PRACTICE EXAM 18: SIX SIGMA GREEN BELT (100 QUESTIONS)

This 100-question practice exam uses application-focused questions across the Six Sigma Green Belt Body of Knowledge and DMAIC. Select the single best answer. For ASQ CSSGB-style timed practice, allow approximately four hours. This independent study guide is not an official certification examination.

1. At a logistics operation, Which analysis is appropriate for comparing means of two independent groups?

A. Chi-square goodness-of-fit test
B. Two-sample t test
C. One-proportion test only
D. Individual moving-range chart

2. A healthcare improvement team asks: ANOVA is commonly used to compare what?

A. Means across three or more groups
B. Two defect counts only
C. One process map with another
D. Customer comments by topic

3. While coaching a Green Belt, a Black Belt asks: A chi-square test is often used with what kind of data?

A. Only normally distributed measurements
B. Only paired continuous data
C. Categorical counts
D. Only time-order observations

4. During a project review, Regression analysis is used chiefly to model what?

A. The order of project milestones
B. The color coding of a control plan
C. The sequence of brainstorming ideas
D. A relationship between a response and predictors

5. A process owner needs to decide: What does a residual plot help assess?

A. Whether the project charter is approved
B. Whether a regression model has problematic patterns
C. Whether a gauge is calibrated
D. Whether a process has customers

6. At a logistics operation, A confounding variable is one that does what?

A. Guarantees a statistically significant result
B. Always becomes the response variable
C. Obscures the separate effect of a factor
D. Eliminates the need for randomization

7. A healthcare improvement team asks: What is the purpose of a multi-vari study?

A. Calculate a single control limit
B. Collect voice-of-customer comments
C. Build a project communication plan
D. Explore variation across sources such as time and location

8. While coaching a Green Belt, a Black Belt asks: Which statement best describes a statistically significant result?

A. The observed evidence is unlikely under the null model
B. The result is automatically important to customers
C. The process is necessarily capable
D. The root cause is proven without context

9. During a project review, Why should practical significance be considered with statistical significance?

A. Statistical tests never use sample data
B. A small effect can be statistically detectable but unimportant
C. Practical significance replaces measurement analysis
D. Large p-values prove large business impact

10. A process owner needs to decide: What is a key benefit of a designed experiment?

A. It eliminates all process noise
B. It replaces the need for a baseline
C. It can estimate factor effects systematically
D. It guarantees an optimal solution

11. At a logistics operation, Randomization in an experiment helps protect against what?

A. Bias from uncontrolled time-related influences
B. The need to define factor levels
C. Variation caused by measurement systems
D. The use of response variables

12. A healthcare improvement team asks: Replication in an experiment provides what?

A. A way to avoid selecting factors
B. A replacement for randomization
C. A method for drawing a SIPOC
D. An estimate of experimental error and consistency

13. While coaching a Green Belt, a Black Belt asks: Blocking is used in experimental design to do what?

A. Account for known nuisance variation
B. Eliminate the response variable
C. Create additional customer segments
D. Set final control limits

14. During a project review, What does an interaction mean in a factorial experiment?

A. Two factors have identical main effects
B. All factors must be held constant
C. The effect of one factor depends on another factor level
D. The experiment has no random error

15. A process owner needs to decide: Which tool is best for ranking potential failure risks by severity, occurrence, and detection?

A. Histogram
B. Control chart
C. Scatter diagram
D. Failure mode and effects analysis

16. At a logistics operation, What is the purpose of a pilot test before full implementation?

A. Replace all baseline data
B. Evaluate a proposed change on a limited scale
C. Finalize project closure immediately
D. Avoid collecting customer feedback

17. A healthcare improvement team asks: Which technique helps select among alternatives using weighted criteria?

A. Run chart
B. Cause-and-effect diagram
C. p chart
D. Decision matrix

18. While coaching a Green Belt, a Black Belt asks: Poka-yoke is designed primarily to do what?

A. Increase inspection sample sizes
B. Estimate process capability
C. Prevent or immediately detect errors
D. Rank stakeholder power

19. During a project review, Which Lean method organizes the workplace through sort, set in order, shine, standardize, and sustain?

A. 5S
B. DMAIC
C. FMEA
D. SIPOC

20. A process owner needs to decide: A kaizen event is best described as what?

A. A long-term audit of financial statements
B. A focused, short-term improvement effort
C. A statistical method for comparing means
D. A type of control-chart violation

21. At a logistics operation, Value stream mapping helps identify what?

A. The appropriate alpha level
B. The distribution of sample means
C. The project sponsor hierarchy
D. Value-added and non-value-added process flow

22. A healthcare improvement team asks: Which action most directly reduces changeover time?

A. Increase work-in-process inventory
B. Separate internal and external setup activities
C. Add more final inspection steps
D. Delay maintenance until failures occur

23. While coaching a Green Belt, a Black Belt asks: What is a primary purpose of standard work?

A. Define the current best known method consistently
B. Allow each operator to choose any sequence
C. Replace training with inspection
D. Remove the need for improvement

24. During a project review, Which practice best supports implementation acceptance?

A. Announce changes only after full deployment
B. Keep process owners out of decisions
C. Involve affected employees in testing and feedback
D. Use only financial metrics to communicate

25. A process owner needs to decide: A solution has high impact but high implementation effort. What should the team do?

A. Reject it automatically
B. Implement it without pilot testing
C. Evaluate tradeoffs and plan resources before scaling
D. Ignore stakeholder concerns

26. At a logistics operation, What does a cost-benefit analysis help compare?

A. Only the number of defects
B. Expected gains against required investment
C. Only the process mean
D. Only the customer interview count

27. A healthcare improvement team asks: Which item is most appropriate in an implementation plan?

A. Only the final project savings
B. Only the control-chart centerline
C. Only the project problem statement
D. Tasks, owners, dates, and required resources

28. While coaching a Green Belt, a Black Belt asks: A control plan documents what?

A. How key process characteristics will be monitored and reacted to
B. How to write the initial charter
C. How to conduct a brainstorming session
D. How to select experimental factors

29. During a project review, The primary purpose of a control chart is to do what?

A. Distinguish common-cause from special-cause variation
B. Show every process step
C. Rank customer requirements
D. Estimate a project budget

30. A process owner needs to decide: A point beyond a control limit is most commonly interpreted as what?

A. Proof that specifications were exceeded
B. A normal random pattern by definition
C. Evidence that the gauge is biased
D. A signal of potential special-cause variation

31. At a logistics operation, Which statement best describes Six Sigma as a business strategy?

A. A method for ranking employee performance
B. A finance-only system for cutting budgets
C. A disciplined approach for reducing variation and defects
D. A software package for scheduling projects

32. A healthcare improvement team asks: What is the primary purpose of a balanced scorecard?

A. Calculate a process standard deviation
B. Translate strategy into a set of linked performance measures
C. Assign causes to a fishbone diagram
D. Select a sample from a population

33. While coaching a Green Belt, a Black Belt asks: Which Lean principle most directly emphasizes work that creates customer value?

A. Increase batch sizes to reduce setups
B. Define value from the customer perspective
C. Inspect finished output more frequently
D. Separate departments by specialty

34. During a project review, A process operating at a Six Sigma level is chiefly associated with which outcome?

A. Very few defects relative to opportunities
B. Equal numbers of defects and units
C. A process average at the specification limit
D. No need for process monitoring

35. A process owner needs to decide: Which role normally sponsors a Six Sigma project and removes organizational barriers?

A. Process operator
B. Data collector
C. External customer
D. Project champion

36. At a logistics operation, What is a key distinction between a defect and a defective unit?

A. Every defect always creates two defective units
B. Defects apply only to service processes
C. A unit may contain more than one defect
D. Defective units cannot be counted

37. A healthcare improvement team asks: Which measure is most appropriate for tracking a continuous customer outcome?

A. Number of returned invoices
B. Count of late shipments
C. Percent of forms completed
D. Mean delivery time

38. While coaching a Green Belt, a Black Belt asks: What does a process owner primarily provide to a Six Sigma team?

A. A statistically random sample
B. Independent certification of results
C. Authority and knowledge to sustain process changes
D. The final exam scoring rule

39. During a project review, Which activity is most consistent with a systems view of an organization?

A. Assessing interactions among connected processes
B. Optimizing one department without regard to others
C. Replacing customer needs with internal targets
D. Treating every defect as an isolated event

40. A process owner needs to decide: What does the acronym COPQ commonly represent?

A. Control of process quantity
B. Cost of poor quality
C. Customer output performance quotient
D. Cost of preventive questioning

41. At a logistics operation, Which deployment practice best supports Six Sigma alignment?

A. Choose projects only because data are easy to obtain
B. Link projects to strategic business objectives
C. Start every project with a control chart
D. Assign projects without defined sponsors

42. A healthcare improvement team asks: What is the primary purpose of a project charter?

A. Document the final control plan
B. Calculate process capability indices
C. List all individual observations
D. Define the business case, scope, goals, and team

43. While coaching a Green Belt, a Black Belt asks: Which item is usually outside a well-written project scope statement?

A. Unrelated processes not affected by the problem
B. The process boundaries being studied
C. Major deliverables of the project
D. Key stakeholders impacted by changes

44. During a project review, Voice of the customer data are used mainly to identify what?

A. The order of hypothesis-test steps
B. The sequence of control-chart limits
C. Customer needs and expectations
D. The value of the process mean

45. A process owner needs to decide: A CTQ characteristic is best described as what?

A. A measurable requirement critical to customer satisfaction
B. A financial statement prepared by leadership
C. A sampling method for process data
D. A type of regression coefficient

46. At a logistics operation, Which tool summarizes suppliers, inputs, process, outputs, and customers?

A. Scatter diagram
B. SIPOC diagram
C. Run chart
D. Affinity diagram

47. A healthcare improvement team asks: What is the first practical step when forming a Six Sigma project team?

A. Calculate Cp before selecting members
B. Develop control limits for each member
C. Write solutions before defining the problem
D. Identify needed roles and relevant process knowledge

48. While coaching a Green Belt, a Black Belt asks: A stakeholder analysis is most useful for which purpose?

A. Estimating the process sigma level
B. Choosing a probability distribution
C. Planning engagement and managing project influence
D. Computing a confidence interval

49. During a project review, Which project goal is written most effectively?

A. Make invoice processing much better soon
B. Improve quality wherever possible
C. Reduce invoice defects from 8% to 3% by June
D. Eliminate every possible source of variation

50. A process owner needs to decide: What is a likely consequence of poorly defined project boundaries?

A. More accurate measurement systems
B. Automatic customer agreement
C. Lower common-cause variation
D. Scope creep and unclear accountability

51. At a logistics operation, A RACI matrix is used primarily to clarify what?

A. Roles such as responsible and accountable
B. Distribution shape and skewness
C. The order of customer interviews
D. The location of specification limits

52. A healthcare improvement team asks: Which team behavior best supports effective brainstorming?

A. Rank ideas before anyone speaks
B. Defer judgment while ideas are generated
C. Allow only the project leader to contribute
D. Require statistical proof for every suggestion

53. While coaching a Green Belt, a Black Belt asks: What does a Kano analysis help a team understand?

A. How to calculate a t statistic
B. How different features affect customer satisfaction
C. How to randomize experimental runs
D. How to establish subgroup sizes

54. During a project review, A process map is most valuable in Define when the team needs to do what?

A. Set final control limits
B. Prove a root cause statistically
C. Estimate measurement bias
D. Establish a shared view of the current workflow

55. A process owner needs to decide: Which statement best distinguishes a problem statement from a goal statement?

A. The problem states the gap; the goal states the target improvement
B. The problem lists solutions; the goal lists defects
C. The problem is optional; the goal is mandatory
D. The problem uses data; the goal must avoid data

56. At a logistics operation, What is a useful output of a voice-of-customer interview?

A. A final hypothesis-test decision
B. A calculated process capability ratio
C. Verbatim statements that can be translated into requirements
D. A completed failure mode ranking

57. A healthcare improvement team asks: Which action best manages a project risk?

A. Ignore low-probability events
B. Wait until the project closes
C. Treat all risks as equal
D. Identify the risk, assess it, and plan a response

58. While coaching a Green Belt, a Black Belt asks: A communication plan should specify which element?

A. Only the project budget
B. Only the measurement equation
C. Audience, message, method, and timing
D. Only the final report format

59. During a project review, Which technique helps prioritize a large set of customer comments?

A. Random sampling
B. Affinity diagramming
C. Regression analysis
D. Control-charting

60. A process owner needs to decide: What is the main value of a high-level process map?

A. It establishes boundaries and major process steps
B. It replaces detailed data collection
C. It calculates the defect rate
D. It proves causal relationships

61. At a logistics operation, A team uses a nominal group technique mainly to do what?

A. Estimate a population mean
B. Generate and prioritize ideas with structured participation
C. Determine gauge repeatability
D. Set specification limits

62. A healthcare improvement team asks: Which statement describes a project constraint?

A. A limit on resources, time, or authority
B. A customer requirement translated to a CTQ
C. A common cause of variation
D. A test statistic used in analysis

63. While coaching a Green Belt, a Black Belt asks: What is the recommended response to a project objective that conflicts with strategy?

A. Continue because the team has already started
B. Hide the conflict from stakeholders
C. Collect more data without informing anyone
D. Reassess or redirect the project with the sponsor

64. During a project review, What is an operational definition?

A. A broad statement of the project vision
B. A financial estimate of benefits
C. A precise, agreed method for measuring a characteristic
D. A list of possible root causes

65. A process owner needs to decide: Which sampling approach gives every population member an equal chance of selection?

A. Convenience sampling
B. Judgment sampling
C. Voluntary-response sampling
D. Simple random sampling

66. At a logistics operation, Why is stratification used during data analysis?

A. To ensure all values are identical
B. To reveal patterns within meaningful subgroups
C. To remove the need for sampling
D. To guarantee causation

67. A healthcare improvement team asks: Which chart is most appropriate for displaying a process sequence with decision points?

A. Detailed flowchart
B. Histogram
C. Box plot
D. Pareto chart

68. While coaching a Green Belt, a Black Belt asks: What is the purpose of a data collection plan?

A. Select the final process solution
B. Set a target capability index
C. Specify what data will be collected and how
D. Write the project charter

69. During a project review, In a measurement system study, repeatability refers to variation from what?

A. The same appraiser measuring the same item repeatedly
B. Different appraisers measuring the same item
C. Different production shifts using one standard
D. The process changing over several months

70. A process owner needs to decide: Reproducibility in a gauge study evaluates what?

A. Variation within one appraiser
B. Variation caused by specifications
C. Variation among appraisers using the same system
D. Variation caused by customer demand

71. At a logistics operation, What does measurement bias indicate?

A. Random scatter around the reference value
B. A consistent difference from a reference value
C. A stable process average
D. A change in sample size

72. A healthcare improvement team asks: Which display best shows the distribution of continuous data?

A. Pie chart
B. Gantt chart
C. SIPOC diagram
D. Histogram

73. While coaching a Green Belt, a Black Belt asks: A right-skewed distribution has which characteristic?

A. A longer tail extending to the left
B. Equal tails with no spread
C. A longer tail extending to the right
D. No observations above the mean

74. During a project review, What does the median represent?

A. The middle value when data are ordered
B. The most frequent value
C. The arithmetic average only
D. The difference between maximum and minimum

75. A process owner needs to decide: Which measure is most sensitive to extreme values?

A. Median
B. Mode
C. Interquartile range
D. Arithmetic mean

76. At a logistics operation, Standard deviation is a measure of what?

A. The number of defects per unit
B. The typical spread of observations around the mean
C. The average process specification
D. The direction of customer demand

77. A healthcare improvement team asks: What does a box plot display particularly well?

A. Sequence of process decisions
B. Responsibilities by project role
C. Supplier and customer relationships
D. Center, spread, and potential outliers

78. While coaching a Green Belt, a Black Belt asks: A Pareto chart is used to help a team do what?

A. Estimate a regression equation
B. Focus on the most significant categories
C. Measure appraiser agreement
D. Set a project schedule

79. During a project review, What does a scatter plot help examine?

A. The order of process steps
B. The frequency of categorical defects only
C. Association between two variables
D. The assignment of team responsibilities

80. A process owner needs to decide: Which statement about correlation is correct?

A. Correlation alone does not establish causation
B. Correlation always proves causation
C. Correlation can be used only with attribute data
D. Correlation removes all confounding factors

81. At a logistics operation, A run chart is primarily used to display what?

A. A ranked list of defect categories
B. The relationship between two variables
C. The parts of a measurement system
D. Data over time in their observed order

82. A healthcare improvement team asks: What is the purpose of a capability study?

A. Determine individual team roles
B. Identify customer segments
C. Compare process performance with specification limits
D. Build an affinity diagram

83. While coaching a Green Belt, a Black Belt asks: Cp primarily compares which quantities?

A. Process mean and target value
B. Specification width and process spread
C. Defect count and unit count
D. Customer needs and outputs

84. During a project review, Cpk differs from Cp because Cpk also considers what?

A. How centered the process is within specifications
B. The number of appraisers
C. The sample collection method
D. The project budget

85. A process owner needs to decide: What does a p chart monitor?

A. The proportion of defective units
B. The count of defects per unit
C. The process average of continuous data
D. The range within rational subgroups

86. At a logistics operation, What does a c chart monitor?

A. The proportion of defectives in each sample
B. Individual measurements over time
C. The count of defects when opportunity is constant
D. The sample standard deviation

87. A healthcare improvement team asks: Rational subgrouping is intended to separate what?

A. Customers from suppliers
B. Short-term within-subgroup variation from longer-term change
C. Goals from problem statements
D. Continuous data from attribute data

88. While coaching a Green Belt, a Black Belt asks: Which data type records counts of nonconformities?

A. Continuous data
B. Time-series data only
C. Ratio data only
D. Attribute data

89. During a project review, What is a key purpose of a measurement-system analysis before process decisions?

A. Eliminate all process variation
B. Set customer specifications
C. Choose project sponsors
D. Confirm that observed variation can be trusted

90. A process owner needs to decide: A stable process is one that shows what?

A. No variation in any observation
B. Only common-cause variation over time
C. Only customer-caused variation
D. A mean exactly at the target

91. At a logistics operation, Which graph is useful for comparing distributions across categories?

A. SIPOC diagram
B. Tree diagram
C. Box plot
D. Swimlane map

92. A healthcare improvement team asks: What does the interquartile range measure?

A. The spread of the middle half of the data
B. The distance from mean to target
C. The count of defects per unit
D. The proportion of observations outside limits

93. While coaching a Green Belt, a Black Belt asks: When collecting baseline data, the team should first ensure what?

A. Definitions and methods are consistent
B. The improvement is already implemented
C. All data points meet specification
D. The project is ready to close

94. During a project review, What is the primary purpose of a cause-and-effect diagram?

A. Rank defects by frequency
B. Test a sample proportion
C. Organize potential causes of a problem
D. Schedule project tasks

95. A process owner needs to decide: The 5 Whys technique is used to do what?

A. Calculate five separate averages
B. Probe progressively toward an underlying cause
C. Create five control limits
D. Select five random samples

96. At a logistics operation, What does a hypothesis test evaluate?

A. Whether a process map is complete
B. Whether customer needs are important
C. Whether a charter has sufficient scope
D. Whether sample evidence supports a stated claim

97. A healthcare improvement team asks: The null hypothesis generally represents what?

A. A baseline or no-effect position to test
B. The desired project solution
C. The most likely root cause
D. A customer specification

98. While coaching a Green Belt, a Black Belt asks: A Type I error occurs when a team does what?

A. Fails to reject a false null hypothesis
B. Uses a sample that is too large
C. Calculates the wrong standard deviation
D. Rejects a true null hypothesis

99. During a project review, A Type II error occurs when a team does what?

A. Rejects a true null hypothesis
B. Uses an incorrect control chart
C. Fails to reject a false null hypothesis
D. Chooses the wrong project sponsor

100. A process owner needs to decide: What does a p-value represent in hypothesis testing?

A. The process capability index
B. Evidence against the null under the assumed model
C. The probability that the alternative is true
D. A guarantee that the result will repeat

Practice Exam 18: Answer Key And Explanations

1. B - The correct answer is Two-sample t test. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

2. A - The correct answer is Means across three or more groups. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

3. C - The correct answer is Categorical counts. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

4. D - The correct answer is A relationship between a response and predictors. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

5. B - The correct answer is Whether a regression model has problematic patterns. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

6. C - The correct answer is Obscures the separate effect of a factor. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

7. D - The correct answer is Explore variation across sources such as time and location. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

8. A - The correct answer is The observed evidence is unlikely under the null model. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

9. B - The correct answer is A small effect can be statistically detectable but unimportant. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

10. C - The correct answer is It can estimate factor effects systematically. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

11. A - The correct answer is Bias from uncontrolled time-related influences. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

12. D - The correct answer is An estimate of experimental error and consistency. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

13. A - The correct answer is Account for known nuisance variation. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

14. C - The correct answer is The effect of one factor depends on another factor level. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

15. D - The correct answer is Failure mode and effects analysis. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

16. B - The correct answer is Evaluate a proposed change on a limited scale. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

17. D - The correct answer is Decision matrix. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

18. C - The correct answer is Prevent or immediately detect errors. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

19. A - The correct answer is 5S. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

20. B - The correct answer is A focused, short-term improvement effort. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

21. D - The correct answer is Value-added and non-value-added process flow. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas

useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

22. B - The correct answer is Separate internal and external setup activities. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

23. A - The correct answer is Define the current best known method consistently. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

24. C - The correct answer is Involve affected employees in testing and feedback. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

25. C - The correct answer is Evaluate tradeoffs and plan resources before scaling. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

26. B - The correct answer is Expected gains against required investment. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

27. D - The correct answer is Tasks, owners, dates, and required resources. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

28. A - The correct answer is How key process characteristics will be monitored and reacted to. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

29. A - The correct answer is Distinguish common-cause from special-cause variation. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

30. D - The correct answer is A signal of potential special-cause variation. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

31. C - The correct answer is A disciplined approach for reducing variation and defects. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

32. B - The correct answer is Translate strategy into a set of linked performance measures. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

33. B - The correct answer is Define value from the customer perspective. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

34. A - The correct answer is Very few defects relative to opportunities. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

35. D - The correct answer is Project champion. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

36. C - The correct answer is A unit may contain more than one defect. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

37. D - The correct answer is Mean delivery time. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

38. C - The correct answer is Authority and knowledge to sustain process changes. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

39. A - The correct answer is Assessing interactions among connected processes. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

40. B - The correct answer is Cost of poor quality. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

41. B - The correct answer is Link projects to strategic business objectives. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

42. D - The correct answer is Define the business case, scope, goals, and team. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

43. A - The correct answer is Unrelated processes not affected by the problem. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

44. C - The correct answer is Customer needs and expectations. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

45. A - The correct answer is A measurable requirement critical to customer satisfaction. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

46. B - The correct answer is SIPOC diagram. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

47. D - The correct answer is Identify needed roles and relevant process knowledge. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

48. C - The correct answer is Planning engagement and managing project influence. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

49. C - The correct answer is Reduce invoice defects from 8% to 3% by June. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

50. D - The correct answer is Scope creep and unclear accountability. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

51. A - The correct answer is Roles such as responsible and accountable. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

52. B - The correct answer is Defer judgment while ideas are generated. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

53. B - The correct answer is How different features affect customer satisfaction. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

54. D - The correct answer is Establish a shared view of the current workflow. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

55. A - The correct answer is The problem states the gap; the goal states the target improvement. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

56. C - The correct answer is Verbatim statements that can be translated into requirements. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

57. D - The correct answer is Identify the risk, assess it, and plan a response. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

58. C - The correct answer is Audience, message, method, and timing. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

59. B - The correct answer is Affinity diagramming. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

60. A - The correct answer is It establishes boundaries and major process steps. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

61. B - The correct answer is Generate and prioritize ideas with structured participation. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

62. A - The correct answer is A limit on resources, time, or authority. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in

other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

63. D - The correct answer is Reassess or redirect the project with the sponsor. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

64. C - The correct answer is A precise, agreed method for measuring a characteristic. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

65. D - The correct answer is Simple random sampling. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

66. B - The correct answer is To reveal patterns within meaningful subgroups. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

67. A - The correct answer is Detailed flowchart. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

68. C - The correct answer is Specify what data will be collected and how. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

69. A - The correct answer is The same appraiser measuring the same item repeatedly. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

70. C - The correct answer is Variation among appraisers using the same system. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

71. B - The correct answer is A consistent difference from a reference value. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

72. D - The correct answer is Histogram. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and

required action. This reasoning applies directly to the improvement scenario provided.

73. C - The correct answer is A longer tail extending to the right. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

74. A - The correct answer is The middle value when data are ordered. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

75. D - The correct answer is Arithmetic mean. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

76. B - The correct answer is The typical spread of observations around the mean. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

77. D - The correct answer is Center, spread, and potential outliers. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

78. B - The correct answer is Focus on the most significant categories. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

79. C - The correct answer is Association between two variables. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

80. A - The correct answer is Correlation alone does not establish causation. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

81. D - The correct answer is Data over time in their observed order. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

82. C - The correct answer is Compare process performance with specification limits. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

83. B - The correct answer is Specification width and process spread. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

84. A - The correct answer is How centered the process is within specifications. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

85. A - The correct answer is The proportion of defective units. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

86. C - The correct answer is The count of defects when opportunity is constant. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

87. B - The correct answer is Short-term within-subgroup variation from longer-term change. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

88. D - The correct answer is Attribute data. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

89. D - The correct answer is Confirm that observed variation can be trusted. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

90. B - The correct answer is Only common-cause variation over time. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

91. C - The correct answer is Box plot. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action. This reasoning applies directly to the improvement scenario provided.

92. A - The correct answer is The spread of the middle half of the data. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

93. A - The correct answer is Definitions and methods are consistent. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in

other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

94. C - The correct answer is Organize potential causes of a problem. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

95. B - The correct answer is Probe progressively toward an underlying cause. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

96. D - The correct answer is Whether sample evidence supports a stated claim. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

97. A - The correct answer is A baseline or no-effect position to test. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

98. D - The correct answer is Rejects a true null hypothesis. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

99. C - The correct answer is Fails to reject a false null hypothesis. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.

100. B - The correct answer is Evidence against the null under the assumed model. It addresses the stated process need and supports the DMAIC decision. The other options are tools or ideas useful in other contexts, but they do not fit this objective. Choose the approach that aligns with evidence, process condition, and required action.