

*Thank you for your interest. We hope these questions will help you in understanding the PMP® related questions on quality in a better way. The correct choice is colored yellow for your attention.*

**Question 1:** A histogram ordered by frequency of occurrence that shows how many results were generated by each identified cause is:

- A. Statistical Histogram
- B. Juran Histogram
- C. Fishbone Diagram
- D. Pareto Diagram

**Question 2:** The process of evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards is called:

- A. Quality Assurance
- B. Quality Control
- C. Quality Planning
- D. Quality Review

**Question 3:** Tools and techniques used during the Quality Planning process include:

- A. Benefit / cost analysis
- B. Benchmarking
- C. Quality audits
- D. a and b
- E. all of the above

[Quality audits are used during Quality Assurance]

**Question 4:** The overall intentions and direction of an organization with regard to quality as formally expressed by top management is a:

- A. Quality Plan
- B. Quality Statement
- C. Quality Policy
- D. TQM

**Question 5:** The process of monitoring specific project results to determine if they comply with relevant quality standards is called:

- A. Quality Assurance
- B. Quality Control
- C. Quality Planning
- D. Quality Review

**Question 6: Quality is:**

- A. Zero defects found
- B. Conformance to requirements
- C. The totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs
- D. b and c
- E. all the above

[Option B is from CII Publication 10-2; Option C is from ISO 8402]

**Question 7: CIP is:**

- A. Continuous improvement process
- B. A sustained, gradual change
- C. Includes constancy of purpose and commitment to quality as part of its focus
- D. a and b
- E. all of the above

**Question 8: The concept that it is easier and less costly to do the work right the first time is called:**

- A. Zero defects
- B. Continuous improvement
- C. DTRTRTFT
- D. The customer is the next person in the process

**Question 9: The practice of ceasing mass inspections and ending awards based on price is credited to:**

- A. Edward Deming
- B. Philip Crosby
- C. Juran
- D. Pareto

**Question 10: The concept of making a giant leap forward followed by a period of maturity is:**

- A. Innovation
- B. Continuous improvement
- C. Just in time
- D. Paradigm

**Question 11: The ability of a product to be used for different purposes at different capacities and under different conditions determines its:**

- A. Usability
- B. Flexibility
- C. Operability
- D. Availability

**Question 12: A series of consecutive points on the same side of the average is called:**

- A. Run
- B. Trend
- C. Outliers
- D. Cycle

**Question 13: Cost of quality includes**

- A. Cost of all work to build a product or service that conforms to the requirements
- B. Training programs
- C. Cost of all work resulting from nonconformance to the requirements
- D. a and b
- E. all of the above

**Question 14: Which of the following is not considered a cost of nonconformance to quality?**

- A. Scrap
- B. Rework
- C. Expediting
- D. Process control
- E. all of the above are considered nonconformance costs

**Question 15: What percentage of sales is estimated to be the cost of non-quality?**

- A. 3-5%
- B. 12-20%
- C. 30-40%
- D. 6-8%

**Question 16: Which of the following statements concerning acceptance sampling is false?**

- A. Used when expensive and time-consuming to test the product 100%.
- B. The number of allowable defects before lot is rejected is predetermined.
- C. Inspection and test standards must be established to ensure that procedures can adequately determine conformance and nonconformance.
- D. If the number of defects found in the sample exceeds the predetermined amount, the entire lot is rejected.
- E. All of the above are true

**Question 17: The concept of zero inventory is called:**

- A. Six sigma
- B. Continuous improvement
- C. Just in Time
- D. Zero defects

**Question 18: A structured tool, usually industry or activity specific, used to verify that a set of required steps has been performed is called:**

- A. Quality Policy
- B. Check list
- C. Trend analysis
- D. Pareto diagram

**Question 19: A tool that analyzes the Input to a process to identify the causes of errors is called:**

- A. Cause and effect diagram
- B. Scatter diagram
- C. Ishikawa diagram
- D. Pareto diagram
- E. a and c

**Question 20:** 80% of the problems are found in 20% of the work is a concept of:

- A. Edward Deming
- B. Philip Crosby
- C. Juran
- D. Pareto

**Question 21:** All of the following statements about acceptance sampling plans are true except:

- A. Acceptance sampling plans are beneficial when the cost of inspections is high and the resulting loss of passing non-conforming units is not great
- B. Acceptance sampling plans are necessary when destructive inspections are required
- C. Acceptance sampling plans are never as effective at rejecting non-conforming units as 100 percent inspection, even when the inspection process is very tedious
- D. Acceptance sampling plans do not directly control the quality of a series of lots; they instead specify the risk of accepting lots of given quality
- E. Acceptance sampling plans are not very effective for inspecting small lots of custom-made products

**Question 22:** The rule of seven is used by quality control engineers to determine whether a process is out of control. If a run of seven or more samples lays on one side of the process mean, the process is said to be out of control. What is the probability that a run of seven on either side of the Process mean is due to random variation?

- A. 14.3%
- B. 3.12%
- C. 2.73%
- D. 1.56%
- E. 0.78%

**Question 23:** The same quality control manager decides to increase his daily sample size from three to six. The size of the control band will:

- A. Increase
- B. Decrease
- C. Remain unchanged
- D. Not determinable from given data
- E. None of the above

**Question 24:** A quality control (QC) manager for a manufacturing firm is calculating the expected standard deviation ( $s$ ) for the length of hex bolts being produced on the assembly line. There are two sources of variation in the length of the hex bolts: production variation and measurement error. The QC manager knows that the standard deviations from these two sources is 0.24 inch and 0.43 inch, respectively. Assuming that there are no other significant sources of error, what answer should the QC manager calculate for the total standard deviation of the length of the hex bolts?

- A. 0.10 inch
- B. 0.19 inch
- C. 0.34 inch
- D. 0.49 inch
- E. 0.67 inch

**Question 25:** Control chart theory is based on the differences of the causes of variations in quality. Variations in quality may be produced by assignable causes. All of the following are examples of assignable causes except:

- A. Differences among machines

- B. Differences among workers
- C. Differences among materials
- D. Differences in each of these factors over time
- E. None of the above (all are examples)

**Question 26:** *Quality management deals with all of the following topics except:*

- A. Conformance to requirements / specifications
- B. Satisfying the needs of the customer
- C. Making products more desirable and luxurious
- D. A and C
- E. B and C

**Question 27:** *All of the following statements about control charts are true except:*

- A. Control charts can be used to establish as well as maintain process control
- B. Control charts are used to determine acceptance limits when no limits are stipulated by the product specification; otherwise, one should use the limits dictated by the specification
- C. All data points outside the control chart limits are variations explained by
- D. A and B
- E. B and C

**Question 28:** *The zero defects concept*

- A. is a performance standard for management
- B. is a motivational technique that promotes "doing it right the first time"
- C. is used by management to communicate to all employees that everyone should do things right the first time
- D. A and C
- E. B and C

**Question 29:** *Japanese quality control has improved dramatically in the last 30 years for all of the following reasons except:*

- A. The use of quality control circles
- B. Small, continuous improvements in quality control
- C. The use of worker suggestion systems
- D. The use of quality control charts
- E. Focusing quality control efforts on production output

**Question 30:** *Which of the following statements about the cost of quality are true?*

- A. The cost of quality is the expense of non-conformance to requirements and specifications
- B. The costs of quality are mostly the direct responsibility of workers who are manufacturing the product
- C. Quality control programs should only be implemented when the costs of quality is low
- D. A and B
- E. A and C

**Question 31:** *Financial compensation is the primary motivational tool for which of the following management theories or programs?*

- A. Zero Defects program
- B. Theory X management
- C. Theory Y management
- D. Quality Control Circles
- E. A and C

**Question 32:** An acceptance control chart has limits that are based on the specification limits for the product rather than limits which differentiate between random and assignable causes. Under which if the following circumstance should a QC manager consider using an acceptance control chart?

- A. When the engineering tolerance on a dimension greatly exceeds the natural dispersion of the manufacturing process
- B. When the number of samples outside the current control chart limits become too costly and cumbersome to investigate
- C. When a process is subject to constant but stable tool wear
- D. A and B
- E. A and C

**Question 33:** The majority of product defects could be prevented in most processes if manufacturers would do the following:

- A. Increase the use of acceptance control charts instead of standard three-sigma control charts
- B. Make a concerted effort to eliminate the potential for product defects in the design stage
- C. Create a quality control department
- D. A and B
- E. A and C

**Question 34:** Quality assurance

- A. refers to the prevention of product defects
- B. is an auditing function that provides feedback to the project team and client about the quality of output being produced
- C. is the technical process that includes the construction of control charts which specify acceptability limits for conforming output
- D. A and B
- E. B and C

**Question 35:** In the project environment, the individual ultimately responsible for quality control is:

- A. The line workers who must strive "to do things right the first time" to avoid quality problems
- B. The company's quality control manager who must work with the project members to ensure the quality control program is effective
- C. The head of the production department who retains ultimate quality control responsibility for all the company's projects
- D. The project manager who has ultimately responsibility for the entire project
- E. The customer who must ensure that he is receiving a quality product from the vendor

**Question 36:** Quality attributes

- A. are used to determine how effectively the organization accomplishes its goals
- B. can be objective or subjective in nature
- C. are specific quality characteristics for which a product is designed, built, and tested
- D. A and B
- E. B and C

**Question 37:** In order to achieve long-term quality improvements, management must do the following:

- A. Motivate the employees with seminars, contests, and institution of programs such as "Quality Improvement" day
- B. Create a quality control department and give the head of the department ultimate responsibility for quality improvement
- C. Implement a formal quality control program with worker and management involvement

- D. Establish financial incentive packages for workers
- E. A and D

**Question 38: Most quality problems**

- A. originate in the quality department where the ultimate responsibility for quality rests
- B. originate on the shop floor because of waste and product rework
- C. are the result of management's lack of attention to potential quality improvement ideas
- D. could be eliminated if shop supervisors monitored their workers more closely
- E. A and B

**Question 39: The Japanese Quality Control (QC) Circle movement motivated its participants in many ways. Which of the following represents the most important motivation for the QC circle participant:**

- A. Improving the performance of the company
- B. Self-Improvement
- C. Financial Incentives
- D. Recognition among co-workers
- E. Strengthening of relationships between co-workers

**Question 40: The Pareto Principle is a technique used by quality managers to determine which quality control problems concerning a particular service or manufacturing process should be corrected. Which of the following statements best represents the philosophy employed by this principle?**

- A. In order to minimize financial losses from quality control problems, all problems which have a measurable cost associated with them should be corrected
- B. The majority of defects are caused by a small percentage of the identifiable problems. Improvement efforts should be reserved for those few vital problems
- C. In order to achieve zero defects, all quality control problems, including those which do not have a direct financial cost should be corrected
- D. Generally, 80% of the quality control problems are justifiable for correction via cost-benefit analysis. The remaining 20% are not financially worthy of improvement efforts
- E. A and D

**Question 41: Quality assurance is**

- A. top management's intention regarding quality
- B. functions determining implementation of the quality policy
- C. actions to provide confidence of satisfying quality requirements
- D. responsibilities and processes which implement quality management
- E. all of the above

**Question 42: Which are the best two charts to show trends in a process?**

- A. Pareto and Control
- B. Control and Run
- C. Histogram and Run
- D. Gantt and Pert
- E. Gantt and CPM

**Question 43: The pillar(s) of quality is (are)**

- A. Quality is free
- B. Doing it right the first time
- C. Zero defects
- D. Process improvement

E. B and C

**Question 44: Quality is**

- A. zero defects
- B. a problem
- C. a specification
- D. a cost
- E. A, C, and D

**Question 45: If the acceptance sampling attribute for a lot is 30%, this means that**

- A. 30% of all lots must be tested
- B. 30% of all lots must pass the test
- C. any given lot must have 30% or fewer defects
- D. a sample of a given lot must have 30% or fewer defects to pass the entire lot
- E. C and D

**Question 46: When a product or service completely meets a customer's requirements:**

- A. quality is achieved
- B. cost of quality is high
- C. cost of quality is low
- D. the customer pays the minimum price
- E. A and B

**Question 47: Cost of quality is a concept that includes:**

- A. the cost necessary for ensuring conformance to requirements
- B. the life cycle cost of the project
- C. all research and development costs related to the project
- D. only the cost of the quality control function
- E. A and B

**Question 48: Quality control is:**

- A. identifying which quality standards are relevant to the project and determining how to satisfy them
- B. monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance
- C. evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards
- D. taking action to increase the effectiveness and efficiency of the project so as to provide added benefits to both the performing organization and the project customer
- E. assuming the production of goods that meet the highest standards of luxury

**Question 49: Using Pareto's Rule, and given the data in the following table, where should corrective action focus**

Origin of Problem	% of Problems
Design	80
Development	2
Prototype	9
Testing	6
Fabrication	3

- A. Design
- B. Design, development, and prototype
- C. Design and prototype

- D. Development, prototype, and fabrication
- E. None of the above

**Question 50:** *The process of determining that technical processes and procedures are being performed in conformance with scope requirements and quality plans is called quality:*

- A. management
- B. assurance
- C. process review
- D. control
- E. checks

**Question 51:** *Quality planning is:*

- A. identifying which quality standards are relevant to the project and determining how to satisfy them
- B. monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance
- C. evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards
- D. taking action to increase the effectiveness and efficiency of the project so as to provide added benefits to both the performing organization and the project customer
- E. assuring the production of goods that meet the highest standards of luxury

**Question 52:** *According to current quality management thinking, which of the following approaches to quality improvement is least likely to produce positive results?*

- A. increased inspection
- B. continuous improvement
- C. quality circles
- D. statistical quality control
- E. use of worker suggestion systems

**Question 53:** *Which of the following best characterizes the results of an increase in quality?*

- A. increased productivity, increased cost-effectiveness, and decreased cost risk
- B. reduced productivity and no change to cost-effectiveness or cost risk
- C. reduced productivity and an increase in overall product or service cost
- D. increased productivity and cost-effectiveness
- E. increased productivity, decreased cost-effectiveness and increased cost risk

**Question 54:** *Quality management includes forming and directing a team of people to achieve a qualitative goal within an effective cost and time frame that results in:*

- A. a project completed in the shortest possible time
- B. a product or service that conforms to the requirement specification
- C. an award-winning product that brings public recognition to the project
- D. an innovative project that establishes the qualifications of the project team
- E. B and C

**Question 55:** *The concept that states: "the optimal quality level is reached at the point where the incremental revenue from product improvement equals the incremental cost to secure it" comes from:*

- A. quality control analysis
- B. marginal analysis
- C. standard quality analysis

- D. conformance analysis
- E. systems analysis

**Question 56:** Which of the following statements regarding quality is false?

- A. Quality improvements depends upon better definition and increased awareness of the requirements specifications
- B. Future gains in quality will often rely on advanced technology
- C. Recognition of key actions required of each team member is necessary to meet quality objectives
- D. Computer-aided design systems can improve quality, but only at the expense of an increase in the cost of design
- E. A and C

**Question 57:** If the level of confidence directly increases as a result of new processes, different resources, or changed methods, the required cost of monitoring is likely to:

- A. increase as well
- B. remain the same
- C. decrease
- D. decrease initially then increase slightly
- E. increase then tend to level off

**Question 58:** The concept of quality is based on:

- A. meeting luxury goods standards
- B. producing excellent products that are superior to other similar items
- C. conforming to the requirements specifications
- D. maintaining uniformity of design
- E. A and C

**Question 59:** You are sampling items from a batch and plotting the results on a control chart. how will an increase in the number of items sample affect the value of the standard deviation used to set the control limit?

- A. increase it
- B. decrease it
- C. no effect on it
- D. first increase it, then decrease it
- E. first decrease it, then increase it

**Question 60:** Which of the following best characterizes the results of an increase in quality?

- A. increased productivity, increased cost-effectiveness, and decreased cost risk
- B. reduced productivity and no change to cost-effectiveness or cost risk
- C. reduced productivity and an increase in overall product or service cost
- D. increased productivity and cost-effectiveness
- E. increased productivity, decreased cost-effectiveness and increased cost risk

**Question 61:** An assignable variance tells us:

- A. our equipment is becoming obsolete
- B. top management should initiate increased worker training
- C. there is an identifiable problem that must be fixed
- D. schedule variances will be reduced
- E. our use of quality circles is inadequate

**Question 62:** Which is not a commonly used quality management tool?

- A. Fishbone diagram
- B. CSSR report

- C. Pareto chart
- D. Control chart
- E. None of the above (all are commonly used)

**Question 63:** The \_\_\_\_\_ of a product or service mostly affects its reliability and maintenance characteristics.

- A. design
- B. concept
- C. fabrication
- D. performance
- E. cost

**Question 64:** From a high level perspective, quality:

- A. is ensured by having inspectors
- B. cannot be quantitatively measured
- C. and productivity are inconsistent objectives
- D. is primarily (85 - 95%) a management problem
- E. problems are usually caused by unmotivated employees

**Question 65:** Quality is often influenced by all of the following except:

- A. fabrication processes and methods
- B. supervision
- C. inspection
- D. cost of materials
- E. design

**Question 66:** Random variance in a process, as measured by the standard deviation, can be directly reduced by:

- A. improving the overall system of production
- B. increasing the number of quality inspectors
- C. making use of run charts
- D. making better use of Pareto charts
- E. identifying patterns of variance using control charts

**Question 67:** The project management team's for quality should:

- A. extend beyond the completion of the project
- B. stop at the point of delivery
- C. be significantly reduced by a good warranty
- D. be ignored by the project manager
- E. A and C

**Question 68:** 100% inspection for defects may be neither possible nor desirable. When is sampling for defects likely to be most useful?

- A. When destructive testing is required
- B. When the cost of 100% inspection is high
- C. When we believe there are not many defects
- D. A, B, and C
- E. A and B

**Question 69:** A project manager notices that all the measurements recorded on a control chart lie within the control band range. However, most of the measurements are below the midpoint (negative variance). Quality management practice offers us what guidance in dealing with this situation?

- A. The project manager should apply the "rule of seven"
- B. There is no problem as long as the variances lie within the control band
- C. Negative variance indicates a problem which should be remedied
- D. These variances are most likely caused by random factors
- E. Increased worker ownership should be encouraged

**Question 70:** On a project, quality should generally be of

- A. equal priority with cost and schedule
- B. lower priority than cost and schedule
- C. equal priority with cost, but higher priority than schedule
- D. equal priority with schedule, but higher priority than cost
- E. higher priority than cost and schedule

**Question 71:** A fundamental tenet of modern quality management holds that quality is most likely to be achieved:

- A. by planning it into the project
- B. by developing careful mechanisms to inspect for quality
- C. by developing prestigious products and processes
- D. by striving to do the best job possible
- E. by conducting quality circle activities

**Question 72:** From the project perspective, quality attributes:

- A. are used to determine how effectively the performing organization supports the project
- B. can be objective or subjective in nature
- C. are specific characteristics for which a product is designed, built, and tested
- D. B and C
- E. A and B

**Question 73:** Just-in-time (JIT) is the concept of reducing inventories to:

- A. 25% of former stock
- B. Less than half of former stock
- C. 75% of peak stock
- D. zero stock
- E. 15% of the cost of the product for a planned stock

**Question 74:** Poor quality in a design project is likely to directly affect \_\_\_\_\_ costs.

- A. manufacturing / building
- B. advertising
- C. overhead
- D. post-completion support
- E. A and D

**Question 75:** From the project manager's viewpoint, quality assurance involves:

- A. conducting studies to determine if design methods will support quality requirements
- B. identifying applicable laws, ordinances and regulations that the project must comply with
- C. monitoring inspection activities to ensure that the work is performed as specified
- D. A, B, and C
- E. A and C

**Question 76:** Of the following statements, which one(s) is / are true?

- A. Quality is the usual result when skilled designers and skilled implementors work on the project
- B. Quality is 10% skill and 90% luck
- C. Quality can be achieved with the proper combination of personnel, materials, methods, and time to do the work
- D. None of the above
- E. A and C

**Question 77:** The quality management tool that can be described as "a diagram that rank and displays defects in order of frequency of occurrence (from left to right)" is a:

- A. control chart
- B. vertical bar chart
- C. histograms
- D. Pareto chart
- E. run chart

**Question 78:** The primary responsibility for establishing design and test specifications should rest with

- A. senior management
- B. procurement or purchasing
- C. engineering
- D. manufacturing
- E. quality control

**Question 79:** Some organizations today are using "six sigma", to set the upper and lower limits on control charts rather than the traditional sigmas.

- A. two
- B. three
- C. four
- D. five
- E. twelve

**Question 80:** From the project manager's perspective, quality management is \_\_\_\_\_ limited to assessing the attributes of the tools provided to do the work.

- A. always
- B. usually
- C. not
- D. seldom
- E. intermittently

**Question 81:** Which of the following is least likely to contribute to developing an effective project team supportive of quality?

- A. Commitment to the project
- B. Team member flexibility
- C. Frequent turnover of personnel
- D. Team interest in workmanship
- E. Clearly defined goals

**Question 82:** The ISO 9000 series is:

- A. a set of instructions for preparing control charts
- B. a set of guidelines for quality
- C. a set of forms and procedures to ensure quality
- D. an international standard that describes a recommended quality system
- E. intended to be applied only to manufactured products

**Question 83:** Which of the following statements best characterizes the quality management practice called benchmarking?

- A. The ISO term for progress measurement
- B. Comparing planned project practices to those of other projects
- C. A technique used to test certain types of electronic equipment
- D. The difference between grade and quality
- E. The measurement of customer satisfaction

**Question 84:** Primary responsibility for quality management in the project rests with the:

- A. project engineer
- B. purchasing agent
- C. quality manager
- D. project manager
- E. company president

**Question 85:** Unless evidence indicates otherwise, a process is assured to be:

- A. in control
- B. out of control
- C. working at full capacity
- D. working at less than full capacity
- E. operating within required engineering tolerances

**Question 86:** Quality management is defined as the process of ensuring that a project meets the \_\_\_\_\_ of the project's clients, participants, and shareholders.

- A. specifications and statements of work
- B. legal and financial obligations
- C. expectations and desires
- D. needs and expectations
- E. legal and moral requirements

**Question 87:** Quality assurance is defined as the managerial process that determines \_\_\_\_\_ that provide the customers with performance standards and feedback on the performance.

- A. time, scope, cost, and resources
- B. human resources, dollars, materials, and duration
- C. time, location, duration, and completion

- D. organization, design, objectives, and resources
- E. management, staff, workers, and contractors

**Question 88:** Responsibility within the project for quality must be defined and promulgated to everyone contributing to the end product. First and foremost, the \_\_\_\_\_ has the ultimate responsibility for conformance to requirements when provided with the tools, skills, knowledge, and opportunities.

- A. corporate president
- B. director of project management
- C. quality assurance manager
- D. project manager
- E. individual

**Question 89:** The primary components of quality management are quality \_\_\_\_\_.

- A. inspections, certifications, and validations
- B. philosophy, assurance, and control
- C. form, fit, and function
- D. reliability, maintainability, and availability
- E. insurance, assurance, and warranty

**Question 90:** Quality control is the technical processes that \_\_\_\_\_ the project's progress against the performance standards.

- A. inspect, certify, and verify
- B. examine, analyze, and report
- C. inspect, examine, and determine
- D. identify, measure, and report
- E. reveal, establish, and record

**Question 91:** Self-inspection by the individual performing the work is used to achieve quality in a product. The advantages of self-inspection include \_\_\_\_\_.

- A. immediate feedback to permit adjustments to the process
- B. early identification of errors prior to further integration
- C. minimization of end product repairs and material waste
- D. reduction in the number of end product inspections and tests
- E. all of the above

**Question 92:** Statistical Process Control is used in quality programs to determine whether repetitive operations meet predictable standards. The process uses \_\_\_\_\_ to permit accurate monitoring of the operation.

- A. 100 percent inspection and random rejection
- B. acceptance sampling and automatic rejection
- C. continuous sampling and error detection methods
- D. random sampling and corrective procedures
- E. statistical sampling and control procedures

**Question 93:** Statistical sampling is a method to determine the conformance to requirement for some element or product of a project. The advantage of statistical sampling is that it \_\_\_\_\_.

- A. does not require an expenditure of resources
- B. is accurate enough with a sampling of less than one percent
- C. does not require 100 percent sampling of the elements to achieve a satisfactory inference of the population

- D. needs to be conducted only when there is a problem discovered with the end product or when the customer has some rejects
- E. is a good tool to gain customer confidence during a period of high rejects

**Question 94:** Zero Defects is an element of the quality management philosophy that is a \_\_\_\_\_ for all workers to be achieved

- A. slogan; whenever possible
- B. slogan; most of the time
- C. standard; at all times
- D. standard; whenever possible
- E. standard; during critical operations

**Question 95:** Statistical Decision Making includes Pareto Analysis as a means of reducing errors in the total project process. Pareto Analysis \_\_\_\_\_.

- A. is a method of rejecting errors or variances from standards following self-inspection
- B. is a procedure for ranking the errors to identify those contributing the most to failures [PMBOK p. B-2]
- C. counts errors or failures to determine the added cost of all operations that do not meet the requirements
- D. compares the error rate with the pass rate to determine the allowable number of errors per 1,000
- E. compares the error rate of individuals to determine the compensation for bonuses

**Question 96:** Statistical Process Control uses diagrams called "Control Charts." These charts depict horizontal, parallel lines to represent \_\_\_\_\_ standard deviations.

- A. six
- B. five
- C. four
- D. three
- E. two

**Question 97:** The cost of quality has been argued as being primarily driven by the workers. When items were produced that did not meet the customers' expectations, the workers were "found" to be at fault. Current thinking is that management has at least \_\_\_\_\_ percent of the responsibility for the cost of quality.

- A. 85
- B. 75
- C. 65
- D. 55
- E. 50

**Question 98:** A quality program within a project should be based on \_\_\_\_\_ of errors to improve productivity along with quality levels.

- A. early detection
- B. early correction
- C. late detection
- D. late correction
- E. prevention

**Question 99:** When data is plotted on the control charts, the data is of two types: R and -bar. The R data represent points of a \_\_\_\_\_ while the X-bar data represent points of a(n) \_\_\_\_\_.

- A. random sample; cross-matrix sample
- B. real sample; simulated sample
- C. 100 percent sampling; 10 percent sampling

- D. sampling run; average of several runs
- E. random sampling; continuous sampling

**Question 100:** *Statistical sampling methods are valid for most projects, regardless of the lack of repetitive processes, because*

- A. projects rely on external vendors for products that must meet contractual specifications to conform to the requirements
- B. purchased materials will never meet the requirements of the project
- C. services are amenable to statistical sampling even for small lots
- D. it looks good to the customer when there is a mathematical approach to quality
- E. statistics provide a basis for customer acceptance of the projects

**Question 101:** *The cost of quality is needed to identify opportunities for improvement. The cost of quality is, therefore, defined as the dollar value associated with \_\_\_\_\_.*

- A. producing a product that meets the requirement
- B. nonconformance to the requirement
- C. any cost for quality personnel and tools
- D. any extra cost to hire a quality consultant
- E. all extra efforts to implement a quality program

**Question 102:** *When errors that affect quality are discovered, the procedure to improve the situation should be to*

- A. identify the specific error
- B. correct the specific error
- C. determine the root causes of the error
- D. correct the root cause of the error
- E. all of the above

**Question 103:** *Customers are the driving force in any project and determine the requirements to be met. In dealing with customers' complaints, it is important to*

- A. avoid commitment to correction on an "out of warranty" item
- B. talk to them until they see the reason the complaints are trivial
- C. give them something more than they contracted to receive to suppress any feelings of dissatisfaction
- D. provide them with the full scope of the contracted product or service
- E. realize that customers ask for too much and to change their perceptions about the product or service requirements

**Question 104:** *In a project, the common parameters are cost, schedule, and quality. In relationship to the others, quality should be ranked*

- A. first as the prime driver for a project
- B. second behind cost but ahead of schedule
- C. second behind schedule but ahead of cost
- D. equal to cost and schedule
- E. third behind cost and schedule

**Question 105:** *A quality audit is a powerful tool in any quality improvement program. For a project that is starting a quality improvement program, the initial audit is used to*

- A. identify all the faculty work that has been completed
- B. identify all the work that has been correctly accomplished
- C. determine the single most urgent area for improvement
- D. determine the quality baseline from which improvements will be made
- E. evaluate the quality audit's effectiveness in identifying errors

**Question 106:** In computing the cost of producing a quality product, the major areas of costs contribute to the sale price of the product. The ratio of the \_\_\_\_\_ costs determine whether an effective program is fully implemented.

- A. direct, indirect, and overhead
- B. one-time, recurring, and variable
- C. variable, fixed, and semi-fixed
- D. prevention, appraisal, and failure
- E. build, repair, and test

**Question 107:** Trend charts reflect the relative status of a program. Trend charts are effective means of

- A. visibility reinforcing the growth of quality improvements to the workers
- B. reflecting the precise status of quality failures
- C. identifying to customers the failure rates of products
- D. setting standards and goals for acceptable levels of quality
- E. showing that all goals have been achieved

**Question 108:** Recognition of personnel achievements is an important building block to the attainment of a superior quality program. The form of recognition should be

- A. an annual bonus increase paid at the end of the year
- B. an immediate cash award that is commensurate with the deed
- C. a non-monetary award presented in a public forum as soon as the deed is identified
- D. a non-monetary award presented in private
- E. a combination of monetary and non-monetary award presented in private

**Question 109:** The 14-step process to quality improvement is a progressive to total involvement of everyone in a company toward the production of quality products and services. The 14-steps do not include \_\_\_\_\_.

- A. management commitment
- B. quality improvement team
- C. quality measurement
- D. goal achievement measures
- E. supervisor training

**Question 110:** In many projects, the end product is a "service" that does not have physical characteristics and attributes to be measured to ensure conformance to the requirement. When service is the end product of a project, measurements \_\_\_\_\_.

- A. do not apply to the service, but the criterion is pass or fail
- B. are always artificial and present only false indications of progress
- C. can be established based on customer expectations and the responsibility assigned to individuals
- D. are not applicable if the service is to an internal function of the project
- E. relate only to the actual expenditures of funds or receipt or revenues

**Question 111:** Quality in a project's product is essential for the enhancement of the project manager and the selling organization. To ensure that the customer perceives a quality product, the project manager must inform the customer of the \_\_\_\_\_ to be used so the customer will not have a perception of \_\_\_\_\_.

- A. materials; inferior fabrication
- B. standards; gold plating
- C. practices; poor workmanship
- D. pricing; gouging

- E. warranty; poor service after product sale

**Question 112:** *The technical performance of the project is derived from the quality program instituted by the project manager. Quality control is one part of the quality program that \_\_\_\_\_.*

- A. defines requirements and performance standards
- B. measures results of operations
- C. compares measured results to performance standards
- D. initiates corrective actions for variances
- E. all of the above

**Question 113:** *Quality control methods extend beyond the external characteristics of the product or components of the product. The types of testing of the product or components include \_\_\_\_\_.*

- A. operator, maintainer, and environmental
- B. stress, destructive, and operating
- C. in-house, public, and private
- D. laboratory, destructive, and non-destructive
- E. laboratory, fabrication, and product

**Question 114:** *As one of its goal the project organization has quality to specified performance measures. When compared with the functional organization, the project organization*

- A. achieves higher levels of quality
- B. is always tailored to meet the specific quality goals
- C. is less disciplined in the implementation of quality
- D. is more disciplined in the implementation of quality
- E. none of the above

**Question 115:** *Quality control includes inspections to ensure the standards of performance are being met. Inspection includes \_\_\_\_\_ examinations of \_\_\_\_\_.*

- A. visual and non-visual; processes and components
- B. visual and aural; processes and materials
- C. visual and technical; material and end products
- D. aural and tactile; materials and end products
- E. aural and tactile; processes and procedures

**Question 116:** *Each project needs a quality program plan to define the parameters of the overall approach to meeting quality requirements. As a minimum, the quality program plan addresses \_\_\_\_\_.*

- A. The required processes and procedures
- B. the inspection plan
- C. the types of test to be conducted
- D. the documentation requirements for actions (testing, inspections, etc.)
- E. all of the above

**Question 117:** *Quality is one part of the three major parameters of a project. When the quality in a project exceeds the specifications, that is called*

- A. excellence
- B. superior quality
- C. deviation plus quality
- D. gold plating

- E. silver plating

**Question 118:** *Process control is distinct and separate from the data gathering function in a quality program. While process control regulates the functions, data gathering is used to \_\_\_\_\_.*

- A. collect information on the relative performance standards of the process so the output can be enhanced through continuous adjustments to the input functions
- B. validate the controlling function as performing correctly and provide information on equipment servicing intervals
- C. provide the historical records for production lots as to the specifications and actual measurements of a product
- D. generate the control charts to determine the variances in the product and the number on non-conforming products
- E. ensure the products are within tolerances and to identify those products that require reworking or scrapping

**Question 119:** *In a quality management information system, there is a need to collect data and format such data into an information output that is useful to the project manager. In developing such an information system, it is good to remember that an optimum system does not supply all the information because*

- A. there is never enough information collected
- B. the system is incapable of processing all the required information
- C. some information costs more to collect than it is worth
- D. some information is not available for collection and input
- E. most information relies on related data to generate the proper output

**Question 120:** *In the quality area, process control is becoming an important element of the manufacturing to rigorous specifications to provide a consistently uniform output. The control of a process is divided into controlling temperatures, pressures, flows, \_\_\_\_\_, and levels in terms of rates and time.*

- A. directions, elasticities
- B. volumes, distances
- C. speeds (velocities), volumes
- D. distances, speeds (velocities)
- E. lengths, widths

**Question 121:** *In the area of quality, project managers are struggling with the training and indoctrination of individuals in the need to do the work right the first time to conform to the requirement. Occasionally, the project manager will discover an individual, either in the planning or actual work, doing more than is called for in the specification. These individuals need training to reduce the level of "over building" because*

- A. the extra value given to the customer is not recognized or needed to complete the project
- B. the increase to the system specifications place that portion out of balance with the other system components
- C. it leads to increased customer requirements for other parts of the system
- D. exceeding the specified requirement is wasting time and money at no value added to the project
- E. the project must be reworked in other areas to increase the level of "goodness" to the same as the "over build"

**Question 122:** *The key to quality is to design and build to the requirements and avoid attempts to inspect quality into the product. There is a need, however, to conduct inspections a critical junctures in the assembly process to ensure defective items are identified prior to making a costly interface or concealing a physical attribute that cannot be inspected at a later time. An inspection plan will identify the points at which examinations of processes, materials, or assemblies are required. However, inspection plans normally do not include*

- A. examining the vendor's quality procedures
- B. examining surfaces

- C. testing personnel skills
- D. checking dimensions
- E. witnessing destructive and nondestructive tests

**Question 123:** *The quality program may include the requirement for "witnessed inspections" of critical items for the project. When a subcontractor or vendor is to conduct a destructive test, the project manager must ensure the test is validated (witnessed) by a qualified member of his team. The purchase order or contract should contain a statement that requires the subcontractor or vendor performing the test to \_\_\_\_\_.*

- A. give a 30-day notice of when the test will be conducted and to provide a certificate of completion within seven days following the test
- B. notify the project manager, in writing, of the date and time for witnessing the test
- C. retain the residue of the item destroyed for a period of one year following completion of the project
- D. have present at the test at least three independent sources (individuals) who are qualified in destructive testing procedures
- E. report the results of the testing to an independent laboratory for confirmation and validation of the procedures

**Question 124:** *The use of CAD (computer-aided design) is emerging as a new technology with the goal of reducing the time and money spent to produce and update design drawings. In some cases, the CAD is being used to control other computers and machines to manufacture basic components of equipment. Because the CAD software has the capability to perform checks of the design and make changes to designs as they are approved, there has been*

- A. a significant reduction in engineering errors
- B. less rework required because of design errors
- C. improved updating of designs over the former manual methods
- D. more timely posting of changes to designs
- E. all of the above

**Question 125:** *The inspection of the project through the implementation phase is critical to ensure that quality standards are being met. The use of vendors is most often required to obtain critical materials, components, or sub-assemblies. To determine a vendor's capabilities to produce to the specifications, a "shop survey" or audit of the vendor may be required. The areas for the audit should include*

- A. facilities and shop space
- B. experience and capability with similar work
- C. quality assurance and control procedures
- D. organization and quality of work in process
- E. all of the above

**Question 126:** *Who commented "Quality is free"*

- F. Philip Crosby
- G. Juran
- H. Deming
- I. Walter A. Shewhart

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