

Question 1

Machine efficiency is calculated by dividing \_\_\_\_\_ by \_\_\_\_\_.

- a) Effective capacity by Design capacity
- b) Achieved capacity by Design capacity
- c) Achieved capacity by Effective capacity
- d) Design capacity by Achieved capacity

Question 2

Which of the following is the key benefit of multi-vari charting?

- a) It keeps track of the time when measurements were made
- b) It graphically displays the variation in a process
- c) It assists in the breakdown of components of variation
- d) It is much easier to plot than most control charts

Question 3

Which of these is not one of the ten guiding principles of continuous improvement proposed by Robert Lowson

(2002)?

- a) Operations orientation
- b) Total employee involvement
- c) Effective leadership
- d) Adaptability to change

Question 4

Before improvements can be made to a process there need to be clear procedures and agreed working practices

established. These are normally in a written form, called \_\_\_\_\_?

- a) Continuous Improvement Procedures
- b) Process Control Procedures
- c) Standard Operating Procedures

d) Quality Improvement Procedures

Question 5

What additional factor does Overall Equipment Effectiveness take into account which makes it more meaningful than efficiency or utilization?

- a) Flexibility
- b) Speed
- c) Cost
- d) Quality

Question 6:

Which of the following tools helps in visualizing series of causes to an effect?

- a) Cause and Effect Matrix
- b) Correlation Diagram
- c) Ishikawa Diagram
- d) Value Stream Mapping

Question 7

Which of the following is not a reason which may prevent the successful adoption of a continuous improvement program?

- a) Lack of trust by employees in management motives
- b) No clear purpose for the programme
- c) Incentives scheme linked to the programme
- d) Resistance to change

Question 8

One of the purposes of using a fishbone diagram is to:

- a) Separate a problem into smaller components
- b) Identify and classify sources of variations into major groups
- c) Define the problem in sequential order
- d) Show the relationship between parameters

Question 9

A technique devised by Kaplan and Norton (1992) to measure performance across four different operating areas

is known as \_\_\_\_\_?

- a) Brainstorming
- b) Benchmarking
- c) Balanced Scorecard
- d) Quality circle

Question 10

In a typical MSA GAGE RR study conducted, what should the Six Sigma team determine about the Measurement System first?

- a) Accuracy
- b) Stability
- c) Resolution
- d) Linearity

Question 11

Production and operations management includes all the activities of managers to create goods and services.

- a) True
- b) False

Question 12

Which of the following is the LEAST likely tool to assist the problem definition stage of Six Sigma?

- a) CTQ trees
- b) Pareto analysis
- c) Product yield data
- d) Control charts

Question 13

In a typical Measure Phase, which of the following activities should a Green Belt perform first?

- a) Stability
- b) Capability
- c) MSA
- d) Normality

Question 14

The manufacturing of a car is an example of:

- a. assembly process.
- b. analytic system.
- c. chemical process.
- d. transport process.

Question 15

A technique for getting ideas for innovation and improvement from other sources outside of an organization, is

called \_\_\_\_\_?

- a) Balanced Scorecard
- b) Brainstorming
- c) Benchmarking
- d) Open Innovation

Question 16

The development of a novel idea is called \_\_\_\_\_?

- a) Innovation
- b) Modification
- c) Invention

d) Improvement

17. A change which is created through a series of small improvements is called \_\_\_\_\_ innovation?

- a) Step change
- b) Disruptive
- c) Radical
- d) Incremental

18. A facelift for an existing brand or product is known as which type of innovation?

- a) Modification
- b) Restaging
- c) New product
- d) Invention

19. The four stages of a new product or new service development process are; formulate ideas, decide on whether to

proceed, evaluate the outcome and \_\_\_\_\_?

- a) Screen the ideas
- b) Business analysis
- c) Test the design
- d) Launch the product

20. Utility is created when raw materials and labour are converted into finished goods.

- a) time
- b) form
- c) place
- d) product

21. The creation of goods and services using the factors of production is called:

- a) production.
- b) assembly process.

- c) research and development.
- d) financial management.

22. Which of the following scenarios is best suited to use an X-bar and R chart?

- a) A smaller sample size is needed
- b) It is necessary to know when to investigate a process for causes of variation
- c) The machine capability is wider than the specification
- d) An acceptable quality level must be established

23. When a cause-and-effect diagram is used to solve plant problems, what are the three parts a session is customarily divided into?

- a) Teamwork, cost-effectiveness, efficiency
- b) Brainstorming, prioritization and plan development
- c) Teamwork, planning and execution
- d) Cost-effectiveness, plan development, teamwork.

24. "Forming, Storming, Norming, and Performing" are terms that describe

- a) Process variation reduction and improvement phases
- b) Root Cause identification and corrective action
- c) Stages of team growth
- d) Steps of the brainstorming process

25. Which item should not be identified in the Define Phase?

- a) Root Causes
- b) The key problem area
- c) Possible financial loss
- d) Intangibles

26. The distribution that follows principles of an exponential distribution is:

- a) Poisson
- b) Binomial
- c) Chi-Square
- d) Normal

27. For small incremental changes which Japanese technique is useful?

- a) Kaizen
- b) Poka-Yoke
- c) Kata
- d) Mura

28. Poka-yoke is best defined as:

- a) Capturing the voice of the customer
- b) Improving machine efficiency
- c) Reducing field failures to virtually zero
- d) Preventing controllable defects

29. Which of the following is NOT necessary for the Six Sigma team to update in the Project Charter in the Define Phase?

Project Name and Description

Business need

Project purpose

Constraints

Question 30

The variations resulting from common causes are attributed to \_\_\_\_\_.

- a. an in control situation which should not be investigated.
- b. an in control situation which should be investigated.
- c. an out of control situation which should not be investigated.
- d. an out of control situation which should be investigated.

Question 31

There are 5 basic organizational forms, simple, functional, divisional, conglomerate and \_\_\_\_\_?

- a) hybrid
- b) complex
- c) corporate
- d) hierarchical

Question 32

Operations can be diagnosed by volume, variety, variation and \_\_\_\_\_?

- a) validity
- b) variability
- c) value
- d) variance

Question 33

Services differ from manufactured products in four ways. Intangibility, Inseparability, Perishability and \_\_\_\_\_?

- a) homogeneity
- b) heterogeneity
- c) intractability
- d) invisibility

Question 34

Semi-finished stock is also known as \_\_\_\_\_ inventory.

- a) Pipeline
- b) Cycle
- c) Work in Process



d) Anticipatory

Question 35

Which of these reasons to keep inventory can lead to improved quality?

- a) It allows processes to flow more smoothly.
- b) It makes deliveries more reliable.
- c) It helps to deal with short term demands.
- d) It enables the best material to be sorted prior to production.

Question 36

What do the letters EOQ stand for?

- a) Estimated Order Quantity
- b) Economic Order Quantity
- c) Estimated Order Quality
- d) Economic Order Quality

Question 37

Goods in transit can be tracked using RFID technology. RFID stands for?

- a) Remote File Identification
- b) Resource Frequency Identification
- c) Radio Frequency Identification
- d) Radar Frequency Identification

Question 38

A quality criterion which can be measured is called a \_\_\_\_\_?

- a) Quality characteristic
- b) Quality component
- c) Quality attribute
- d) Quality variable

Question 39

The EOQ of an item is calculated using the annual demand together with the \_\_\_\_\_ cost and the \_\_\_\_\_ cost.

- a) Ordering and Holding costs
- b) Indirect and Holding costs
- c) Direct and Ordering costs
- d) Direct and Variable costs

Question 40

Continuous improvement is primarily concerned with which of these criteria?

- a) Cost
  - b) Quality
  - c) Flexibility
  - d) Dependability
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Question 41

What are the basis of competition for Indian manufacturing companies?

- a) All of these
- b) improved quality
- c) high performance products
- d) reduced cost

Question 42

Which product and process design tool subject models to Finite Element Analysis?

- a) CAD
- b) CAE
- c) JIT
- d) PDM

Question 43

Who is largely attributed to developing World-Class manufacturing?

- a) Dr. W. Edwards Deming
- b) Walter A. Shewhart
- c) Philip Crosby
- d) Taiichi Ohno

Question 44

Which stage in the production process does production leveling is applied?

- a) Depends upon the flow
- b) Last
- c) First
- d) Depends upon process

Question 45

What will happen if a sample of parts is measured and also the mean of the sample measurements is outside the control limits?

- a) The process is in control, but not capable of producing within the established control limits.
- b) The process variance must also be in control.
- c) The process is within the established control limits with only natural causes of variation.
- d) The process is out of control and the cause can be established.

Question 46

How can an improvement in a system be defined, statistically?

- (1) An improvement in the mean outcome.
- (2) A decrease in the system variability.
- (3) A correction of an assignable cause.

- a) Only (1) and (3)
- b) Only (2) and (3)
- c) Only (1) and (2)
- d) All of these

Question 47

How was the success of a company measured during the industrial age?

- a) Exploit intangible assets

- b) Economies of scale
- c) Mobilize employee skills
- d) Customized high-quality products

Question 48

What does KPIV relate to?

- a) Inputs
- b) Incremental Variation
- c) Incrementing Variation
- d) Inherent Variation

Question 49

Which of the following focuses on proactive and progressive maintenance of equipment by utilizing the knowledge of operators?

- a) Six Sigma
- b) Total Productive Maintenance
- c) SMED
- d) 5S

Question 50

Which of these would help to encourage dynamic innovation within an organization?

- a) A bureaucratic culture
- b) Involvement of external consultants
- c) Deregulated markets
- d) A formal research and development department

51. Cause and Effect Diagram is not known as!

- a) Ishikawa Diagram
- b) 4-M
- c) Affinity Diagram
- d) None of the above

52. What is the technique to trace the rule responsible for the problem and break the assumption for the process?

- a) Assumption Busting
- b) Analogy Technique
- c) Benchmarking
- d) Constrained Brain writing

53. What is lean philosophy?

- a) Helps to provide a perfect value through a perfect value creation process that has zero waste
- b) Continuous Improvement
- c) Higher output by encouraging people to work hard and have targets
- d) Reducing cost and improving purchasing power. When samples are drawn out of a population randomly, what is said to be true?

54. When samples are drawn out of a population randomly, what is said to be true?

- a) The sample mean is always the same as the population mean
- b) The sample standard deviation will be the same as population standard deviation
- c) The sampling distribution approaches normality with an increase in sample size
- d) The sampling distribution would be triangular if the population is distributed as a triangular distribution

55. Which of the following tools is most commonly used in the define phase of a project?

- a) Affinity diagram
- b) Control chart
- c) Failure mode and effects analysis
- d) Data collection checklist

56. Which of these is considered a prioritization tool?

- a) Multi-voting
- b) Customer needs prioritization
- c) Focus Groups
- d) Nominal Group Technique

57. Standard Deviation in Six Sigma applications is referred to as the difference from the:

- a) Target

- b) Specification limits
- c) Nearest fit value
- d) Mean

58. Which of the following statistical tests should be used by the Green Belt for testing the means between two inter-related groups?

- a) 2 Sample t assuming equal variances
- b) 2 Sample t assuming unequal variances
- c) Paired t-test
- d) z test

59. Japanese 5S methodology is created and used for:

- a) Continuous Improvement
- b) Prevent Defects
- c) Creating a productive work environment
- d) Reduce Variation

60. What does OEE stand for?

- a) Overall Equipment Effectiveness
- b) Overall Estimation Effectiveness
- c) Overall Equipment Estimation
- d) Overall Effective Estimation