size
   E. By weight

3. How should you check a current state value stream map?
   A. Ask top management how product flows
   B. Ask shop floor personnel how product flows
   C. The "team" checks the map
   D. Use existing diagrams of flow
   E. Follow the value stream on the shop floor

4. When drawing a production matrix, where are the products listed?
   A. on the top of the spreadsheet
   B. on the far right of the spreadsheet
   C. on the far left of the spreadsheet
   D. on the bottom of the spreadsheet
   E. they are not listed on the spreadsheet

5. Where does the supplier box belong on a value stream map?
   A. top right corner of paper
   B. top left corner of paper
   C. top and middle of paper
   D. top right or top left corner of paper
   E. none of these

6. How many operators are required if the takt time is 60 seconds and operation 1 takes 55 seconds, operation 2 takes 75 seconds, operation 3 takes 86 seconds, operation 4 takes 95 seconds? Do NOT round up or down.
   A. 3 B. 4 C. 5 D. 6 E. none of these

7. What is used when there are internal problems with the value stream?
   A. safety inventory B. buffer inventory C. customer inventory D. none of these

8. What type of error occurs when the null hypothesis is rejected when it is true?
   A. Type I **B.** Type II **C.** Type III D. Type IV

9. Who is the person responsible for monitoring the meetings and takes the minutes for a team working on a lean six sigma project?
   A. team facilitator B. team leader C. team champion D. time keeper & scribe

10. What could be impacted by GD&T in regards to the 7 wastes of a lean organization?
   A. motion B. conveyance C. correction D. overprocessing

11. Fifty pairs of shoes are to be sold in 500 days. What would be the takt time for producing these shoes?
   a. .1 b. 10 c. 100 d. 1

12. Nine purchase orders are to be processed in 780 minutes. The takt time would be?
   a. 87 b. 80 c. 85 d. 88

13. The takt time is 11 minutes and the cycle time for a particular step is 40 minutes, how many people are required?
   a. 3.6 b. 3 c. 4 d. 4.6

14. What measurement scale is this an example of: Dollars?
   a. Ratio b. Nominal c. Ordinal d. Interval

15. Continuous or variables data result from characteristics that are counted?
   a. True b. False

16. What is the sample standard deviation of the following data set: 10, 14, 17, 20?
   a. 4 b. 18.25 c. 18 d. 4.27

17. If there are 8 bolts that are US spec and 6 bolts that are short, what is the probability of selecting either a US spec bolt or a short bolt? (hint: P(US U Short))

   a. .5714 b. .1234 c. .9999 d. .0714

18. If there are 52 cards in a deck, 4 kings and 13 diamonds. What is the probability of selecting a card that is both a king and a diamond? Hint: P(K U ♦ and this is a nonmutually exclusive event)
    a. .3269 b. .7100 c. .3077 d. .9473

19. The area under the standard normal curve between +1.19 standard deviations and +2.14 standard deviations is _____?
    a. .1008 b. . 1040 c. .1254 d. .1170

STANDARD NORMAL DISTRIBUTION TABLE

z	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	z
0	0.5	0.496	0.492	0.488	0.484	0.48	0.4761	0.4721	0.4681	0.4641	0
0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247	0.1
0.2	0.4207	0.4168	0.4129	0.409	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859	0.2
0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.352	0.3483	0.3
0.4	0.3446	0.3409	0.3372	0.3336	0.33	0.3264	0.3228	0.3192	0.3156	0.3121	0.4
0.5	0.3085	0.305	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.281	0.2776	0.5
0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451	0.6
0.7	0.242	0.2389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148	0.7
0.8	0.2119	0.209	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867	0.8
0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.166	0.1635	0.1611	0.9
1	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379	1
1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.123	0.121	0.119	0.117	1.1
1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.102	0.1003	0.0985	1.2
1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823	1.3
1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681	1.4
1.5	0.0668	0.0655	0.0643	0.063	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559	1.5
1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455	1.6
1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367	1.7
1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294	1.8
1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.025	0.0244	0.0239	0.0233	1.9
2	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183	2
2.1	0.0179	0.0174	0.017	0.0166	0.0162	0.0158	0.0154	0.015	0.0146	0.0143	2.1
2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.011	0.0116	0.0113	0.011	2.2

20. A batch process produces cigars with a specification on the dextrose equivalent (DE) of 7.00 to 7.10. The DEs are normally distributed, and a control chart shows the process is stable. The standard deviation of the process is .032. The DEs from a random sample of 50 batches have a sample mean of 5.02. The Cp is and is the process "not capable" or "capable"?
    a. .19, capable b. .52, capable c. 19, not capable d. .52, not capable

21. Cp and Cpk represent long-term capability, while Pp and Ppk represent short-term capability? (hint: short-term and long-term capability heading)
    a. True b. False

22. Suppose .12 grams of insect parts is found in 50 kilograms of product, what is the Parts per million (PPM)?
    a. .24 b. 2.4 c. 12 d. none of these

23. An air gap exists between fluids in a bottle and the cap of the bottle. At a firm producing olive oil, the gap is critical to the shelf life of their product. If the recent information reveals that the average gap is 9.46 mm with a standard deviation of 0.233, the percentage of product with the specification limit of 9.00 mm is _____?

a. .0444 b. .0244 c. 8621 d. .1379

STANDARD NORMAL DISTRIBUTION TABLE

Z	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	Z
0	0.5	0.496	0.492	0.488	0.484	0.48	0.4761	0.4721	0.4681	0.4641	0
0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247	0.1
0.2	0.4207	0.4168	0.4129	0.409	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859	0.2
0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.352	0.3483	0.3
0.4	0.3446	0.3409	0.3372	0.3336	0.33	0.3264	0.3228	0.3192	0.3156	0.3121	0.4
0.5	0.3085	0.305	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.281	0.2776	0.5
0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451	0.6
0.7	0.242	0.2389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148	0.7
0.8	0.2119	0.209	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867	0.8
0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.166	0.1635	0.1611	0.9
1	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379	1
1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.123	0.121	0.119	0.117	1.1
1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.102	0.1003	0.0985	1.2
1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823	1.3
1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681	1.4
1.5	0.0668	0.0655	0.0643	0.063	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559	1.5
1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455	1.6
1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367	1.7
1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294	1.8
1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.025	0.0244	0.0239	0.0233	1.9
2	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183	2
2.1	0.0179	0.0174	0.017	0.0166	0.0162	0.0158	0.0154	0.015	0.0146	0.0143	2.1
2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.011	0.0116	0.0113	0.011	2.2

24. The range of the following numbers: 34, 35, 36, 34, 32, 34, 45, 46, 45, 43, 44, 43, 34, 30, 48, 38, 38, 40, 34 is?

a. 38 b. 30 c. 18 d. 8

25. A range chart displays the variation or spread of a process?

a. True b. False

26. What does FMEA stand for?

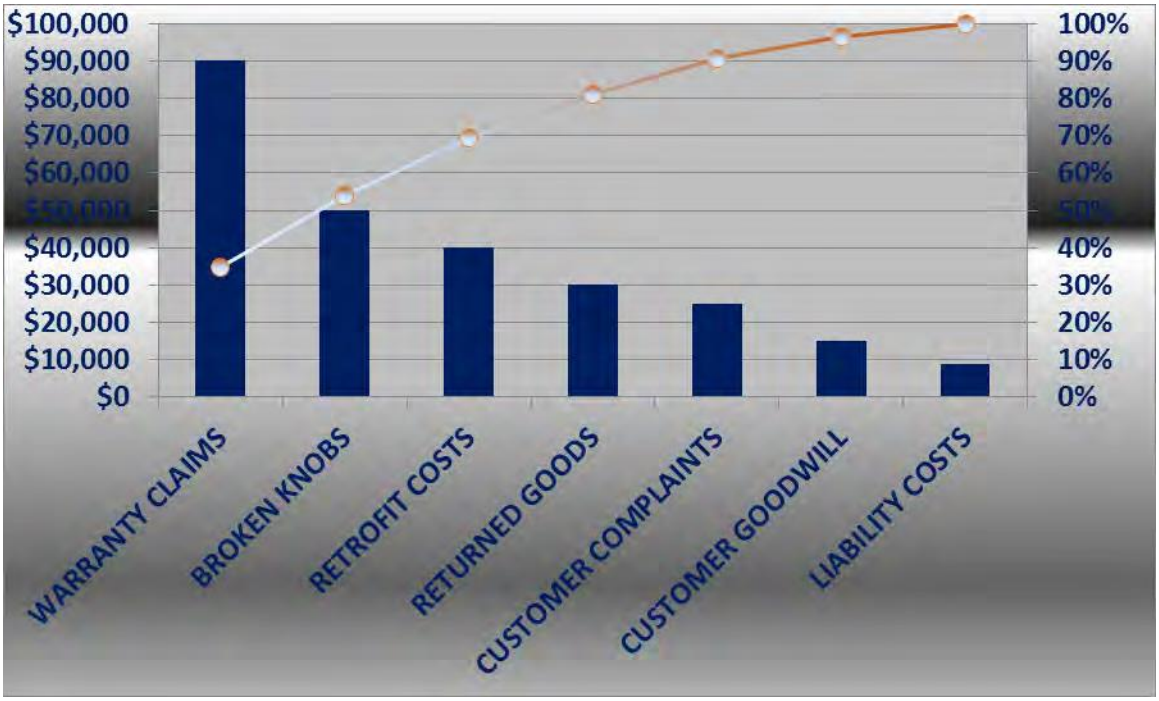
a. Factor mode and effects analysis
b. Forming mode and effects analysis
c. Failure mode and effects analysis
d. Failure mode and external analysis

27. If $\bar{p} = .096$, and $\bar{n} = 950$, what is the LCL_{np} and UCL_{np}?

a. 63.96 and 118.43
b. 27.24 and 91.23
c. 91.28 and 118.43
d. None of the above

28. According to the diagram below, what is the cumulative percentage of the 3rd most occurring defect?

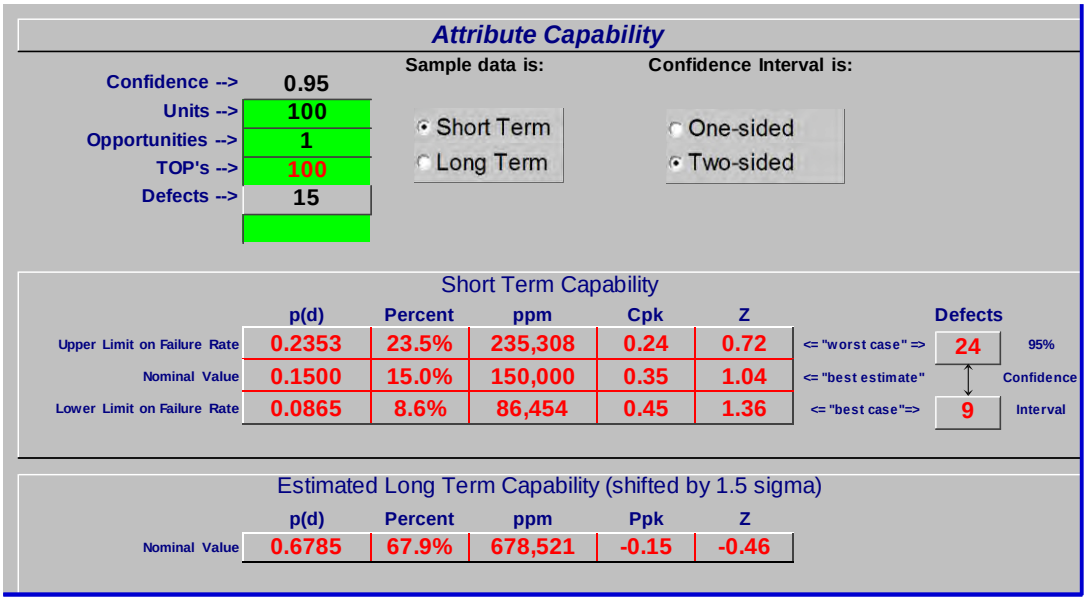
a. 54% b. 70% c. 91% d. None of these



29. What does MSA stand for?
    a. Measurement system analysis
    b. Measurement system attribute
    c. Measurement system appraiser
    d. None of the above

30. A _____ is a graphical representation of a process showing the relationships among process steps and includes symbols such as a diamond, rectangle, and circle?
    a. Process map
    b. Pareto diagram
    c. Schematic
    d. Why-why

31. True or False. The *p* chart is used when the sample size varies?



Attribute Capability

Confidence --> 0.95
Units --> 100
Opportunities --> 1
TOP's --> 100
Defects --> 15

Sample data is: (•) Short Term ( ) Long Term

Confidence Interval is: ( ) One-sided (•) Two-sided

Short Term Capability

	p(d)	Percent	ppm	Cpk	Z		Defects	
Upper Limit on Failure Rate	0.2353	23.5%	235,308	0.24	0.72	<= "worst case" =>	24	95%
Nominal Value	0.1500	15.0%	150,000	0.35	1.04	<= "best estimate"		Confidence
Lower Limit on Failure Rate	0.0865	8.6%	86,454	0.45	1.36	<= "best case"=>	9	Interval

Estimated Long Term Capability (shifted by 1.5 sigma)

	p(d)	Percent	ppm	Ppk	Z
Nominal Value	0.6785	67.9%	678,521	-0.15	-0.46

32. According to the attribute capability analysis, what is the correct defects per million?

a. 235,308
b. 150,000
c. 678,521
d. 86,4540

33. A _____ chart is a type of chart used in process/project planning and control to display planned work and finished work in relation to time?
a. Control
b. Mean
c. *Rang*e
d. Gantt

34. What does SIPOC stand for?
a. Suppliers Investment Procedures Organize Customers
b. Suppliers Inputs Process Outputs Customers
c. System Inputs Programs Outputs Customers
d. System Inputs Process Outputs Customers

35. _____sampling is the process of selecting units for a sample in such a manner that all combinations of units under consideration have an equal or ascertainable chance of being selected for the sample?
a. Stratified
b. Random
c. Cluster
d. Systematic

References

LEAN-RELATED SECTIONS

Dennis, P. (2007). *Lean production simplified* (2nd ed.). New York: Productivity Press.

Nash, M.A. & Poling, S.R. (2008). *Mapping the total value stream: A Comprehensive guide for production and transactional processes*. New York: CRC Press.

Tapping, D. & Dunn, A. (2006). *Lean office demystified: Using the power of the Toyota production system in your administration areas*. Chelsea, MI: MCS Media, Inc.

SIX SIGMA-RELATED SECTIONS

Kubiak, T.M. & Benbow, D.W. (2009). *The Certified Six Sigma Black Belt Handbook* (2nd ed.). Milwaukee, WI: Quality Press.

Besterfield, D. H. (2008). *Quality control* (8th ed.). Upper Saddle River, NJ: Pearson Prentice-Hall, Inc.

Recommendations for Taking the ATMAE Exam

- **Thoroughly review this Study Guide and review the reference textbooks.**
- **You do NOT have to pass each section. Only a composite passing score is required.**
- **Rest well the night before the exam.**
- **Do NOT leave any questions blank. All questions are multiple choice, so make an educated guess at questions containing content you may not be familiar with.**
- **Don't panic! You do know this material or your instructor, mentor, or colleague would not want you to take the exam.**
- **Pace yourself. There are 125 questions and you have 120 minutes (2 hours) to finish.**
- **100 of the questions are worth 1 point while 25 questions are worth 4 points each.**
- **Maintain a positive attitude. You can always retake the exam if you do not pass**

Answers for Sample Questions

1. d 2. a 3. e 4. a 5. b 6. d 7. a 8. a 9. d 10. d

11. b 12. a 13. c 14. a 15. b 16. d 17. c 18. c 19. a 20. d

21. a 22. b 23. b 24. c 25. a 26. c 27. a 28. b 29. a 30. a

31. a 32. b 33. d 34. b 35. b

ATMAE Certified Lean Six Sigma Examination General Information

Policy

The Board of Certification shall design and administer certification examinations for all individuals. The examinations shall be administered online as requested. The areas covered by the examinations and the minimum acceptable scores shall also be determined by the Board of Certification.

Examination Information

The ATMAE Lean Six Sigma Certification Examination is currently available for use for individual certification and as a program assessment examination. The exam is an *open book, **125**-question, multiple choice examination with questions on the following 12 major content areas: Lean Fundamentals, Lean Value Stream Mapping, Lean Stability, Lean Standardized Work, Lean Production, Six Sigma Project Management, Six Sigma Team Management, Six Sigma Design Phase Statistics, Six Sigma Measure Phase Statistics, Six Sigma Analyze Phase Statistics, Six Sigma Improve Phase Statistics, and Six Sigma Control Phase Statistics. (*Examinees are allowed to use printed reference materials (e.g., reference texts) during the exam. However, internet or software-based references are not allowed to be used during the exam. Oversight of this is the responsibility of the exam proctor.)

Individual Examinations

Individuals interested in taking the exam on an individual basis should arrange for an exam proctor, and schedule the exam online at **www.atmae.org** If the individual passes and wants to become certified, they will be responsible for submitting an application and paying the appropriate ATMAE membership fee, and certification documentation fee. ***Note:*** *If you are an individual with disabilities and need academic accommodations, please call ATMAE at (919) 635-8335 to make the necessary arrangements for you to take the test.*

Certification after Examination

Examinees who have passed the ATMAE Certified in Engineering Graphics Examination and who apply for ATMAE Certification will be certified by ATMAE upon receipt of their application and payment of all applicable fees. The ATMAE Office usually has confirmation of examination results within two weeks of the date of the examination. Applicants must be ATMAE members or join ATMAE in order to be certified. **You can become an ATMAE member by simply applying and paying online at www.atmae.org or by calling ATMAE at (919) 635-8335.** If applying for certification after passing the exam, you will need to pay relevant membership fees and indicate on the application form the approximate date of the exam and the location at which you took the exam so that ATMAE can verify your exam results.

Program Assessment

When used for program assessment purposes, the exam fees are typically paid by the Program or Department using the exam. Aggregate exam scores, and comparative score information, are released to the Program or Department contact after the exams have been scored and the examination fee has been paid. For more information about the ATMAE Certification Examination or to obtain scores and determine your ATMAE Membership status before applying for certification, contact ATMAE by phone at **(919) 635-8335** or by email at admin@atmae.org

Certificates

Certificates suitable for framing are available upon initial certification and upon annual renewal. In addition, individuals who passed the certification exam and stay current with all applicable membership and certification dues will be listed on the ATMAE Certification home page for recognition status by employers and colleagues.