

## Total Quality Management

1. \_\_\_\_\_ is not a process tools for TQM systems
  - A. process flow analysis
  - B. histograms
  - C. plier
  - D. control charts
  
2. Processes that operate with "six sigma quality" over the short term are assumed to produce long-term defect levels below \_\_\_\_\_ defects per million opportunities (DPMO).
  - A. 2
  - B. 2.4
  - C. 3
  - D. 3.4
  
3. Inspection, scrap, and repair are examples of \_\_\_\_\_.
  - A. internal costs
  - B. external costs
  - C. costs of dissatisfaction
  - D. societal costs
  
4. \_\_\_\_\_ are used in six sigma
  - A. black belt
  - B. green belt
  - C. both black belt and green belt
  - D. none of the Above

5. Customers are primarily concerned with \_\_\_\_\_

- A. Communication, courtesy, and credibility of the sales person
- B. Competence, courtesy, and security of the sales person
- C. Competence, responsiveness, and reliability of the sales person
- D. Communication, responsiveness, and cleverness of the sales person

6. Assured quality is necessary for building customer confidence.

- A. correct
- B. correct to some extent
- C. correct to great extent
- D. incorrect

7. \_\_\_\_\_ is about supplying customers with what they want when they want it.

- A. JUT
- B. HET
- C. JAT
- D. JIT

8. \_\_\_\_\_ are the areas that will be covered by the organization's processes

- A. process areas
- B. product Areas
- C. private areas
- D. preset areas

9. All of the following costs are likely to decrease as a result of better quality except \_\_\_\_\_

- A. customer dissatisfaction costs
- B. inspection costs
- C. maintenance costs
- D. warranty and service costs

10. "Quality is defined by the customer" is

- A. An unrealistic definition of quality
- B. A user-based definition of quality
- C. A manufacturing-based definition of quality
- D. A product-based definition of quality

11. After E. Deming, who is considered to have the greatest impact in quality management?

- A. Kauro Ishikawa
- B. Joseph M. Juran
- C. W.E. Deming
- D. Genichi Taguchi

12. Deming's 4 step cycle for improvement is \_\_\_\_\_

- A. plan, do, check, act
- B. schedule, do, act, check
- C. do, act, check, monitor
- D. plan, control, act, sustain

13. In Six Sigma, a \_\_\_\_\_ is defined as any process output that does not meet customer specifications

- A. error
- B. cost
- C. quality
- D. defect

14. Plan-do-study-act cycle is a procedure to \_\_\_\_\_

- A. Overall improvement
- B. Continuous improvement
- C. Permanent improvement
- D. Immediate improvement

15. Quality practices must be carried out \_\_\_\_\_

- A. at the start of the project
- B. throuout the life of the project
- C. at the end of the project
- D. no need to carry out quality practices

16. \_\_\_\_\_ are the charts that identify potential causes for particular quality problems.

- A. Control Chart
- B. Flow chart
- C. Cause and Effect Diagram
- D. Pareto chart

17. Quality circles work best if employees are initially trained in \_\_\_\_\_

- A. Group dynamics
- B. Motivation principles
- C. Communications
- D. All of the three. (Not sure)

18. Quality Trilogy includes

- A. Quality planning
- B. quality improvement
- C. quality control
- D. All the three

19. Reliability is the degree to which a unit of equipment performs its intended function under \_\_\_\_\_ for \_\_\_\_\_ of time.

- A. specified conditions; specified period
- B. any condition; specified period
- C. specified conditions; all periods
- D. any condition; any period

20. Kaizen is a \_\_\_\_\_ process, the purpose of which goes beyond simple productivity improvement.

- A. weekly
- B. daily
- C. monthly
- D. annual

21. Elements of quality management system are \_\_\_\_\_

- A. organizational structure
- B. responsibilities
- C. procedures
- D. all the three (not sure)

22. At the time of making a purchase agreement with a vendor, what is important to mention about inspection?

- A. the characteristics of the product that are to be inspected
- B. the tolerances that would be allowed
- C. the reputation of the vendor
- D. a & b both (not sure)

23. "Poka-yoke" is the Japanese term for \_\_\_\_\_

- A. Card
- B. Fool proof
- C. Continuous improvement
- D. Fishbone diagram

24. Based on his 14 Points, Deming is a strong proponent of \_\_\_\_\_

- A. inspection at the end of the production process
- B. an increase in numerical quotas to boost productivity
- C. looking for the cheapest supplier
- D. training and knowledge

25. A fishbone diagram is also known as a .\_\_\_\_\_

- A. cause-and-effect diagram
- B. poka-yoke diagram
- C. Kaizen diagram
- D. Taguchi diagram

26. According to Deming most of the problems are related to systems and it is the responsibility of the management to improve the systems

- A. correct
- B. correct to some extent
- C. correct to great extent
- D. Taguchi

27. A maturity model can be used as a benchmark for comparison and as an aid to understanding

- A. TRUE
- B. FALSE
- C. depends
- D. can't say

28. Fourteen points framework for quality and productivity improvement was suggested by

- 
- A. Crosby
  - B. Ishikawa
  - C. Deming
  - D. Juran

29. Juran's Quality trilogy emphasizes the roles of quality planning, quality control and \_\_\_\_\_

- A. Quality Definition
- B. Quality enhancement
- C. Quality improvement
- D. quality maintenance

30. Quality Circles members are \_\_\_\_\_

- A. Paid according to their contribution to quality
- B. External consultants designed to provide training in the use of Quality tools
- C. Always machine operators
- D. None of the three.

31. Identify the cost not likely to reduce as a result of better quality.

- A. Maintenance costs
- B. Inspection costs
- C. Scrap costs
- D. Warranty and service costs

32. Costs of dissatisfaction, repair costs, and warranty costs are elements of cost in the \_\_\_\_\_

- A. Taguchi Loss Function
- B. Pareto Chart
- C. ISO 9000 Quality Cost Calculator
- D. Process Chart



33. Kaizen is a Japanese term meaning \_\_\_\_\_

- A. continuous improvement
- B. Just-in-time (JIT)
- C. a fishbone diagram
- D. setting standards

34. 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 shortest possible time.
- B. a product or service that conforms to the required specifications.
- C. an award-winning product that brings public recognition to the project
- D. an innovative project that establishes qualification of the project team

35. Establishing measurements based on customer needs for optimizing product design is known as \_\_\_\_\_

- A. Quality planning
- B. quality improvement
- C. quality control
- D. Quality planning (Actual answer is Quality planning roadmap)

36. DMAIC is \_\_\_\_\_

- A. develop, multiply, analyze, improve, check
- B. define, multiply, analyze, improve, control
- C. define, measure, analyze, improve, control
- D. define, manufacture, analyze, improve, control

37. Quality fulfills a need or expectation that is:

- A. Explicitly stated
- B. Implied
- C. Legally required
- D. All of the above

38. The taste of burgers across all McDonald outlets should be same. This is an example of \_\_\_\_\_.

- A. Sensory critical to quality Characteristic
- B. Physical critical to Quality Characteristic
- C. Time Orientation critical to Quality Characteristic
- D. None of the above

39. Check Sheet is used during \_\_\_\_\_ stage of DMAIC.

- A. Define
- B. Measure
- C. Analyze
- D. Improve

40. \_\_\_\_\_ is the set of activities that ensures the quality levels of products and services are properly maintained and that supplier and customer quality issues are properly resolved.

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

41. Presence of \_\_\_\_\_ after every stage of DMAIC allows for review of project and incorporation of suggestions.

- A. Review gate
- B. Toll gate
- C. Decision gate
- D. None of the above

42. The Toyota Production System is based on two pillars namely \_\_\_\_\_ and \_\_\_\_\_.

- A. Kaizen, Six Sigma
- B. Lean, Six Sigma
- C. Just in Time, Jidoka
- D. Just in Time, Kaizen

43. Which of the following is not a target of Total Quality Management:

- A. Customer Satisfaction
- B. Reducing manpower
- C. Continuous Cost Reduction
- D. Continuous Operational Improvement

44. A \_\_\_\_\_ diagram shows the location of defects in any unit. This diagram is used in the analyse step of DMAIC.

- A. Affinity
- B. Relations
- C. Defect Concentration

D. Scatter

45. The \_\_\_\_\_ is used to identify what might go wrong in a plan under development.

A. Pareto Chart

B. PDPC

C. Arrow Diagram

D. Matrix Diagram

46. The defect concentration diagram can be used in the \_\_\_\_\_ stage of the DMAIC.

A. Define

B. Measure

C. Analyze

D. Improve

47. The taste of the burger can be categorized as good or bad This is an example of which type of data:

A. Variable

B. Attribute

C. Cannot be determined

D. None of the above

48. Juran's quality management philosophy is based on three pillars namely planning, control and \_\_\_\_\_.

A. Implementation

B. Improvement

C. Monitor

D. Design

49. For a point in the control chart to be out of control, it must lie

- A. Above UCL or Below LCL
- B. Between Central Line and LCL
- C. Between Central Line and UCL
- D. None of the above

50. X bar should never be interpreted when:

- A. R chart shows out of control points
- B. X bar chart shows out of control points
- C. The process mean is not known
- D. None of the above

51. The average run length can be defined as:

- A. The beta risk for an x bar chart
- B. The expected number of samples taken before any shift in process quality is detected
- C. The number of samples used in the construction of x bar chart
- D. The number of items per sample

52. The dimension of reliability is concerned with:

- A. How easy it is to repair the product
- B. How long does the product last
- C. Will the product do the intended job
- D. How often does the product fail

53. From a consumer perspective quality is determined by \_\_\_\_\_ while from a producers perspective quality is determined by \_\_\_\_\_.

- A. Variability, Cost
- B. Cost, Price
- C. Price, Cost
- D. Cost, Variability

54. While the first generation of Six sigma focused on \_\_\_\_\_, the third generation of six sigma focused on \_\_\_\_\_.

- A. Variability reduction, creating value
- B. Variability reduction, improved business performance
- C. Creating value, Improved business performance
- D. None of the above

55. The standard normal distribution has mean= \_\_\_\_\_ and standard deviation= \_\_\_\_\_.

- A. 1,0
- B. 0,1
- C. 0,0
- D. 1,1

56. A \_\_\_\_\_ chart can be used to identify the most frequently occurring defect.

- A. Pareto
- B. Ishikawa
- C. Histogram

D. Scatter

57. The main aim of QFD is to

- A. Listen to the voice of customer
- B. Lower cost
- C. Reduce errors
- D. Reduce supplier defect

58. Average Total Inspection is defined as:

- A. Average of rejected lots and accepted lots
- B. Average number of units inspected per lot
- C. Average of rejected Lots
- D. Average of accepted Lots

59. R charts are used for controlling \_\_\_\_\_ of a process.

- A. Central Tendency
- B. Dispersion
- C. None of the above
- D. Both a and b

60. If the Average outgoing Quality is plotted against the Incoming Fraction Defective, the Average Outgoing Quality Limit is the \_\_\_\_\_ point.

- A. Highest
- B. Lowest
- C. Middle

61. The focal point of all quality control should be:

- A. Price focus
- B. Cost Focus
- C. Customer Focus
- D. Manufacturing Focus

62. The key process input variables (KPIV) and key process output variables are developed during the \_\_\_\_\_ phase.

- A. Define
- B. Analyze
- C. Measure
- D. Improve

63. Which of the following statement is false:

- A. Important step of strategic quality management is identification of those dimensions in which the organization will compete
- B. Selection of suppliers should be based on quality, schedule, and cost, rather than on cost alone
- C. All of the individuals in the organization must have an understanding of the basic tools of quality improvement
- D. Manufacturing Unit should be the unit focusing on Quality Improvement among all units in an organization

64. Cause and Effect Diagram can be used in the \_\_\_\_\_ and \_\_\_\_\_ step of DMAIC.

- A. Define, Measure



- B. Analyze, Control
- C. Analyze, Improve
- D. Define, Improve

65. A company wants to measure the length of a fan as a part of its quality control exercise. The type of data collected will be:

- A. Variable
- B. Attribute
- C. Cannot be determined
- D. None of the above

66. Inspection of incoming/outgoing items is an example of \_\_\_\_\_.

- A. Prevention Cost
- B. Appraisal Cost
- C. Internal Failure Cost
- D. External Failure Cost

67. Four basic characteristics of an optimal process are:

- A. Economy, efficiency, control, quality
- B. Quality, Improvement, efficiency, productivity
- C. Economy, efficiency, productivity, cost
- D. Economy, efficiency, productivity, quality

68. \_\_\_\_\_ diagram is used for identifying potential relationship between two variables.

- A. Pareto

- B. Ishikawa
- C. Histogram
- D. Scatter

69. Identification of customers and listening to the Voice of Customer (VoC) are a part of:

- A. Quality Assurance
- B. Quality Planning
- C. Quality Control and Improvement
- D. Quality Execution

70. Ease of repair is associated with \_\_\_\_\_ dimension of quality.

- A. Serviceability
- B. Performance
- C. Durability
- D. Perceived Quality

71. SIPOC diagram, used for understanding the flow in a process is used in \_\_\_\_\_ stage of DMAIC.

- A. Define
- B. Measure
- C. Analyze
- D. Improve

72. Two major components of fitness of use are Quality of Design and \_\_\_\_\_.

- A. Quality of Conformance

- B. Quality of Service
- C. Quality of Specification
- D. Quality of Manufacturing

73. For new product development, the chosen methodology should be

- A. DMADV
- B. DMAIC
- C. Structured Design Methodology
- D. DMIE

74. Failure Mode and Effects Analysis, which prioritizes different sources of error, is used in \_\_\_\_\_ stage.

- A. Define
- B. Measure
- C. Improve
- D. Analyze

75. In a six sigma improvement project the least experienced individuals are:

- A. Green Belt
- B. Black belts
- C. Red Belts
- D. Master Black Belts

76. Process capability ratio is expressed as:

- A.  $USL+LSL/6\sigma$

- B. USL-LSL/ $6\sigma$
- C. USL-LSL/ $3\sigma$
- D. USL-LSL/ $\sigma$

77. Which of the following is for Environment management?

- A. ISO-9000
- B. ISO-14000
- C. ISO-26000
- D. ISO-31000

78. What is the aim of fool proofing technique used for total quality management?

- a. to achieve zero defects
- b. to specify time schedules
- c. to specify targets
- d. none of the above

79. Match the following group 1 items with group 2 items

- 1. Sort ----- A. Seitan
- 2. Set in order ----- B. Seiketsu
- 3. Shine ----- C. Seiri
- 4. Standardize ----- D. Seiso

- a. 1 – D, 2 – A, 3 – B, 4 – C

- b. 1 – C, 2 – A, 3 – D, 4 – B
- c. 1 – B, 2 – C, 3 – A, 4 – D
- d. 1 –A, 2 – C, 3 – D, 4 – B

80. What is meant by Kaizen?

- a. card signal
- b. to avoid inadvertent errors
- c. change for better quality
- d. none of the above

81. Which among the following is a pull type signaling system?

- a. Just in time
- b. Kanban
- c. both a. and b.
- d. none of the above

82. ISO 14000 quality standard is related with

- a. Environmental management systems
- b. Automotive quality standards
- c. Eliminating poor quality
- d. Customer satisfaction

83. Which ISO standard is used in international automobile companies to set automotive quality system standards ?

- a. ISO 14000

- b. TS 16949
- c. ISO 9000
- d. none of the above

84. What is quality assurance?

- a. Quality assurance deals with activities which prove that products and services meet the required quality standard
- b. Quality assurance deals with activities which aim at customers satisfaction
- c. Quality assurance deals with controlling the quality of products by inspection
- d. All of the above

85. Which of the following statements is/are false?

- 1. Fault tree analysis method is used to determine reliability of product
  - 2. The goal of Six Sigma is to reduce number of defects to 2.4 parts per billion
  - 3. Six sigma is represented by normal distribution curve
  - 4. Poka yoke is a policy which prevents occurrence of human errors
- a. Only statement 3
  - b. Statement 2 and statement 3
  - c. Statement 1, 3 and 4
  - d. Only statement 2

86. Which quality management program is related to the maintenance of plants and equipments?

- a. Environmental management systems
- b. Fault tree analysis

- c. Failure mode effect analysis
- d. Total productive maintenance

87. The aim of Just-In-Time manufacturing principle is to eliminate

- a. time wastage
- b. labour wastage
- c. cost of excessive inventory
- d. all of the above

88. For a c chart, the LCL comes out to be  $-0.7$ . The value of LCL that should be used is:

- A.  $-0.7$
- B. 0
- C. 1
- D. None of the above

89. For a Poisson distribution:

- A. The mean is greater than the variance
- B. The mean is less than variance
- C. The mean is equal to the variance
- D. Cannot be determined

90. Effective quality control results in:

- A. Increase in customer satisfaction
- B. Lower cost

- C. None of the above
- D. Both a and b

91. Effective quality improvement can be instrumental in:

- A. Increasing productivity
- B. Reducing cost
- C. Both a and b
- D. None of the above