THE ULTIMATE CQE PRACTICE EXAM from CQEAcademy.com

Hey There!

This 40-question practice exam is meant to simulate the actual CQE exam in both the mix of exam questions, and the difficulty.

Each pillar of the CQE BoK contains the same proportion of questions as in the full 160 question exam.

- Management and Leadership – 4 Questions
- The Quality System – 4 Questions
- Product and Process Design – 6 Questions
- Product and Process Control – 6 Questions
- Continuous Improvement – 7 Questions
- Quantitative Methods and Tools – 9 Questions
- Risk Management – 4 Questions

To get the **solutions**, head over to http://www.cqeacademy.com/freecourse and sign up for a free 10-day course covering **the top 10 most important topics on the CQE Exam**.

If you have any questions – shoot me an email at Andy@CQEAcademy.com

Cheers!

Andy Robertson

-Your Guide to Certification

1. **This design activity could be described as the process where the examination & evaluation of objective evidence is used to confirm that your final product meets the customer's needs & intended use.**
   - Design Verification
   - Design Validation
   - Design Qualification
   - Design V&V Protocol

2. **A group of engineers have conducted a survey of customers and received a large quantity of feedback regarding their product. What quality tool will best help them organize and analyze this feedback?**
   - Matrix Diagram
   - Tree Diagram
   - Prioritization Matrix
   - Check Sheet
   - Affinity Diagram

3. **Calculate P_{pk} for the following Parameters: (USL = 20, LSL = 14, σ = 1, μ = 18)**
   - 0.50
   - 0.67
   - 1.0
   - 1.33
   - 1.50

4. **At the end of your FMEA you discover that you must implement a corrective action for a particular failure mode because the Risk Priority number is too high.**

   In this instance you decide to implement a vision camera to sort out rejects which is an improvement over your current visual inspection. How would you change your FMEA as a result of this corrective action?
   - Reduce the Severity Score
   - Increase the Detection Score
   - Reduce the Detection Score
   - Increase the Occurrence Score
   - Reduce the Occurrence Score

5. **Which QMS Document summarizes your organizations intentions & views with respect to the importance of quality as it relates to the organization's customers, employees and the business objectives.**
   - The Quality Policy
   - The Quality Objectives
   - The Quality Scorecard
   - The Quality Plan

6. **You're reviewing your company's Quarterly financial report (below)**
      - 15K - Scrap Failures
      - 2K - New Employee Screening & Training
      - 7K - New Process Qualifications
      - 20K - Custom Complaint Investigations & Product Exchanges
      - 11K - In-Process Inspector Wages
      - 9K - Raw Material Inspection Wages & Costs
      - 4K - Regulatory Appraisals
      - 10K - Engineering Redesign due to Failures
      - 17K - In Process & Supplier Audits
      - 5K - Defect Proofing via Continuous Improvement

   Based on the following data, which totals up to 100K, what % of your costs are due to poor quality:

   - 37%
   - 42%
   - 45%
   - 56%

7. **This design deliverable captures the technical reflection of your customers' needs and they represent your customers' requirements for the final product relating to safety, performance, functionality, quality, reliability, and the intended use of your product.**
   - Design Outputs
   - Engineering Drawings
   - Design Inputs
   - Design Requirements
   - Quality Attributes

8. **A shipping operation distributed product at a mean time of 48 hours from receipt of order with a standard deviation of 6 hours. What percentage of shipments go out between 42 - 54 hours from time of receipt?**
   - 34%
   - 68%
   - 66%
   - 32%

9. **A team of engineers at an auto parts distribution center has been chartered to reduce customer complaints by 50%. They've collected complaint data for the past 12 months. What tool should be used to determine the most frequent complaint?**
   - Check Sheet
   - Cause & Effect Diagram
   - Prioritization Matrix
   - Pareto Chart

10. **What Quality System concept provides an organization with the ability to demonstrate that a product was conforming to the design requirements during the manufacturing process?**
    - Material Identification
    - Material Status
    - Material Traceability
    - Material Segregation
    - Material Classification

11. **A system is in its useful life period & has been shown to have a MTBF of 1,000 Hours. What is the Reliability of the system at 250 Hours?**
    - 75.6%
    - 77.8%
    - 73.2%
    - 71.0%

12. **You've been tasked with improving a process, and you've identified that each individual who executes your process does it slightly different, and this person-to-person variation is resulting in poor yield downstream. You're in the process of creating standard work to reduce the person-to-person variation. Which phase of the DMAIC process are you in?**
    - Define
    - Measure
    - Analyze
    - Improve
    - Control

13. **You're calculating the confidence interval for the population mean. What standard deviation is needed to create a 95% confidence interval equal to ± 4 when you've sampled 15 units.**
    - 2.82
    - 7.95
    - 9.39
    - 30.77
    - 63.12

14. **Which of the following statements are NOT one of Deming's' 14 points:**
    - Break Down Department Barriers (Silos)
    - Increase Quality Through Inspection
    - Eliminate on The Job Training
    - Create a Consistency of Purpose
    - Promote Management by Objective & Daily Quotas

15. **Put the following audits in order from the largest scope to the narrowest (largest scope on top, smallest scope on bottom)**
    - 2nd Party Supplier Product Audit
    - 1st Party Process Audit
    - 3rd Party Quality Management System Audit

16. **Once you've estimated the risk associated with your actual or potential failure modes, you can then compare them to your risk policy to determine if those risks are acceptable or not; this process is known as:**
    - Risk Identification
    - Risk Analysis
    - Risk Detection
    - Risk Mitigation
    - Risk Assessment
    - Risk Evaluation

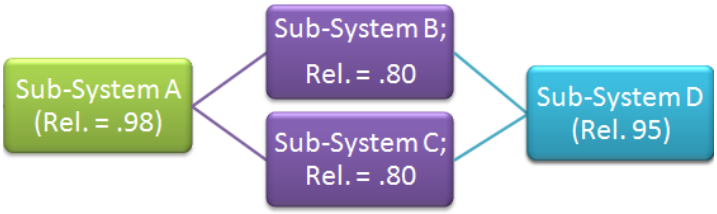
17. **You manufacture a widget and use an x-bar and S chart to monitor your process, where you sample 5 units in each subgroup, and s-bar = 4.2.**

    Estimate the population standard deviation for this process.
    - 4.2
    - 2.1
    - 8.4
    - 3.9
    - 4.5

18. **Calculate Cpk for the following Parameters: (USL = 1.35, LSL = 1.15, σ = 0.025, μ = 1.25)**
    - 0.67
    - 1.0
    - 1.33
    - 1.67
    - 2.0

19. **For a Single Sampling Plan at an AQL of 1.0 at a Normal, general inspection Level II per ANSI/ASQ Z1.4 what is the Reject Number for a total lot size of 500 units:**
    - 1
    - 2
    - 3
    - 4

20. **Calculate the reliability of the system below:**
    - .89 or 89%
    - .95 or 95%
    - .91 or 91%
    - .87 or 87%



21. **Which term is defined as the degree of mutual agreement among individual measurements made under prescribed like conditions?**
    - Accuracy
    - Precision
    - Measurement Error
    - Calibration
    - Metrology

22. **A machine shop is planning to move a line of machining equipment across town and any delays in the project will result in lost business.**

    Which tool can be used to ensure that potential pitfalls in the project plan are identified and mitigated?
    - Process Decision Program Chart
    - Tree Diagram
    - Pareto Chart
    - Activity Network Diagram
    - Affinity Diagram

23. **You've formed a team to tackle a big problem. You attend a meeting and you notice that team members seem overwhelmed, and there appears to be competition amongst the team members. Which stage of team development is the team currently in?**
    - Forming
    - Storming
    - Norming
    - Performing
    - Adjourning

24. **This symbol reflects which tolerance characteristic:**

- Cylindricity
- Position
- Concentricity
- Flatness
- Runout

25. **Which Audit Role is responsible for determining and implementing appropriate Corrective Actions for any audit findings:**
    - The Auditor
    - The Auditee
    - The Client
    - The Lead Auditor

26. **A vendor has just shipped you 3,000 units which you intend to inspect per ANSI/ASQ Z1.4 using a Single Sampling Plan at the normal, general level II inspection level at an AQL of 0.25. What is the sample size you must take?**
    - 50
    - 80
    - 125
    - 200

27. **A team of engineers is working to qualify a new supplier for a critical component. The supplier has informed the team that the critical dimension on their component is normally distributed. Which tool can be used to confirm the vendors assertion?**
    - Control Chart
    - Check Sheet
    - Scatter Plot
    - Histogram

28. **Calculate the sample standard deviation of the following data set: 1, 3, 5, 7, 9**
    - 2.83
    - 3.16
    - 8
    - 10

29. **Identify the correct order of the Risk Assessment Process steps in chronological order:**
    - Risk Analysis, Risk Evaluation, Risk Identification
    - Risk Evaluation, Risk Analysis, Risk Identification
    - Risk Analysis, Risk Identification, Risk Evaluation
    - Risk Identification, Risk Evaluation, Risk Analysis
    - Risk Identification, Risk Analysis, Risk Evaluation

30. **How many treatments would be required for a DOE with 6 factors where a half factorial design is chosen?**
    - 128
    - 64
    - 32
    - 16
    - 8

31. **You're performing a supplier audit on a long-time vendor and you discover that the supplier has knowingly shipped defective product to another of their customers, but not your organization.**

    You're asked to leave this out of your audit report, what should you do?

    - Agree to leave the finding out of the audit report because the vendor has been a long-time partner with your organization.
    - Include the observation in your audit report as a critical observation and request the customer to take corrective action.
    - Leave the finding out of the audit report but make a note to verbally deliver this finding to your manager.
    - Include the observation in your audit report as a recommendation for improvement without requiring corrective action.

32. **You're performing a hypothesis test for the population mean and you know the population standard deviation. You plan to sample 45 units from your population and you'd like to use a 2-sided test at a 5% significance level.**

    What is the rejection criteria for this hypothesis test?
    - 1.341
    - 1.345
    - 1.650
    - 1.761
    - 1.960

33. **This project planning tool that defines the sequential tasks requires to complete a complex project, including the critical path.**
    - Process Decision Program Chart
    - Tree Diagram
    - Matrix Diagram
    - Activity Network Diagram
    - Interrelationship Digraph

34. **You've just completed a gauge R&R study. The repeatability was analyzed to be 0.5679 standard deviations, and the reproducibility was analyzed to be 0.4231 standard deviation. What is the measurement system variation?**
    - 0.9910
    - 0.9955
    - 0.5679
    - 0.4231
    - 0.7082

35. **If your risk assessment identifies a risk that exceeds your pre-determined risk criteria, then which activity within risk management is required?**
    - Risk Mitigation
    - Risk Acceptance
    - Risk Reduction
    - Risk Control
    - Risk Review

36. **You're manufacturing a widget and using an X-bar and R chart to control the critical feature of the product. Your normal process has the following attributes:**

    X-double bar is 225, R-bar is 12, n = 8.

    Identify the upper control limits for the X-bar chart:
    - 218.71
    - 220.52
    - 229.48
    - 233.14

37. **A team of engineers at an Electronics Manufacturer wants to improve the way material moves through the production process. At the start of the improvement process the team needs to align on the current state of the process. Which tool will best help the team align on the existing process?**
    - Cause & Effect Diagram
    - Check Sheet
    - Flow Chart
    - Activity Network Diagram

38. **This quality system process is meant to quantify the variation associated with a measurement system and determine if a measurement system is appropriate and suitable for your needs.**
    - Calibration
    - Linear Regression
    - Metrology
    - Design of Experiments
    - Measurement System Analysis

39. **Which phase of the design for six sigma process could be characterized as the process where different design concepts are considered through their ability to fulfill the products CTQs in a robust way.**
    - Define
    - Measure
    - Analyze
    - Design
    - Verify

40. **What is the purpose of the ISO 9000 family?**
    - To prescribe the methods for quality management & control
    - To assist organizations, of all types and sizes, to implement and operate effective quality management systems
    - To define the requirements, test methods & acceptance criteria to guarantee product conformance for any product.
    - To ensure companies comply with all international, national and industry standards