

# **CERTIFIED SIX SIGMA GREEN BELT STUDY GUIDE**

## **PRACTICE EXAM 15 — 100 QUESTIONS**

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*This standalone practice exam is aligned to the ASQ Certified Six Sigma Green Belt Body of Knowledge. Select the single best answer for each question. For a timed simulation, allow four hours.*

*Answer key and explanations follow the questions.*

# **PRACTICE EXAM 15: CERTIFIED SIX SIGMA GREEN BELT (100 QUESTIONS)**

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*This 100-question practice exam follows the ASQ CSSGB body of knowledge. Select the single best answer for each question. For a timed simulation, allow four hours. This unofficial study resource is not an ASQ examination.*

**1.** A Green Belt is working in the Overview: Six Sigma and the Organization. Which action is most appropriate?

- A. limit discussion to department preferences under current project conditions
- B. choose the team's favorite problem under current project conditions
- C. start with a solution already selected under current project conditions
- D. align a project objective to a measurable business driver

**2.** A Green Belt is working in the Overview: Six Sigma and the Organization. Which action is most appropriate?

- A. use a balanced scorecard to connect local measures with strategy
- B. replace all measures with a single finance metric under current project conditions
- C. report only monthly defect counts under current project conditions with the available process data
- D. remove customer measures from reviews under current project conditions with the available process data

**3.** A Green Belt is working in the Overview: Six Sigma and the Organization. Which action is most appropriate?

- A. maximize every resource utilization rate under current project conditions
- B. identify the system constraint before increasing upstream output

- C. build inventory before studying the flow under current project conditions
- D. add inspection after every operation under current project conditions

4. A Green Belt is working in the Overview: Six Sigma and the Organization. Which action is most appropriate?

- A. divide defects by total output under current project conditions with the available process data
- B. use the longest individual cycle time under current project conditions
- C. calculate takt time from available production time and customer demand
- D. average setup time across products under current project conditions with the available process data

5. A Green Belt is working in the Overview: Six Sigma and the Organization. Which action is most appropriate?

- A. list only departmental job titles under current project conditions
- B. map material and information flow from supplier through customer
- C. draw an organization chart under current project conditions with the available process data
- D. rank employees by utilization under current project conditions with the available process data

6. A Green Belt is working in the Overview: Six Sigma and the Organization. Which action is most appropriate?

- A. run a capability study under current project conditions with the available process data
- B. create a Pareto chart of defect categories under current project conditions with the available process data
- C. use a spaghetti diagram to study excessive travel in a work area
- D. build a responsibility matrix under current project conditions with the available process data

7. A Green Belt is working in the Overview: Six Sigma and the Organization. Which action is most appropriate?

- A. schedule production by monthly forecast alone under current project conditions
- B. order the largest economical batch under current project conditions
- C. hold safety stock at every step under current project conditions
- D. apply just-in-time replenishment to reduce excess inventory

**8.** A Green Belt is working in the Overview: Six Sigma and the Organization. Which action is most appropriate?

- A. use DMADV when creating a new process that must meet CTQs
- B. repeat DMAIC without a defined process under current project conditions with the available process data
- C. begin with final inspection only under current project conditions with the available process data
- D. skip verification after design under current project conditions with the available process data

**9.** A Green Belt is working in the Overview: Six Sigma and the Organization. Which action is most appropriate?

- A. add only severity and occurrence under current project conditions with the available process data
- B. calculate an FMEA risk priority number from severity, occurrence, and detection
- C. average all three ratings under current project conditions with the available process data
- D. subtract detection from severity under current project conditions with the available process data

**10.** A Green Belt is working in the Overview: Six Sigma and the Organization. Which action is most appropriate?

- A. evaluate only supplier invoices under current project conditions with the available process data
- B. use process FMEA only after customer complaints under current project conditions
- C. substitute a control chart for failure analysis under current project conditions
- D. use design FMEA to examine product failure modes before release

**11.** A Green Belt is working in the Overview: Six Sigma and the Organization. Which action is most appropriate?

- A. promise a specific solution immediately under current project conditions with the available process data
- B. state that quality should improve under current project conditions with the available process data
- C. define the project problem using baseline performance and business impact
- D. list every possible stakeholder complaint under current project conditions with the available process data

**12.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. select a project with meaningful impact and a manageable scope
- B. choose the largest problem regardless of boundaries under current project conditions
- C. start the project before identifying a sponsor under current project conditions
- D. select work solely because data are unavailable under current project conditions

**13.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. estimate correlation between variables under current project conditions with the available process data
- B. use a SIPOC to clarify suppliers, inputs, process, outputs, and customers
- C. calculate control limits under current project conditions with the available process data
- D. schedule project tasks under current project conditions with the available process data

**14.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. identify the process owner who can sustain changes after the project
- B. assign ownership to the newest team member under current project conditions
- C. leave ownership undefined under current project conditions with the available process data
- D. make the facilitator permanent owner under current project conditions with the available process data

**15.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. ignore external practices under current project conditions with the available process data
- B. compare unrelated internal departments only under current project conditions
- C. use competitive benchmarking to compare performance with direct competitors
- D. collect opinions without performance criteria under current project conditions

**16.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. discard negative feedback as outliers under current project conditions
- B. ask questions that suggest the desired answer
- C. sample only satisfied customers under current project conditions
- D. collect voice-of-customer input through unbiased interview questions

**17.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. convert every request into a cost target under current project conditions
- B. translate a customer need into measurable critical-to-quality requirements
- C. treat all needs as equal priorities under current project conditions
- D. wait until control planning to define needs under current project conditions

**18.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. use the Kano model to distinguish basic expectations from delighters
- B. rank defects only by repair cost under current project conditions
- C. replace customer research with internal guesses under current project conditions
- D. classify every feature as mandatory under current project conditions with the available process data

**19.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. define a solution before the problem under current project conditions with the available process data

- B. use a charter as a detailed work instruction under current project conditions
- C. omit baseline information under current project conditions with the available process data
- D. write a charter that states scope, goal, business case, and roles

**20.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. rank causes by frequency under current project conditions with the available process data
- B. plot individual measurements over time under current project conditions with the available process data
- C. use a work breakdown structure to decompose project deliverables into work packages
- D. display customer requirements under current project conditions with the available process data

**21.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. assign RACI roles automatically under current project conditions with the available process data
- B. identify root causes of defects under current project conditions with the available process data
- C. compare distributions to specifications under current project conditions with the available process data
- D. use a Gantt chart to communicate tasks, durations, and schedule progress

**22.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. identify the task with lowest cost under current project conditions with the available process data
- B. use critical-path analysis to find tasks that determine the shortest project duration
- C. find the most popular team activity under current project conditions with the available process data
- D. select the activity with most resources under current project conditions with the available process data

**23.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. include consequential metrics to detect harm caused by an improvement

- B. track only the primary target under current project conditions with the available process data
- C. remove measures once results improve under current project conditions with the available process data
- D. measure benefits after closing the project under current project conditions

**24.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. monitor a process over time under current project conditions with the available process data
- B. calculate a confidence interval under current project conditions with the available process data
- C. use an affinity diagram to organize a large set of related ideas
- D. assign cause-and-effect probabilities under current project conditions with the available process data

**25.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. select the quickest suggestion under current project conditions with the available process data
- B. choose the option with the loudest advocate under current project conditions
- C. use a prioritization matrix to compare alternatives against weighted criteria
- D. avoid defining decision criteria under current project conditions with the available process data

**26.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. replace all roles with a single sponsor under current project conditions with the available process data
- B. use a RACI chart to clarify who is responsible, accountable, consulted, and informed
- C. assign every person final approval under current project conditions with the available process data
- D. avoid documenting decisions under current project conditions with the available process data for the stated improvement goal

**27.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. use nominal group technique to generate ideas and rank them independently

- B. let the manager decide before discussion under current project conditions with the available process data
- C. use unstructured debate only under current project conditions with the available process data
- D. eliminate silent idea generation under current project conditions with the available process data

**28.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. treat seniority as proof under current project conditions with the available process data
- B. seek rapid unanimous agreement under current project conditions with the available process data
- C. exclude people with concerns under current project conditions with the available process data
- D. address groupthink by inviting dissenting evidence before a decision

**29.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. skip reviews to preserve momentum under current project conditions with the available process data
- B. use a tollgate review to verify deliverables before moving phases
- C. replace data with verbal updates under current project conditions with the available process data
- D. close the project before implementation under current project conditions with the available process data

**30.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. keep results within the project team under current project conditions
- B. delete working files after closure under current project conditions with the available process data
- C. document lessons learned so future teams can reuse project knowledge
- D. focus only on final financial results under current project conditions

**31.** A Green Belt is working in the Define Phase. Which action is most appropriate?

- A. define boundaries after implementation under current project conditions with the available process data

- B. assume processes stay within one department under current project conditions
- C. use a boundary only for budgets under current project conditions
- D. distinguish a process boundary from an organizational reporting boundary

**32.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. use a process map to identify handoffs, rework loops, and missing steps
- B. rank customers by revenue under current project conditions with the available process data
- C. calculate a p-value under current project conditions with the available process data
- D. set control limits from specifications under current project conditions with the available process data

**33.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. assume they always occur independently under current project conditions with the available process data
- B. treat mutually exclusive events as events that cannot occur together
- C. add their probabilities only when dependent under current project conditions
- D. interpret them as equal probabilities under current project conditions with the available process data

**34.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. apply the multiplication rule for independent events by multiplying probabilities
- B. add probabilities regardless of event relationship under current project conditions
- C. subtract the larger probability under current project conditions with the available process data
- D. divide each probability by the sample size under current project conditions

**35.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. model ranked survey categories under current project conditions with the available process data
- B. model time between rare events under current project conditions with the available process data

- C. model continuous normal measurements only under current project conditions with the available process data
- D. use a binomial distribution for counts of successes in fixed trials

**36.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. compare paired observations under current project conditions with the available process data
- B. model a continuous measurement mean under current project conditions with the available process data
- C. use a Poisson distribution for counts of rare events per opportunity interval
- D. rank ordered categories under current project conditions with the available process data

**37.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. use it to eliminate variation under current project conditions with the available process data
- B. claim every individual observation becomes normal under current project conditions with the available process data
- C. equate it with random sampling only under current project conditions with the available process data
- D. describe the central limit theorem as the basis for approximate normality of sample means

**38.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. classify product weight as continuous variables data
- B. classify it as nominal data under current project conditions
- C. treat it as a count of defects
- D. label it an ordinal category under current project conditions

**39.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. assume they are continuous observations under current project conditions
- B. treat them as ratio measurements only under current project conditions

- C. classify defect counts per unit as discrete attributes data
- D. label them interval-scale measurements under current project conditions with the available process data

**40.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. select only the first units produced under current project conditions with the available process data
- B. use random sampling when each unit should have an equal selection chance
- C. choose units easiest to inspect under current project conditions with the available process data
- D. sample one shift to represent all shifts under current project conditions with the available process data

**41.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. sample only the largest subgroup under current project conditions
- B. use stratified sampling when important subgroups must be represented
- C. remove subgroup labels before sampling under current project conditions
- D. treat every subgroup as identical under current project conditions

**42.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. discard the entire data set under current project conditions with the available process data
- B. replace all values with the largest value under current project conditions with the available process data
- C. use the range as a location measure under current project conditions with the available process data
- D. use the median when an extreme value would distort the arithmetic mean

**43.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. treat it as a specification limit under current project conditions
- B. use it to identify the most frequent category under current project conditions
- C. use standard deviation to describe typical spread around the mean

D. use it as a sample size under current project conditions

**44.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. use a histogram to display the distributional shape of continuous data
- B. show task dependencies under current project conditions with the available process data
- C. assign team accountability under current project conditions with the available process data
- D. document customer interviews under current project conditions with the available process data

**45.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. use a scatter diagram to explore association between two quantitative variables
- B. rank defect categories by count under current project conditions with the available process data
- C. monitor stability over time under current project conditions with the available process data
- D. document a future-state process under current project conditions with the available process data

**46.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. estimate customer satisfaction under current project conditions with the available process data
- B. compare a process mean to a target under current project conditions
- C. rank failure modes by risk under current project conditions with the available process data
- D. use a gauge R&R study to assess repeatability and reproducibility

**47.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. compare one operator with another only under current project conditions with the available process data
- B. check measurement bias by comparing observed values with a reference value
- C. use a Pareto chart of defects under current project conditions with the available process data
- D. calculate takt time under current project conditions with the available process data

**48.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. ignore time-order behavior under current project conditions with the available process data
- B. calculate  $C_p$  from specification width alone under current project conditions
- C. verify process stability before interpreting a capability index
- D. use customer surveys as control limits under current project conditions

**49.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. interpret  $C_p$  as potential capability based on specification width and within variation
- B. treat  $C_p$  as a centering measure only under current project conditions with the available process data
- C. use  $C_p$  to count defects directly under current project conditions with the available process data
- D. equate  $C_p$  with customer satisfaction under current project conditions with the available process data

**50.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. ignore the nearest specification limit under current project conditions
- B. use  $C_{pk}$  only for attribute counts under current project conditions
- C. treat  $C_{pk}$  as a project schedule metric under current project conditions
- D. interpret  $C_{pk}$  as capability adjusted for process centering

**51.** A Green Belt is working in the Measure Phase. Which action is most appropriate?

- A. set control limits equal to customer requirements
- B. distinguish control limits from specification limits under current project conditions
- C. treat specifications as calculated from process data
- D. use both terms interchangeably under current project conditions

**52.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. treat a scatterplot as experimental proof under current project conditions
- B. assume association proves a cause under current project conditions
- C. ignore possible confounding variables under current project conditions with the available process data
- D. distinguish correlation from causation when two variables move together

**53.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. replace a control chart under current project conditions with the available process data for the stated improvement goal
- B. prove causation without a design under current project conditions with the available process data for the stated improvement goal
- C. use linear regression to estimate an outcome from a predictor when the relationship is appropriate
- D. classify defects by category under current project conditions with the available process data for the stated improvement goal

**54.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. ignore the chosen significance level under current project conditions with the available process data
- B. treat it as the probability the alternative is true under current project conditions
- C. interpret a small p-value as evidence against the stated null hypothesis
- D. declare practical importance automatically under current project conditions with the available process data

**55.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. assume a small p-value guarantees business value
- B. distinguish statistical significance from practical significance under current project conditions
- C. avoid considering effect size under current project conditions
- D. accept every significant result without context under current project conditions

**56.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. define a Type I error as rejecting a true null hypothesis
- B. accepting a false null hypothesis under current project conditions with the available process data
- C. failing to collect data under current project conditions with the available process data
- D. choosing a small sample under current project conditions with the available process data

**57.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. collecting more observations under current project conditions with the available process data for the stated improvement goal
- B. rejecting a true null hypothesis under current project conditions with the available process data
- C. using a two-sided test under current project conditions with the available process data
- D. define a Type II error as failing to reject a false null hypothesis

**58.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. increase random measurement error under current project conditions with the available process data
- B. increase test power by using a larger sample when other conditions remain fixed
- C. raise variation deliberately under current project conditions with the available process data for the stated improvement goal
- D. remove relevant observations under current project conditions with the available process data for the stated improvement goal

**59.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. use a paired t-test when measurements are naturally matched
- B. compare unrelated groups with no pairing under current project conditions
- C. test a single proportion only under current project conditions
- D. compare only categorical frequencies under current project conditions with the available process data

**60.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. test association of two categories only under current project conditions
- B. compare one process with specifications under current project conditions with the available process data
- C. use ANOVA to compare means across more than two groups
- D. rank causes by frequency under current project conditions with the available process data

**61.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. compare paired continuous means under current project conditions
- B. estimate a continuous regression slope under current project conditions
- C. use chi-square analysis for association among categorical variables
- D. set an individuals-chart limit under current project conditions

**62.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. use a cause-and-effect diagram to organize potential causes by categories
- B. rank actions by project duration under current project conditions with the available process data
- C. calculate sample statistics under current project conditions with the available process data
- D. document training attendance under current project conditions with the available process data

**63.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. select the most frequent defect automatically under current project conditions with the available process data
- B. use 5 Whys to probe successive causal links behind a problem
- C. replace data collection with opinions under current project conditions with the available process data
- D. set a specification limit under current project conditions with the available process data

**64.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. calculate a capability index under current project conditions with the available process data

- B. display a future-state value stream under current project conditions with the available process data
- C. assign customer priorities under current project conditions with the available process data
- D. use a fault tree to analyze combinations of events leading to failure

**65.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. choose a sampling method under current project conditions with the available process data
- B. estimate a p-value from current data under current project conditions with the available process data
- C. replace a project charter under current project conditions with the available process data
- D. perform gap analysis by comparing current performance with a defined future state

**66.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. use a multi-vari study to separate positional, cyclical, and temporal variation
- B. calculate a customer satisfaction score under current project conditions with the available process data
- C. assign a project sponsor under current project conditions with the available process data
- D. determine a contract price under current project conditions with the available process data

**67.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. ignore variables outside the model under current project conditions with the available process data
- B. investigate a confounder before claiming that a correlation is causal
- C. assume a high correlation is proof under current project conditions
- D. remove contradictory observations under current project conditions with the available process data

**68.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. change the hypothesis after seeing p-value under current project conditions
- B. select the conclusion first under current project conditions
- C. state the null hypothesis before examining test results

D. omit the comparison value under current project conditions

**69.** A Green Belt is working in the Analyze Phase. Which action is most appropriate?

- A. find a process constraint under current project conditions with the available process data
- B. compare customer requirements to CTQs under current project conditions with the available process data
- C. use an F-test to compare variability when its assumptions are satisfied
- D. assign tasks to a project plan under current project conditions with the available process data

**70.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. use factors only for scheduling under current project conditions with the available process data
- B. define factors as customer complaints under current project conditions with the available process data
- C. treat factors as output responses under current project conditions with the available process data
- D. identify factors as controllable input variables in a designed experiment

**71.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. treat levels as response measurements under current project conditions with the available process data
- B. define levels as the settings chosen for an experimental factor
- C. use levels as defect counts under current project conditions with the available process data
- D. assume each factor has one setting under current project conditions

**72.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. use randomization to reduce bias from uncontrolled influences in an experiment
- B. run treatments in a convenient fixed order under current project conditions
- C. assign only one treatment to all units under current project conditions
- D. ignore time-related effects under current project conditions with the available process data

**73.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. add more factors without runs under current project conditions
- B. repeat a reading only after failure under current project conditions
- C. use replication to estimate experimental error and improve precision
- D. replace randomization with inspection under current project conditions with the available process data

**74.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. treat factors as unrelated by definition under current project conditions with the available process data
- B. assume main effects always tell the full story under current project conditions
- C. ignore nonparallel patterns on an interaction plot under current project conditions with the available process data
- D. interpret an interaction when one factor's effect depends on another factor level

**75.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. use a pilot test to learn before broad implementation
- B. implement globally without testing under current project conditions with the available process data
- C. wait for final audit findings under current project conditions
- D. eliminate measures during rollout under current project conditions with the available process data

**76.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. substitute a proof of concept for a control plan under current project conditions
- B. use a proof of concept to demonstrate that a proposed solution can work
- C. declare success before testing under current project conditions with the available process data
- D. avoid defining acceptance criteria under current project conditions with the available process data

**77.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. schedule every station independently under current project conditions with the available process data
- B. push large batches based solely on forecasts under current project conditions
- C. maximize work-in-process inventory under current project conditions with the available process data
- D. use a pull system to trigger work from downstream demand

**78.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. use kanban as a root-cause tool under current project conditions
- B. use kanban signals to authorize replenishment in a pull system
- C. replace visual signals with monthly forecasts under current project conditions
- D. increase batch sizes automatically under current project conditions with the available process data

**79.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. treat it as a financial accounting method under current project conditions
- B. use 5S only for final inspection under current project conditions
- C. apply 5S to organize, standardize, and sustain an effective workplace
- D. apply it only after a defect occurs under current project conditions

**80.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. use poka-yoke to prevent or immediately detect an error
- B. inspect errors only after shipment under current project conditions
- C. increase tolerance limits under current project conditions with the available process data
- D. remove standard work under current project conditions with the available process data

**81.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. increase lot size before studying setup under current project conditions

- B. use SMED principles to reduce changeover time
- C. combine setup with customer inspection under current project conditions
- D. delay setup work until the machine stops

**82.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. treat standards as permanent and unchangeable under current project conditions
- B. allow each operator to invent a method under current project conditions
- C. replace training with memory under current project conditions with the available process data
- D. use standard work to document the best current method consistently

**83.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. conduct a kaizen event as a focused, rapid improvement effort
- B. replace all projects with annual planning under current project conditions
- C. avoid cross-functional participation under current project conditions with the available process data
- D. wait for a major capital investment under current project conditions

**84.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. add inspection after every step under current project conditions with the available process data
- B. increase queues to protect utilization under current project conditions with the available process data
- C. use continuous flow to reduce waiting and handoff delays where feasible
- D. separate linked operations unnecessarily under current project conditions with the available process data

**85.** A Green Belt is working in the Improve Phase. Which action is most appropriate?

- A. use try-storming to test a proposed solution under realistic conditions
- B. approve a solution without user testing under current project conditions
- C. replace pilot data with opinions under current project conditions with the available process data

D. eliminate contingency plans under current project conditions with the available process data

**86.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. use a c chart for sample means under current project conditions with the available process data
- B. use a p chart for individual weights under current project conditions with the available process data
- C. use an X-bar and R chart for rational subgroups of continuous measurements
- D. use an np chart for ranges under current project conditions with the available process data

**87.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. use a c chart for sample totals under current project conditions with the available process data
- B. use an X-bar chart with no subgroups under current project conditions with the available process data
- C. use a p chart for dimensions under current project conditions with the available process data
- D. use an individuals and moving-range chart for one observation at a time

**88.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. use an np chart when denominators differ under current project conditions with the available process data
- B. use a p chart to monitor the proportion defective when sample size can vary
- C. use an X-bar chart for defectives under current project conditions with the available process data
- D. use a c chart for continuous measurements under current project conditions with the available process data

**89.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. use an np chart to monitor the number defective with constant sample size
- B. use a p chart only for constant counts under current project conditions with the available process data
- C. use a u chart for individual values under current project conditions with the available process data
- D. use an R chart for defectives under current project conditions with the available process data

**90.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. use an X-bar chart for nonconformities under current project conditions with the available process data
- B. use a u chart only for constant opportunity under current project conditions with the available process data
- C. use a p chart for defect counts under current project conditions with the available process data
- D. use a c chart for counts of defects when opportunity area is constant

**91.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. use an np chart for defect rates under current project conditions
- B. use a c chart for varying unit sizes under current project conditions
- C. use a u chart for defects per unit when opportunity varies
- D. use an individuals chart for counts under current project conditions with the available process data

**92.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. adjust the process before investigating under current project conditions with the available process data
- B. treat a point beyond a control limit as evidence of a possible special cause
- C. treat it as a specification violation automatically under current project conditions with the available process data
- D. ignore the point if the average is on target under current project conditions with the available process data

**93.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. group data only by convenient calendar weeks under current project conditions

- B. mix observations from unrelated conditions under current project conditions with the available process data
- C. form rational subgroups so within-group variation reflects short-term common causes
- D. use subgroups to hide variation under current project conditions with the available process data

**94.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. remove data collection requirements under current project conditions with the available process data
- B. record only the target value under current project conditions with the available process data
- C. omit responsibility for response under current project conditions with the available process data
- D. document reaction plans in a control plan for out-of-control signals

**95.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. allow uncontrolled local copies under current project conditions with the available process data
- B. use document control to ensure workers use the current approved procedure
- C. replace revision history with verbal updates under current project conditions with the available process data
- D. delete training records under current project conditions with the available process data

**96.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. build a training plan that addresses the changed standard work and competence
- B. announce the change without practice under current project conditions with the available process data
- C. train only the project sponsor under current project conditions with the available process data
- D. delay training until audit failure under current project conditions with the available process data

**97.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. define it as an audit by a customer under current project conditions
- B. distinguish a first-party audit as an internal audit by the organization itself

- C. define it as certification-body audit under current project conditions with the available process data
- D. treat it as an informal team meeting under current project conditions with the available process data

**98.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. define it as an independent certification audit under current project conditions with the available process data
- B. define it as an internal audit only under current project conditions with the available process data
- C. distinguish a second-party audit as an audit of a supplier by a customer
- D. treat it as a financial review under current project conditions with the available process data

**99.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. replace learning with one-time implementation under current project conditions with the available process data
- B. act before planning or checking under current project conditions with the available process data
- C. use PDCA only after a failure under current project conditions with the available process data
- D. apply PDCA by planning a change, trying it, checking results, then acting

**100.** A Green Belt is working in the Control Phase. Which action is most appropriate?

- A. use total productive maintenance to improve equipment reliability through broad participation
- B. leave maintenance only to emergency repair under current project conditions with the available process data
- C. treat operators as disconnected from equipment care under current project conditions
- D. eliminate preventive maintenance records under current project conditions with the available process data

## Practice Exam 15: Answer Key and Explanations

1. **D** — align a project objective to a measurable business driver is the best response because six sigma projects should connect improvement work to organizational value. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit
2. **A** — use a balanced scorecard to connect local measures with strategy is the best response because a balanced scorecard links operational indicators to strategic outcomes. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit
3. **B** — identify the system constraint before increasing upstream output is the best response because theory of constraints focuses attention on the limiting resource. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined
4. **C** — calculate takt time from available production time and customer demand is the best response because takt time expresses the pace needed to meet customer demand. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or
5. **B** — map material and information flow from supplier through customer is the best response because a value-stream map makes end-to-end flow and waste visible. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the
6. **C** — use a spaghetti diagram to study excessive travel in a work area is the best response because a spaghetti diagram traces movement through physical space. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or
7. **D** — apply just-in-time replenishment to reduce excess inventory is the best response because just-in-time replenishes based on actual consumption and flow needs. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined evidence-based
8. **A** — use DMADV when creating a new process that must meet CTQs is the best response because dmadv is a design-focused roadmap for new or fundamentally redesigned work. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended
9. **B** — calculate an FMEA risk priority number from severity, occurrence, and detection is the best response because an fmea rpn combines severity, occurrence, and detection ratings. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or

**10. D** — use design FMEA to examine product failure modes before release is the best response because design fmea targets product-design risks before production begins. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the

**11. C** — define the project problem using baseline performance and business impact is the best response because a useful problem statement is factual, bounded, and measurable. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit

**12. A** — select a project with meaningful impact and a manageable scope is the best response because good project selection balances value, feasibility, and scope. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the

**13. B** — use a SIPOC to clarify suppliers, inputs, process, outputs, and customers is the best response because sipoc provides a high-level view of process boundaries and relationships. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**14. A** — identify the process owner who can sustain changes after the project is the best response because the process owner has authority and accountability for ongoing performance. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**15. C** — use competitive benchmarking to compare performance with direct competitors is the best response because competitive benchmarking compares like-for-like external competitors. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined evidence-based step.

**16. D** — collect voice-of-customer input through unbiased interview questions is the best response because neutral prompts and representative customers reduce response bias. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined evidence-based step.

**17. B** — translate a customer need into measurable critical-to-quality requirements is the best response because ctqs operationalize customer needs into measurable characteristics. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined evidence-based step.

**18. A** — use the Kano model to distinguish basic expectations from delighters is the best response because kano analysis distinguishes satisfaction effects of different feature types. In this scenario, the

team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit

**19. D** — write a charter that states scope, goal, business case, and roles is the best response because a charter establishes the project's purpose, boundaries, and governance. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or

**20. C** — use a work breakdown structure to decompose project deliverables into work packages is the best response because a wbs organizes the work required to produce project deliverables. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**21. D** — use a Gantt chart to communicate tasks, durations, and schedule progress is the best response because gantt charts show planned timing and progress for project activities. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**22. B** — use critical-path analysis to find tasks that determine the shortest project duration is the best response because critical-path tasks have no scheduling slack without affecting completion. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**23. A** — include consequential metrics to detect harm caused by an improvement is the best response because consequential metrics guard against shifting a problem elsewhere. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the

**24. C** — use an affinity diagram to organize a large set of related ideas is the best response because affinity diagrams group ideas into natural themes. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit

**25. C** — use a prioritization matrix to compare alternatives against weighted criteria is the best response because a prioritization matrix makes tradeoffs explicit and repeatable. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the

**26. B** — use a RACI chart to clarify who is responsible, accountable, consulted, and informed is the best response because raci prevents role ambiguity by distinguishing four participation types. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**27. A** — use nominal group technique to generate ideas and rank them independently is the best response because nominal group technique balances individual input with structured ranking. In this

scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or

**28. D** — address groupthink by inviting dissenting evidence before a decision is the best response because constructive dissent helps teams test assumptions and avoid groupthink. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the

**29. B** — use a tollgate review to verify deliverables before moving phases is the best response because tollgates provide structured sponsor review of phase deliverables. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the

**30. C** — document lessons learned so future teams can reuse project knowledge is the best response because lessons learned transfer useful knowledge beyond the completed project. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit

**31. D** — distinguish a process boundary from an organizational reporting boundary is the best response because processes often cross functions, so their boundaries must reflect actual flow. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or

**32. A** — use a process map to identify handoffs, rework loops, and missing steps is the best response because process mapping exposes how work actually moves through a process. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**33. B** — treat mutually exclusive events as events that cannot occur together is the best response because mutually exclusive events have no shared outcomes in one trial. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or

**34. A** — apply the multiplication rule for independent events by multiplying probabilities is the best response because independent-event multiplication uses the product of the individual probabilities. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit

**35. D** — use a binomial distribution for counts of successes in fixed trials is the best response because binomial models count successes across a fixed number of similar trials. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**36. C** — use a Poisson distribution for counts of rare events per opportunity interval is the best response because poisson models occurrence counts over time, area, or other exposure. In this scenario, the team

should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**37. D** — describe the central limit theorem as the basis for approximate normality of sample means is the best response because the theorem concerns the sampling distribution of means under stated conditions. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool,

**38. A** — classify product weight as continuous variables data is the best response because weight can take values on a continuum and is variables data. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the

**39. C** — classify defect counts per unit as discrete attributes data is the best response because counts are discrete and are commonly analyzed as attributes data. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit

**40. B** — use random sampling when each unit should have an equal selection chance is the best response because random sampling reduces selection bias by giving units equal opportunity. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**41. B** — use stratified sampling when important subgroups must be represented is the best response because stratification ensures planned representation of meaningful subgroups. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined evidence-based

**42. D** — use the median when an extreme value would distort the arithmetic mean is the best response because the median is resistant to the influence of extreme observations. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**43. C** — use standard deviation to describe typical spread around the mean is the best response because standard deviation summarizes dispersion of values around their average. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit

**44. A** — use a histogram to display the distributional shape of continuous data is the best response because histograms group numerical data into intervals to reveal shape and spread. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**45. A** — use a scatter diagram to explore association between two quantitative variables is the best response because scatter diagrams display paired values and can reveal association patterns. In this

scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**46. D** — use a gauge R&R study to assess repeatability and reproducibility is the best response because gauge r&r separates equipment repeatability from appraiser reproducibility. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the

**47. B** — check measurement bias by comparing observed values with a reference value is the best response because bias is the consistent difference between measurements and a reference. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**48. C** — verify process stability before interpreting a capability index is the best response because capability interpretation assumes a stable, predictable process. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined evidence-based step.

**49. A** — interpret  $C_p$  as potential capability based on specification width and within variation is the best response because  $C_p$  compares specification spread with process spread without considering centering. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**50. D** — interpret  $C_{pk}$  as capability adjusted for process centering is the best response because  $C_{pk}$  incorporates the process mean's position relative to specification limits. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the

**51. B** — distinguish control limits from specification limits is the best response because control limits describe process behavior; specifications express acceptable output requirements. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined evidence-based

**52. D** — distinguish correlation from causation when two variables move together is the best response because association alone cannot establish that one variable causes another. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the

**53. C** — use linear regression to estimate an outcome from a predictor when the relationship is appropriate is the best response because regression models an estimated relationship for prediction or explanation. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse

**54. C** — interpret a small p-value as evidence against the stated null hypothesis is the best response because a p-value measures compatibility of data with the null hypothesis. In this scenario, the team

should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**55. B** — distinguish statistical significance from practical significance is the best response because practical significance depends on effect size, cost, and operational meaning. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined evidence-based

**56. A** — define a Type I error as rejecting a true null hypothesis is the best response because type i error is a false positive decision under the hypothesis test. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the

**57. D** — define a Type II error as failing to reject a false null hypothesis is the best response because type ii error is a false negative decision under the hypothesis test. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool,

**58. B** — increase test power by using a larger sample when other conditions remain fixed is the best response because larger samples generally improve the ability to detect a real effect. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse

**59. A** — use a paired t-test when measurements are naturally matched is the best response because paired designs analyze within-pair differences and account for matching. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the

**60. C** — use ANOVA to compare means across more than two groups is the best response because anova evaluates whether group means differ beyond expected random variation. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or

**61. C** — use chi-square analysis for association among categorical variables is the best response because chi-square methods evaluate categorical counts against expected patterns. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined evidence-based

**62. A** — use a cause-and-effect diagram to organize potential causes by categories is the best response because a cause-and-effect diagram structures possible sources of a problem. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit

**63. B** — use 5 Whys to probe successive causal links behind a problem is the best response because repeated why questions can move analysis beyond a symptom to causes. In this scenario, the team

should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**64. D** — use a fault tree to analyze combinations of events leading to failure is the best response because fault trees use logical relationships among events that can produce failure. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the

**65. D** — perform gap analysis by comparing current performance with a defined future state is the best response because gap analysis makes the difference between present and desired performance explicit. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the

**66. A** — use a multi-vari study to separate positional, cyclical, and temporal variation is the best response because multi-vari studies help locate sources and patterns of process variation. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**67. B** — investigate a confounder before claiming that a correlation is causal is the best response because confounders can create or distort an observed relationship between variables. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or

**68. C** — state the null hypothesis before examining test results is the best response because predefining hypotheses preserves the integrity of statistical inference. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined evidence-based

**69. C** — use an F-test to compare variability when its assumptions are satisfied is the best response because an f-test evaluates evidence about the ratio of two variances. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**70. D** — identify factors as controllable input variables in a designed experiment is the best response because factors are input variables deliberately varied to study their effects. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or

**71. B** — define levels as the settings chosen for an experimental factor is the best response because levels are the specific values or categories assigned to a factor. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**72. A** — use randomization to reduce bias from uncontrolled influences in an experiment is the best response because randomization helps spread nuisance influences across treatment conditions. In this

scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit

**73. C** — use replication to estimate experimental error and improve precision is the best response because replication provides repeated independent experimental information at conditions. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined

**74. D** — interpret an interaction when one factor's effect depends on another factor level is the best response because interactions mean the effect of one factor changes across levels of another. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse

**75. A** — use a pilot test to learn before broad implementation is the best response because pilots test feasibility and unintended effects on a limited scale. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit

**76. B** — use a proof of concept to demonstrate that a proposed solution can work is the best response because a proof of concept gives early evidence of technical feasibility. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the

**77. D** — use a pull system to trigger work from downstream demand is the best response because pull systems link production and replenishment to actual downstream consumption. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or

**78. B** — use kanban signals to authorize replenishment in a pull system is the best response because kanban provides a visual authorization mechanism for controlled replenishment. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit

**79. C** — apply 5S to organize, standardize, and sustain an effective workplace is the best response because 5s improves workplace organization and makes abnormal conditions easier to see. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**80. A** — use poka-yoke to prevent or immediately detect an error is the best response because poka-yoke designs the process to avoid mistakes or expose them immediately. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or

**81. B** — use SMED principles to reduce changeover time is the best response because smed separates and streamlines setup activities to shorten changeovers. In this scenario, the team should apply the stated

Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined evidence-based

**82. D** — use standard work to document the best current method consistently is the best response because standard work establishes a repeatable baseline that can be improved. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or

**83. A** — conduct a kaizen event as a focused, rapid improvement effort is the best response because kaizen events concentrate team effort on a defined improvement opportunity. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or

**84. C** — use continuous flow to reduce waiting and handoff delays where feasible is the best response because continuous flow reduces delays by moving work smoothly between steps. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**85. A** — use try-storming to test a proposed solution under realistic conditions is the best response because try-storming exposes practical issues through hands-on simulation and testing. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit

**86. C** — use an X-bar and R chart for rational subgroups of continuous measurements is the best response because x-bar and r charts monitor subgroup averages and within-subgroup ranges. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**87. D** — use an individuals and moving-range chart for one observation at a time is the best response because individuals charts suit continuous data collected one observation per period. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**88. B** — use a p chart to monitor the proportion defective when sample size can vary is the best response because a p chart tracks fraction nonconforming and accommodates varying sample sizes. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool,

**89. A** — use an np chart to monitor the number defective with constant sample size is the best response because an np chart tracks nonconforming counts when the inspected sample size is fixed. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different

**90. D** — use a c chart for counts of defects when opportunity area is constant is the best response because a c chart monitors defect counts under a constant opportunity basis. In this scenario, the team

should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse

**91. C** — use a u chart for defects per unit when opportunity varies is the best response because a u chart standardizes defect counts by the varying number of units. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the

**92. B** — treat a point beyond a control limit as evidence of a possible special cause is the best response because a control-limit signal indicates unusual process behavior worth investigating. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the

**93. C** — form rational subgroups so within-group variation reflects short-term common causes is the best response because rational subgrouping makes between-subgroup signals more informative. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or omit the disciplined

**94. D** — document reaction plans in a control plan for out-of-control signals is the best response because a control plan states what to monitor and how to react. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**95. B** — use document control to ensure workers use the current approved procedure is the best response because document control maintains the availability and identity of approved instructions. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**96. A** — build a training plan that addresses the changed standard work and competence is the best response because training plans build capability needed to sustain an implemented change. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**97. B** — distinguish a first-party audit as an internal audit by the organization itself is the best response because first-party audits are conducted internally by or for the organization. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**98. C** — distinguish a second-party audit as an audit of a supplier by a customer is the best response because second-party audits are typically customer assessments of suppliers. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic,

**99. D** — apply PDCA by planning a change, trying it, checking results, then acting is the best response because pdca is a disciplined cycle for learning and standardizing improvement. In this scenario, the

team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended

**100. A** — use total productive maintenance to improve equipment reliability through broad participation is the best response because tpm integrates maintenance practices to improve availability and performance. In this scenario, the team should apply the stated Six Sigma concept before selecting a remedy or drawing a conclusion. The other choices either use a different tool, reverse the intended logic, or