SAMPLE EXAMINATION

The purpose of the following sample examination is to present an example of what is provided on exam day by ASQ, complete with the same instructions that are given on exam day.

This sample examination contains examples of both parts of the formal CMQ/OE examination: 1 sample constructed response essay and 75 sample multiple-choice questions.

During the formal CMQ/OE examination, three constructed response essays are provided, from which you choose to answer only two; this portion of the exam is closed book and you must respond to your chosen two constructed response essays within 45 minutes. The multiple-choice portion of the formal examination is open book and you must answer 150 questions in 3 hours and 15 minutes.

The test questions that appear in this sample examination are retired from the CMQ/OE pool and have appeared in past CMQ/OE examinations. Since they are now available to the public, they will NOT appear in future CMQ/OE examinations. This sample examination WILL NOT be allowed into the exam room.

Appendix A contains the answers to the sample multiple choice test questions. ASQ will not provide scoring and analysis for this sample examination. Remember: These test questions will not appear on future examinations so your performance on this sample examination may not reflect how you perform on the formal examination. A self-appraisal of how well you know the content for the specific areas of the body of knowledge (BOK) can be completed by using the worksheet in Appendix B.

Appendix C contains information on how the constructed response essays are scored, followed by example responses from the high, medium, and low scoring ranges.

On page 1 of the constructed response portion instructions, it states "You will be presented with three different problems" and on page 2 of the multiple-choice exam instructions, it states "There are 150 questions on this 3 hours and 15 minute examination." Please note that this sample exam only contains 1 constructed response problem and 75 multiple-choice questions.

If you have any questions regarding this sample examination, please email coneill@asq.org

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CERTIFIED MANAGER OF QUALITY/ORGANIZATIONAL EXCELLENCE
Constructed Response Portion

Read all the instructions before beginning the examination. If you are unsure about any part of the instructions, consult your proctor.

General Instructions

This portion of the examination is 45 minutes long. You will be presented with three different problems. Choose the **two** you prefer to answer. **DO NOT ANSWER ALL THREE PROBLEMS.** This portion of the exam is closed book - **no reference materials may be used.** You may separate the answer sheet from the problem page. **You will be allowed 5 extra minutes to read over the three questions to determine which of the two you would like to answer.**

On the Answer Sheet for the essay, you will see line numbers. These will be used by the scorers to identify and document where they find critical information in your response. The numbers have no significant value otherwise. Where you put information in your answer will not be scored in terms of its position on the paper.

1. Use a soft lead pencil (#2 or softer) only. Do not use ink.

2. Legibly print or write your responses on the answer sheet provided. Do not attach any additional sheets, as they will not be graded. On the answer sheet **circle** the problem you are answering at the top of the page. Write your response to that problem on one side of the paper only. Then **circle** the second problem you choose to answer on the other side of the paper. (Each problem has equal value and it doesn't matter in what order you write your responses.)

3. **Use only your ASQ member number as identification**. Without this number, we cannot identify your paper and you will not receive credit for this portion of the exam. Consult your proctor if you are unsure of your member number. You, as the examinee, are responsible for entering your member / ID number on both sides of the answer sheet. ASQ can not guarantee that you will receive a proper score if you do not enter this information accurately and clearly.

4. Your responses will be graded on content not format. This portion of the exam accounts for 1/6 of your total score and is graded separately from the multiple-choice portion. To become ASQ-certified you need to obtain a minimum overall score; you do not necessarily need to pass both the multiple choice and the constructed response portions.

5. It is strictly forbidden to copy or remove examination materials. You will be disqualified from the examination and not certified by ASQ if you breach this trust.

6. **PLEASE BE PATIENT**. Because of the lengthy process associated with grading these Constructed Response questions, your results will not be available until three weeks after the exam. Sorry, but we will not answer telephone requests for results.

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DO NOT CONTINUE UNTIL INSTRUCTED

Problem A

A cross-functional team for a midsized airline has examined the key findings of a customer satisfaction survey, which was conducted by a trade association for airlines. The survey results indicate that customers are dissatisfied in three areas: 1) the cost of airline tickets; 2) excessive wait time (including telephone reservations, check-in lines, flight delays); and 3) lost or misdirected baggage. The team also gathered data from internal customer service records, analyzed the data in relation to the trade association survey results, and developed a proposed process improvement initiative focusing on the baggage routing errors. The quality manager has taken the team's proposal to the executive committee (EC) for approval to implement.

The EC reviews the proposal, along with a summary report of the trade association survey, and tells the quality manager that they want to see all three key findings addressed in a companywide process improvement initiative. The EC will support this larger initiative by assigning staff as needed from various affected departments to any teams the quality manager thinks should be formed, but the quality manager will be responsible for leading and coordinating the effort.

Describe how the quality manager should respond to the EC, including the roles the EC and the quality manager will have, as well as potential obstacles to the initiative and appropriate strategies for overcoming those obstacles

CIRCLE ONE: **PROBLEM A**   **PROBLEM B**   **PROBLEM C**   ASQ MEMBER #_____

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NAME_____

CERTIFIED MANAGER of QUALITY/ORGANIZATIONAL EXCELLENCE

Please print your name above. Read all the instructions before beginning the examination. If you are unsure about any part of the instructions, consult your proctor.

General Instructions

All answers **must** be recorded on the Scantron Answer Sheet; no exam will be graded with the answers marked in the exam booklet.

1. Using a soft lead pencil (#2 or softer) only, blacken the circle of the correct answer. **Do not use ink**. If you change your answer, be sure to erase the previous answer completely.

2. Each question has **ONE** correct answer only.

3. This is a timed test, so do not linger over difficult questions. Instead, skip the questions that you are unsure of and return to them if you have time when you reach the end of the test.

4. Do not fold, staple, or tear the answer sheets.

5. Although this is an open-book examination, and personally generated materials/notes from training or refresher courses **are** allowed, the following conditions apply:

    • Each examinee must make his/her reference materials available to the proctor for review.

    • Absolutely no collections of questions and answers or weekly refresher course quizzes are permitted. Reference sources that contain such copy are not allowed **unless** the questions and answers are removed or obscured. **Examples of such sources include but are not limited to refresher and preparatory primers.**

    Calculator Policy: With the introduction of palmtop computers and the increasing sophistication of scientific calculators, ASQ has become aware of the need to limit the types of calculators that are permitted for use during the examinations. **Any silent, hand-held, battery-operated calculator WITHOUT an alphabetic keyboard will be permitted. However all programmable memory must be cleared from the calculator before you enter the exam room.** The examination is written so that a simple calculator will be sufficient to perform all calculations.

    • No laptop or palmtop computers are allowed.

    • Reference materials and calculators may not be shared.

6. When you have finished, check your answer sheet to be sure it is properly identified. Return your examination booklet, answer sheet, examinee comment form and scratch paper to your proctor. You must sign the roster sheet to signify the return of your test booklet.

7. It is strictly forbidden to copy or remove examination materials. You will be disqualified from the examination and not certified by ASQ if you breach this trust.

8. **TEST RESULTS** – you can check your test results 15-20 days after the exam date by logging into the www.asq.org website and navigating to the Certification webpage. Otherwise, your exam results will be mailed in approximately three weeks. **Please Be Patient** - we do not answer telephone requests for results.

Special Instructions

1. **Please note that your answer sheet has been personalized with your name, member number, section, and test type.**

2. **Do NOT make any changes to these parts of the answer sheet. Doing so will only delay your exam results. Instead, notify the Proctor of any changes.**

3. **If you don't have a personalized answer sheet, see your Proctor for further instructions**

4. **There are 150 questions on this 3 hours and 15 minute examination. Please check that you have the correct number of questions.**

STOP
DO NOT CONTINUE UNTIL INSTRUCTED

CERTIFIED MANAGER OF QUALITY/ORGANIZATIONAL EXCELLENCE Test

<u>Directions</u>: Each of the questions or incomplete statements below is followed by four suggested answers or completions. Select the one that is best in each case and then fill in the corresponding space on the answer sheet.

1. In the late nineteenth century, many organizations adopted the Taylor system of scientific management by separating

   (A) research from design
   (B) management from supervision
   (C) planning from execution
   (D) engineering from production

2. In contrast to an expressed warranty, an implied warranty is provided

   (A) by the seller
   (B) by the distributor
   (C) by law
   (D) only on request

3. Which of the following innovations in quality management was developed in the United States?

   (A) Quality circles
   (B) Company-wide quality control (CWQC)
   (C) Quality function deployment (QFD)
   (D) Statistical process control (SPC)

4. Which of the following manufacturing activities is value-added?

   (A) Setup
   (B) Process
   (C) Calibration
   (D) Inspection

5. If data are plotted over time, the resulting chart will be a

   (A) run chart
   (B) histogram
   (C) Pareto chart
   (D) Poisson distribution

6. The roles and responsibilities of a process improvement team should be established by which of the following company authorities?

   (A) The board of directors
   (B) The human resources department
   (C) The team members' supervisors
   (D) The quality steering committee

7. Which of the following pairs of measures is most useful for indicating the overall state of a process?

   (A) Conformance to specifications and cost of quality
   (B) Conformance to specifications and statistical control
   (C) Cycle time and cost of quality
   (D) Cycle time and statistical control

8. A Shewhart cycle is used to promote continuous

   (A) review and enhancement of the quality process
   (B) testing and evaluation for change
   (C) search for data and new methods of analysis
   (D) and immediate response to data changes

9. Before selecting a supplier as a partner, a customer should do which of the following first?

   (A) Conduct supplier surveys.
   (B) Define its own needs.
   (C) Determine which suppliers are industry leaders.
   (D) Get feedback from employees about how various suppliers are performing.

10. Which of the following should be included during the planning stage for quality training?

    (A) Establishing specific training quotas
    (B) Developing short-term training plans
    (C) Scheduling training for managers
    (D) Connecting training to business needs

11. It is not necessary to correct performance when it

    (A) causes a safety problem
    (B) is illegal or injurious to the organization
    (C) decreases customer satisfaction
    (D) causes conflict among line workers

12. Which of the following departments provides services primarily to external customers?

    (A) Human resources
    (B) Purchasing
    (C) Marketing
    (D) Manufacturing

13. To determine who the customers are for a specific process, it would be most useful to create a

    (A) Pareto chart
    (B) flow diagram
    (C) cause and effect diagram
    (D) scatter diagram

14. Which of the following information would be most useful in performing SWOT analysis?

    (A) The experiences of cross-functional teams
    (B) Historical data on accounts receivable
    (C) A report on the turnover rates of competitors
    (D) Trends in market growth

15. Using Deming's chain reaction theory, rank order the following events that will result from improving quality, from first to last.

    1. The company will stay in business
    2. The company will capture the market
    3. The company will be able to provide more jobs
    4. Productivity will improve
    5. Costs will decrease

    (A) 1, 2, 3, 4, 5
    (B) 1, 5, 4, 2, 3
    (C) 5, 3, 4, 2, 1
    (D) 5, 4, 2, 1, 3

16. A production line uses signs at specific points on the line to indicate when components or raw materials need to be replenished. This practice is an example of

    (A) kanban
    (B) poka-yoke
    (C) checkpoints
    (D) hoshin

17. To be effective, a company's strategic quality plan must be

    (A) developed by representatives from all levels of the company
    (B) free of cost and profit considerations
    (C) an integral part of the overall company business plan
    (D) the foundation of the company's quality manual

18. In order for quality to be integrated effectively, a company's objectives must be

    (A) displayed in all work areas
    (B) based on alternative uses of available resources
    (C) derived from the corporate strategic plan
    (D) driven by first-line management

19. Which of the following is the most important step in the selection of a single-source supplier for production components?

    (A) Performing on-site quality system surveys at each prospective supplier's facilities
    (B) Requiring copies of each prospective supplier's quality manual
    (C) Having each prospective supplier perform a self-survey
    (D) Evaluating sample products from each prospective supplier

20. Which of the following is NOT an appropriate goal for a program that is designed to provide quality education to managers?

    (A) Develop an understanding of the fundamentals of quality
    (B) Integrate quality into the decision-making process
    (C) Define the chain of command for developing quality procedures
    (D) Provide tools to help managers build and use quality systems

21. According to ISO 9000, the activities that establish the objectives and requirements for quality and for the application of quality system elements are defined as quality

    (A) engineering
    (B) planning
    (C) assurance
    (D) control

22. A batch of product that is otherwise ready for shipment does not meet 100% of the customer's specification. In this situation, which of the following actions by the quality manager would NOT be appropriate?

    (A) Segregate and ship that portion that meets the specifications.
    (B) Initiate a request for deviation and ship the product.
    (C) Submit the situation to the materials review board.
    (D) Contact the customer to request a deviation.

23. Which of the following is a good tool for planning cycle-time reduction and concurrent operations?

    (A) A timeline
    (B) A Pareto diagram
    (C) An $\overline{X}$ and R chart
    (D) A PERT chart

24. The quality director administered a survey in a company division and the results indicate that less than 15% of the employees are able to state two or more of the division's six values. The best course of action for the division manager to take would be to

    (A) document the survey results and submit them to senior management for review
    (B) put up more posters, then have the survey repeated the following week
    (C) find out whether the values are being taught in the quality training classes
    (D) ensure that there are methods of putting the values into practice

25. Rank order, from first to last, the following training design steps.

    1. Prepare training materials.
    2. Define training objectives.
    3. Determine course structure and sequence.
    4. Establish consensus on needs.

    (A) 2, 1, 4, 3
    (B) 2, 4, 1, 3
    (C) 4, 2, 3, 1
    (D) 4, 3, 1, 2

26. An organization's purchasing department is having difficulty maintaining material delivery schedules and has established a project to improve its performance. In this situation, which of the following should be the first step in the action plan?

    (A) Develop a mission statement
    (B) Increase the training for the personnel assigned to purchasing
    (C) Ask the quality department to audit the purchasing process
    (D) Establish objectives and analyze the purchasing process

27. All of the following are benefits of having the president of an organization lead an audit EXCEPT

    (A) increased understanding by the president of the organization's state of affairs
    (B) improved motivation of subordinates through personal participation by the president
    (C) improved human relations between the president and the subordinates
    (D) improved dissemination of information throughout the organization

28. Attributes and variables data are best described as which of the following?

	Attributes	Variables
(A)	Counted values	Measured values
(B)	Counted values	Visual features
(C)	Measured values	Counted values
(D)	Visual features	Counted values

29. All of the following are common ways for people to react to conflict EXCEPT

    (A) competing
    (B) collaborating
    (C) avoiding
    (D) sabotaging

30. In the development of customer-survey questionnaires, the most important design feature is

    (A) relating the questions to a specific product
    (B) presenting the questions from the customer's perspective
    (C) keeping the questionnaires easy to tabulate on completion
    (D) keeping the questionnaires short to avoid boring the customer

31. Which of the following topics is NOT included in the Malcolm Baldrige National Quality Award (MBNQA) criteria for customer and market focus?

    (A) Customer and market knowledge
    (B) Customer satisfaction determination
    (C) Customer survey instruments
    (D) Customer relationship management

32. An internal quality audit should be designed primarily to answer which of the following questions?

    (A) "Is the process effective?"
    (B) "What is the degree of management compliance?"
    (C) "How can the process be made more efficient?"
    (D) "What is the level of compliance?"

33. In order to be successful, a change agent in a company should do which of the following?

    (A) Understand and respect peoples' needs
    (B) Disregard previous unsuccessful efforts to transform the company
    (C) Maintain allegiance to the traditions and image of the company
    (D) Keep potentially painful change quiet until it must be communicated

34. The most important aspect to remember when developing a training program is

    (A) what's being taught
    (B) where the class will be taught
    (C) the industry or sector involved
    (D) who is being trained

35. A four-page customer satisfaction survey has been prepared by a company that has approximately 2,000 customers of various sizes, geographic locations, and industries. Which of the following is the next step for this survey?

    (A) Mail it to all 2,000 customers.
    (B) Pilot it to a selected cross-section of customers.
    (C) Ask volunteers from the customer base to respond to it.
    (D) Reduce its length to one page, double-sided, and mail it to all 2,000 customers.

36. When a product has a variety of customers (such as purchaser, operator, and maintenance worker), the product must

    (A) be inexpensive to operate and maintain
    (B) be able to perform multiple functions
    (C) be highly reliable and easy to use
    (D) have multiple quality characteristics

37. All of the following are direct, internal customers of an organization's purchasing manager (PM) EXCEPT the

    (A) organization's purchasing agents
    (B) CEO of the PM's organization
    (C) manufacturing department manager
    (D) individuals in the PM's work group

38. Which of the following statements is the best example of a tactical plan?

    (A) "Increase the return on equity (ROE) by 30% in five years."
    (B) "Increase the share in select market by 15%."
    (C) "Develop an instrument calibration program."
    (D) "Improve the quality by 40% in seven years."

39. An employee reward and recognition policy that is based on Maslow's hierarchy should take into account each employee's

    (A) level of commitment to the organization
    (B) level of responsibility in the organization
   (C) socioeconomic status
    (D) individual needs

40. Which of the following should happen first when implementing a total quality management (TQM) process?

    (A) Assigning team goals
    (B) Developing strategies
    (C) Constructing a mission statement
    (D) Making organizational changes that support TQM

41. During the quality planning stage, purchasing agents should do which of the following?

    (A) Survey internal customers to ensure that service is not impaired by changes in suppliers.
    (B) Define product requirements and associated supplier quality activities.
    (C) Use certified suppliers only.
    (D) Ensure that suppliers have a quality system and emphasize continuous improvement.

42.
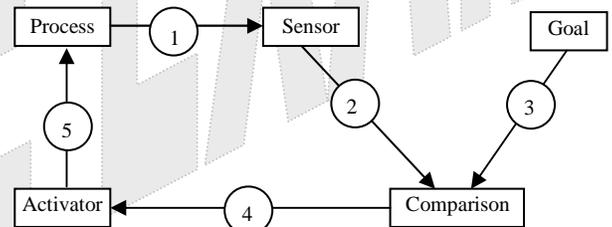
In the feedback loop shown above, the role of the sensor is to

    (A) measure the actual process performance
    (B) establish the standard or intended value
    (C) compare actual process performance to the goal
    (D) restore the process to status quo

43. Which of the following groups should have the primary role in establishing an organization's quality policies?

    (A) All employees
    (B) Middle managers
    (C) The quality council
    (D) The quality department

44. Who should evaluate the performance of a quality improvement team leader?

    (A) Team members
    (B) Champion
    (C) Company's general manager
    (D) Other team leaders

45. According to Juran, anyone is a customer of a product or service if that person

    (A) purchases it
    (B) uses it
    (C) is affected by it
    (D) produces it

46. During the course of project implementation, any problems or issues that arise should be

    (A) logged, numbered, and coded
    (B) solved by cross-functional teams
    (C) addressed on a first-in first-out basis
    (D) reported immediately to the project manager

47. The main advantage of having quality procedures online instead of in hard copy is that

    (A) the current version can be the only one available
    (B) all personnel can input changes to the documents
    (C) the documentation review process is simplified
    (D) an online document is easier to read

48. All of the following are advantages that result from building customer-supplier partnerships EXCEPT:

    (A) The supplier is offered longer-term financial security.
    (B) Both partners can learn new approaches to teamwork.
    (C) The customer can realize reduced inspection costs.
    (D) Prevention costs are shifted to the supplier.

49. Which of the following is an inherent advantage of using company-wide quality management in the implementation of quality project initiatives?

    (A) A high-level council is not required.
    (B) The workload for high-level managers is decreased.
    (C) Teamwork between upper management and functional departments is increased.
    (D) Bottom-line results for the company are improved.

50. A quality manager has chosen to survey customer satisfaction by taking samples based on the categories of frequency of use, categories of use, and demographics. This technique is known as

    (A) random sampling
    (B) data collection
    (C) stratification
    (D) customer classification

51. Before a purchasing agent can send requisitions to a supplier, the quality department must check the purchase requisitions for code-related requirements. Which of the following best describes the relationship that supports this process?

    (A) The quality department is an internal supplier to the purchasing agent.
    (B) The quality department is an adversary of the purchasing agent.
    (C) The purchasing agent is an internal supplier to the quality department.
    (D) The purchasing agent is the customer of an external supplier.

52. Continuous sampling plans are best used for

    (A) processes in which no separate lots exist
    (B) lots that are continuously staged for inspection
    (C) just-in-time lots
    (D) customer-returned material

53. Training for quality improvement teams should emphasize that facilitators are

    (A) team members of the project and should get into the substance of the project
    (B) team members only if they are also subject-matter experts
    (C) team members only if the other team members encourage involvement in the substance of the project
    (D) not team members and should not get into the substance of the project

54. Which of the following measures of a training program's effectiveness is ultimately most important?

    (A) Participant opinion questionnaire
    (B) End-of-training test
    (C) Business impact analysis
    (D) Post-training evaluation summary

55. Which of the following activities can help a newly formed team determine the scope of a project?

    (A) Warm-up exercises
    (B) Charter development
    (C) Consensus building
    (D) Role-playing

56. The primary reason for including quality responsibilities in all job descriptions for an organization is to

    (A) reinforce the need for every employee to contribute to the quality effort
    (B) decrease the need for outgoing inspections
    (C) reduce in-process inspections and rework
    (D) provide a basis for identifying and delivering employee training

57. Which of the following is the LEAST important approach for a customer-focused organization to take?

    (A) Urging its employees to do it right the first time
    (B) Establishing a council that includes customers
    (C) Implementing team-building throughout the organization
    (D) Establishing process controls

58.   I = Initial investment capital
        C = Periodic maintenance cost
        B = Benefits to be accrued

    On the basis of the information above, which of the following ratio results best reflects the prioritizing application of a benefit-cost analysis?

    (A) $\dfrac{-B}{I+C} > 0$

    (B) $\dfrac{B}{I+C} > 1$

    (C) $\dfrac{B}{I+C} \leq 1$

    (D) $\dfrac{B}{I+C} \leq 0$

59. Which of the following actions is NOT used to reduce process cycle time?

    (A) Analyzing current processes
    (B) Reducing queue times
    (C) Setting priorities
    (D) Implementing activity-based costing

60. A company's accounts payable department is trying to reduce the time between receipt and payment of invoices and has recently completed a flowchart. Which of the following tools would be the best for them to use next?

   (A) Fishbone diagram
   (B) Scatter diagram
   (C) Box and whisker plot
   (D) Histogram

61. The focus of a market planning and research system is to examine customers and competitors in order to

   (A) prioritize opportunities for or threats to the company's offerings
   (B) establish best practices in product and service design
   (C) identify trends for future pricing strategies
   (D) determine requirements for long-term supplier partnerships

62. Which of the following is the best way to ensure that information is conveyed appropriately?

   (A) Sending e-mails or interoffice memos to everyone in the organization
   (B) Using a communication plan
   (C) Posting it on the organization's web site
   (D) Explaining the details at a meeting

63. To ensure a successful benchmarking outcome, the first step that the quality manager should take is to

   (A) contact a best-in-class benchmark partner
   (B) gather data to help identify process areas for improvement
   (C) prepare a standardized benchmark agreement
   (D) assign a quality professional to the benchmark team

64. Which of the following is the final step in the Juran Trilogy®?

   (A) Quality control
   (B) Quality planning
   (C) Quality documentation
   (D) Quality improvement

65. A mission statement should meet which of the following requirements?

   (A) It should address only issues of values, beliefs, and philosophies of the organization.
   (B) It should be something currently unachievable, so that the organization will have to stretch itself.
   (C) It should be clear and understandable to all of the organization's personnel.
   (D) It should be of sufficient length and breadth to cover all aspects of the organization's business.

66. In a manufacturing company, the machine shop is what kind of customer in relation to the human resource department?

   (A) Intermediate
   (B) Hidden
   (C) External
   (D) Internal

67. In order for self-directed teams to be successful, the role of the group leader must be that of

   (A) coach
   (B) director
   (C) decision-maker
   (D) gatekeeper

68. Which of the following is one advantage of group decision-making?

   (A) Ease of arriving at a decision
   (B) Reduced potential for conflict
   (C) Increased acceptance of decisions
   (D) Increased productivity

69. The primary difference between tactical planning and strategic planning is that tactical planning focuses on

   (A) project resource allocation
   (B) communication with employees
   (C) short-term objectives
   (D) selection of quality objectives or goals

70. A disagreement over the proper interpretation of a quality standard has developed between an internal auditor and a department supervisor. The quality manager's best initial response to this situation would be to

(A) support the auditor's decision and correct it later if it is wrong
(B) ask the two parties to explain their viewpoints and then make a decision based on personal knowledge of the standard
(C) ask the two parties to work out a resolution between them and report back on that resolution
(D) ask the two parties to identify the points they agree on and use that as a basis for working toward agreement on other points

71. The primary purpose of a project charter is to

(A) subdivide the project into smaller, more manageable components
(B) provide management with a tool for selecting a project that addresses business needs
(C) provide management with a tool to ensure that project deadlines are met
(D) provide the project manager with authority to apply organizational resources to project activities

72. Execution of a quality plan should be the responsibility of

(A) inspectors only
(B) individual workers
(C) the quality manager
(D) quality engineering

73. The concept of hoshin planning can best be described as

(A) meeting customer requirements throughout the design process
(B) providing continual process improvement
(C) viewing quality based on economic implications
(D) pointing or aligning the entire organization in a common direction

74. For organization-wide change to be effective, the most important condition to meet is to have

(A) coordination between employees and management
(B) agreement between line and staff functions
(C) alignment between strategy and goals
(D) consistency between individual and team performance

75. A company needs to assess its strengths, weaknesses, opportunities, and threats (SWOT) prior to developing its

(A) broad strategic objectives
(B) guiding principles
(C) vision
(D) mission statement

STOP.

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY GO BACK AND CHECK YOUR WORK ON THIS TEST.

APPENDIX A: Answer Sheet
For each sample test question, the correct answer is provided below along with the area of the body of knowledge (BOK) that the item is classified to. This sample examination is not intended to represent all areas of the BOK but to provide a sampling from each major topic area. All ASQ examinations are based on the BOK for that particular exam. To view the BOK for CMQ/OE, please go to http://www.asq.org/certification/manager-of-quality/bok.html

Question	BOK	Correct Answer	Question	BOK	Correct Answer
1	I.A.1	C	39	III.A.4	D
2	II.B.6	C	40	III.E.3	C
3	IV.A.3	D	41	VI.B.	B
4	IV.B.3	B	42	III.C.4	A
5	IV.C.4	A	43	III.D.1	C
6	I.C.4	D	44	I.C.5	A
7	IV.C.3	B	45	V.A.1	C
8	IV.A.3	A	46	III.C.3	A
9	VI.A.	B	47	III.D.2	A
10	VII.A.	D	48	VI.E.	D
11	III.A.4	D	49	I.B.3	C
12	V.A.2	C	50	IV.C.2	C
13	IV.A.1	B	51	V.A.1	A
14	II.B.1	D	52	IV.C.2	A
15	III.E.4	D	53	I.C.4	D
16	IV.B.3	A	54	VII.D.	C
17	III.D.1	C	55	I.C.3	B
18	II.C.3	C	56	III.A.4	A
19	VI.A.	A	57	I.A.2	A
20	VII.B.	C	58	III.C.1	B
21	III.E.2	B	59	IV.B.3	D
22	III.D.3	B	60	IV.A.1	A
23	III.C.2	D	61	II.B.2	A
24	III.D.2	D	62	III.B.1	B
25	VII.C.	C	63	III.E.3	B
26	VI.C.	D	64	III.E.4	D
27	III.A.1	D	65	III.D.1	C
28	IV.C.3	A	66	V.A.1	D
29	I.B.4	D	67	I.C.1	A
30	IV.C.8	B	68	I.C.3	C
31	III.E.1	C	69	II.C.1	C
32	III.D.3	D	70	I.B.4	D
33	I.B.3	A	71	III.C.4	D
34	VII.C.	D	72	I.B.5	B
35	II.B.3	B	73	II.A.	D
36	V.A.1	D	74	II.C.1	C
37	V.A.1	B	75	II.B.1	A
38	II.C.1	C			

APPENDIX B: Analyzing Body of Knowledge (BOK) Content
The following worksheet can be used to help you analyze the results of your answers on this sample examination. It can be used to determine which areas of the body of knowledge (BOK) you may want to study.

After learning which sample test questions you had correct, total the number you had correct and enter that number into the 2nd column of the worksheet. The 3rd column provides the total number of test questions that are in this sample examination for that major area of the BOK. The last column provides the total number of test questions that appear in a formal ASQ examination for that area of the BOK.

BOK Topic Area	Total You Had Correct on Sample Exam	Total in the Sample Exam	Total in Formal ASQ Exam
I. Leadership		13	*25*
II. Strategic Plan Development and Deployment		10	*15*
III. Management Elements and Methods		23	*32*
IV. Quality Management Tools		13	*28*
V. Customer-Focused Organizations		6	*20*
VI. Supplier Chain Management		5	*15*
VII. Training and Development		5	*15*
GRAND TOTAL		**75**	*150*

APPENDIX C: Analyzing the Constructed Response Essays
For the formal CMQ/OE examination, the constructed responses are scored by Certified Managers of Quality/Organizational Excellence who are trained in evaluation techniques used for the essay scoring process. All of the judges score the papers against a standard of performance that is specific to each essay question. An example of this standard of performance for the sample Problem A that appears in this sample examination is shown on the next page. This standard of performance is called a "rubric".

A scoring rubric is used by the judges at a scoring session to provide a score for each response. Two judges score one of the responses from an examinee. If the scores from these two judges are more than 1 point apart, the judges must discuss the scores they gave based on the rubric. This process is designed to provide the most appropriate score for each response. For the formal examination, two separate judges score your second response using the same process.

In a scoring rubric, the first part provides the judges with the problem that was presented to the examinees. The second part, called the "exposition", provides pieces of information that may be included in a correct response. The third part is the actual rubric, which the judges use to determine what the actual score is for the essay based on the pieces of the problem that were responded to.

The judges are trained to use the exposition and rubric to analyze the responses, but are cautioned not to use the exposition as a simple checklist. The problem responses may contain all or some of the items listed. If responses provide one of these pieces of information, but erroneously applies the technique or piece of knowledge, the examinee would not get credit for that piece. On the other hand, an examinee may include a piece of knowledge that is pertinent to the problem presented but is not listed in the exposition, and the judges are allowed to give credit for that piece of knowledge.

As a result of a constructed response scoring session, the final scores for the essays are added to the total of correct multiple-choice answers, and the sum is converted to a scaled score as reported on the score report. The diagnostic details (alpha codes) on your score report are designed to indicate how you performed on the constructed response portion of the test.

You can use the scoring rubric on the next page to analyze how well you responded to the "Problem A" in this sample exam.

You can see based on the rubric at the bottom of the next page that it is important to provide information for each piece requested in the problem statement. Often, low scores are given not because the responses are clearly erroneous, but because the responses only contain some of the elements requested in the problem statement. One method you could use when taking the exam is to number the elements in the problem statement to be sure you respond to all of the elements in your written response.

For example, in the sample problem A, the problem asked is to "Describe how the quality manager should respond to the EC" by
1) "including the roles that the EC", **2)** "and the quality manager will have", **3)** "as well as potential obstacles to the initiative and", **4)** "appropriate strategies for overcoming those obstacles".

EXAMPLE SCORING RUBRIC

PROBLEM A

A cross-functional team for a midsized airline has examined the key findings of a customer satisfaction survey, which was conducted by a trade association for airlines. The survey results indicate that customers are dissatisfied in three areas: 1) the cost of airline tickets; 2) excessive wait time (including telephone reservations, check-in lines, flight delays); and 3) lost or misdirected baggage. The team also gathered data from internal customer service records, analyzed the data in relation to the trade association survey results, and developed a proposed process improvement initiative focusing on the baggage routing errors. The quality manager has taken the team's proposal to the executive committee (EC) for approval to implement.

The EC reviews the proposal, along with a summary report of the trade association survey, and tells the quality manager that they want to see all three key findings addressed in a companywide process improvement initiative. The EC will support this larger initiative by assigning staff as needed from various affected departments to any teams the quality manager thinks should be formed, but the quality manager will be responsible for leading and coordinating the effort.

Describe how the quality manager should respond to the EC, including the roles the EC and the quality manager will have, as well as potential obstacles to the initiative and appropriate strategies for overcoming those obstacles.

EXPOSITION

NOTE: The following list is intended as examples only. It is not intended to be all-inclusive; do not use it as a checklist.

Effective responses would include:
1. Describing the executive committee's role(s) such as:
   - Keeping the project visible to the organization
   - Participating in planning, team membership, etc.
   - Linking the project to corporate strategies, mission, vision, etc.
   - Supporting communication
   - Providing resources, rewards, recognition
2. Describing the quality manager's role(s) such as:
   - Project leadership
   - Liaison between teams and EC
   - Facilitating team development
   - Enabling and cheerleading teams
   - Helping identify team performance measures
3. Presenting typical obstacles
4. Presenting strategies for overcoming those obstacles

SCORING RUBRIC

High Score:
Candidate responds to all four points requested (EC's role, manager's role, obstacles and overcoming them)

Medium Score:
Candidate describes the EC's role and two of the other three points requested

Low Score:
Candidate responds to any two of the four points requested

EXAMPLE RESPONSES – HIGH, MEDIUM, AND LOW SCORES

Sample 1a (High Scoring)

The quality manager should respond to the EC with the following information:

- The role of the EC is to provide support to the teams involved in the companywide process improvement initiative. At this point, the EC has agreed to the proposal presented and is willing to reassign staff. However, the EC must provide the necessary time and money to effectively implement the initiatives.
- Some of the obstacles that may take place are: an initiative is too costly; an initiative does not really meet the needs of the customer; poor mix of membership on a cross-functional team; incorrect measurement of implementation progress; and lack of management support.
- The methods to overcome such obstacles are: to do a cost benefit analysis prior to implementation; seek customer feedback on proposed initiatives; make sure cross-functional teams have good representation; choose correct tools to measure the initiative (one tool may be a poor choice for all initiatives proposed); encourage management support throughout the whole process. At times management may need to approve additional staffing, give or gain permission for some things to be done.
- The quality manager's role is to be a leader and help coordinate the implementation of the initiatives by facilitating teams; reporting to the EC periodically and to keep up with the measurement of the process.

Sample 1b (High Scoring)

Systematic steps that the Quality Manager should do are:

1. Stratify each of those three key findings into more specific problem description
2. Assign improvement teams for each problem
3. Training for the team, if necessary
4. Define a measurable objectives
5. Establish the improvement schedule

The role of EC is

1. to encourage all managers to participate in this case.
2. attend the review meeting and give recommendation.
3. provide full support and recognition.

The role of Quality Manager:

1. Organize the improvement team
2. Provide training
3. Coordinate the team activities
4. Record all data of the improvement activities

Potential obstacle and the strategy to overcome:

1. Lack of time arrange the meeting time and discuss with the related manager
2. Lack of knowledge training program
3. Lack of coordination organize coordination meeting
4. Involve investment report to EC for decision

Sample 2a (Medium Scoring)

Top management must have a vision statement declaring that teamwork, continuous improvement, and customer first thinking is the way to go. Stand behind this 200%.

The quality manager must form cross-functional teams including people from all areas, possibly more than one team will be needed to address different aspects of problems. (Pareto problems.) Cause and effect diagrams and flowcharts need to be drawn and reviewed, procedures need to be reviewed, to understand the metrics of the process flow.

Companywide audit needs to be preformed to uncover underlying problems.

Rewrite procedures; provide training to all affected areas; conduct audits to assure conformity; train and retrain; measure training

Benchmark other organizations.

Include all departments in training of customer needs and desires.

In cross-functional teams it is important to use empowerment techniques to motivate employees and gain their dedication to quality.

Sample 2b (Medium Scoring)
The quality manager shall handle this large task request by way of project management techniques.

The EC group shall appoint to Q Man, as the project manager. The three key findings shall be the objectives of the project. The EC group shall provide the required resources as determined by studies for the human resources needed and funds. The quality manager shall conduct these studies by way of PERT, CPM, and Gantt charts. The materials needed shall be reviewed using net present value, payback period method, etc.

The obstacles such as conflicting time schedules and resources shall be resolved by the EC group using the PM tools. Feedback from the PM groups shall be put in report form and presented to the EC group.

Upon completion of the task a final report shall be issued.

Sample 3a (Low Scoring)
Step 1: Gather data. Review the results of the trade association survey. Review the results of the internal customer service survey. Review the executive committee's request.
Step 2: Plan a course of action. Select three distinct cross-functional teams to address each of the three critical elements. Assign team leaders. Instruct them to review their element and provide you with a plan of action for improvement. Satisfy yourself that each plan will work and that timelines for completion have been set.
Step 3: Get it done: Submit your plan, showing the actions each team will take and the actions you will take to verify effectiveness. This should include reviewing clear measurables as defined for the success of each team, as well as ensuring that the timeline is met.
Step 4: Solicit feedback from the EC. Review and revise plan to address any EC concerns. Feedback must confirm that the EC is not only fully supportive of the initiative, but is, in fact, driving it.
Step 5: Implement the plan.
Step 6: Follow-up to verify effectiveness.

Sample 3b (Low Scoring)
The manager should not take this task on alone. He or she should then assign a team leader to each group and ask for reports on progress made on a timely basis. When all tasks have been completed, the manager will then make recommendations to each team leader. The team leaders will then be responsible to see that all actions are taken and followed up on.