The Lean Six Sigma Yellow Belt Examination

Mock Exam V1.1

Multiple Choice

40 Minute Paper

Instructions

1. All 50 questions should be attempted.

2. All answers are to be marked on the answer grid provided.

3. Please use a pencil and NOT ink to mark your answers in the Answer sheet provided.

4. There is only one correct answer per question.

5. You have 40 minutes for this paper.

6. You must get 25 or more correct to pass.

1   Which is a principle of Lean?

a)   Reduce quality to increase profit
b)   Achieve the perfect demand stream
c)   Identify the value stream and eliminate waste
d)   Increase production with a reduced workforce

2   Which is a purpose and use of data visualization?

a)   Allows conclusions to be drawn from graphical data analysis
b)   Enables the organization to be 80% correct today, rather than 100% correct in 6 months
c)   Identifies and eliminates the root cause of faults or problems
d)   Encourages out-of–the-box thinking to generate as many ideas as possible

3   Which element is identified in a problem statement?

a)   Scope of the project
b)   Members of the improvement team
c)   Urgency for action
d)   Benefits to be achieved

4   What method aims to provide a rapid and efficient way of converting a manufacturing process from producing the current product to producing a different product?

a)   Kaizen Continuous Improvement
b)   Single Minute Exchange of Dies
c)   Six Sigma
d)   Value Stream Mapping

5   Which is a purpose of Short Interval Management (SIM)?

a)   Identify the root cause of faults or problems
b)   Trigger appropriate and timely action
c)   Create high level visualization of the process
d)   Understand and prioritize customer requirements

6   What step in the 5S methodology requires that safety equipment and emergency procedures are made clearly visible for all?

a)   Seiketsu - Standardizing
b)   Seiso - Shine
c)   Shitsuke - Sustain
d)   Seiton - Straighten

7   How are the inputs defined in the SIPOC technique?

a)   People who the process affect or benefit from the outcome
b)   Measures of the process critical to quality
c)   Individuals or teams who provide inputs into the process
d)   Items needed to execute the process and deliver the outputs

8   What metrics are considered first when deciding 'What to Measure' in a process?

a)   Supplier capability
b)   Input requirements
c)   Process functionality
d)   Customer requirements

9   What type of variation is caused by human error or a change in environmental factors, resulting in a non-random distribution of output?

a)   Common cause
b)   Non-assignable
c)   Special cause
d)   Natural

10   What type of data is sometimes called variable data?

a)   Ordinal
b)   Attribute
c)   Continuous
d)   Categorical

11   Why is the 'One-Factor-at-a-Time' (OFAT) approach inferior to the 'Design of Experiments' (DOE) approach?

a)   Experiments are more complicated
b)   Expert knowledge is needed
c)   Results are difficult to interpret
d)   Interactions between factors are NOT revealed

12   Which benefit is gained by implementing 'Flow'?

a)   Reduced waiting time between steps
b)   Reduced number of employees
c)   Reduced logistic effort
d)   Improved quality testing tools

13 What term is given to represent the maximum value minus the minimum value in a data set?

a)   Mean
b)   Range
c)   Variance
d)   Mode

14 What is the purpose of a Bar chart?

a)   Collect possible causes for a certain effect
b)   Highlight the single most important factor in a set
c)   Divide sample values into a certain number of intervals
d)   Visually compare data measured by categories

15 Why is the Value Stream Mapping (Current State) technique used?

a)   Visualizing process performance trends and cycles
b)   Brainstorming to generating a large number of ideas in a short time
c)   Identifying causes of waste and opportunities for improvement
d)   Capturing numerical readings, measures or counts

16 Which is a focus of Operational Excellence?

a)   Increasing sales
b)   Customer needs
c)   Change management
d)   Management skills

17   Which statement describes a defective product?

a)   Can be used to fix a defect
b)   Can have one or multiple defects
c)   Can only have one defect
d)   May NOT necessarily have a defect

18   Which benefit is achieved from process mapping?

a)   Maps the process cycle and waiting times
b)   Displays all process variables in a compact matrix
c)   Defines the likely sources of defects in a product
d)   Guides the team in the process activities

19   What quality activity is focused on preventing defects during production, rather than looking for defects in the end product?

a)   Quality assurance
b)   Quality approval
c)   Quality control
d)   Quality inspection

20   Which of the following are examples of continuous data?

1. Number of features
2. Size in centimeters
3. Weight in kilograms
4. Pressure per square centimeter

a)   1, 2, 3
b)   1, 2, 4
c)   1, 3, 4
d)   2, 3, 4

21 Which method is NOT used for understanding customer requirements?

a)   Survey the customer
b)   Document a customer DMAIC roadmap
c)   Visit the customer
d)   Perform a purchase as a customer

22 What is the outcome when designing the optimal Value Stream?

a)   Current State Value Stream Map
b)   Future State Value Stream Map
c)   Optimal State Process Map
d)   Optimal State Value Map

23 Which is a use of a concentration diagram?

a)   Storing data as readings or counts
b)   Marking the location of product defects
c)   Collecting data about defects or causes of defects
d)   Documenting allowed responses to questions

24 What company developed the 'Lean thought process'?

a)   Honda
b)   Mitsubishi
c)   Toyota
d)   Subaru

25 Which of the following are outcomes of implementing the 'Pull' principle?

1. Semi-finished products
2. Items made as they are needed
3. Minimal materials stocked
4. Reduced fluctuation

a)   1, 2, 3
b)   1, 2, 4
c)   1, 3, 4
d)   2, 3, 4

26 Which of the following are common brainstorming techniques used when brainstorming causes of effects?

1. Tree diagram
2. Clustering items together
3. 5S steps
4. 6 Ms

a) 1, 2, 3
b) 1, 2, 4
c) 1, 3, 4
d) 2, 3, 4

27 Which of the following steps are used to construct a Failure Mode and Effect Analysis (FMEA)?

1. Rate the impact of the negative effect on the customer
2. Multiply the probability with the impact, and the potential to miss it
3. Prepare a plan to respond to the negative effect after it has occurred
4. Assess the chance of a problem occurring without it being noticed

a) 1, 2, 3
b) 1, 2, 4
c) 1,3, 4
d) 2, 3, 4

28 Which aspect of an organization is MOST likely to make a process of change difficult?

a)   Culture and the structures in which it is embedded
b)   Position within the market-place and its ability to compete
c)   Production capacity and ability to meet customer demand
d)   Financial stability and availability of funds

29 Which is NOT one of the eight pillars within the TPM 'House of Quality'?

a)   Focused improvement
b)   Training and education
c)   Quality maintenance
d)   Emergency planning

30 What is the primary goal of the 5-Whys technique?

a)   Determine how a solution will work
b)   Prioritize a customer's requirements
c)   Eliminate a problem or defect
d)   Identify the origin and reason for a problem

31 What is the final aim of the Cause and Effect Matrix used in decision making?

a)   Identify the output variables
b)   Calculate a total score for each input variable
c)   Rank each output variable
d)   Identify the factors of influence

32 Which of the following elements should be included in a Control plan?

1. Failure Mode and Effect Analysis
2. Out-of-Control Action Plan
3. Product and process characteristics
4. Actions to minimise potential failures

a) 1, 2, 3
b) 1, 2, 4
c) 1, 3, 4
d) 2, 3, 4

33 Which type of correlation is NOT a recognised relationship?

a)   No correlation
b)   Positive correlation
c)   Simple correlation
d)   Negative correlation

34 Which is an important requirement of the data collected when sampling data?

a)   Qualitative in nature
b)   Based on typical examples
c)   Quick and easy to collect
d)   Measured on a continuous scale

35 Which type of 'Customer Waste' is MOST likely to be the cause of an end product that fails to meet the customer's expectations?

a)   Delay
b)   Duplication
c)   Over-production
d)   Unclear communication

36   What is a Statistical Process Control (SPC) chart used for?

a)   Set control and specification limits
b)   As a tool for inspecting product specifications
c)   Detect common causes of variation
d)   Identify special causes of variation

37   Which is the philosophy shared by Lean and Six Sigma?

a)   Favour the values of the customer over those of the organization
b)   Always set out to win, at the expense of all others
c)   Enhance customer value to help an organization achieve its goals
d)   Focus on producing higher volumes of stock and sell them cheap

38   What is the principle of 'Jidoka'?

a)   Production ceases if a problem is identified with the product
b)   Processing and production is smoothed and unevenness reduced
c)   Production is according to the rate of customer demand
d)   Prevention of failures to equipment is limited during production

39   Which is the basis of hypothesis testing?

a)   Identifying the degree of correlation between two continuous variables
b)   Investigating if a statement is true or false
c)   Assessing the potential of a process to produce products or services
d)   Visualizing the data so it can be communicated efficiently

40 What is 'Little's' formula for calculating Average Lead Time?

a)   Number of units required, divided by production capacity
b)   Production capacity, divided by the number of units required
c)   Number of units required, multiplied by production capacity
d)   Production capacity, multiplied by number of units required

41 What Lean Six Sigma term is used to describe over-production, defects, inventory and movement?

a)   Waste
b)   5S steps
c)   Time and motion
d)   Overburden

42 Which is a statement about a Kaizen event?

a)   Typically for major change projects
b)   Focus is on waste elimination
c)   Aim is to increase Cycle Time
d)   Adopts a top-down approach

43 Which is a step in the Global 8D problem solving process?

a)   Set the desired goals
b)   Develop interim containment actions
c)   Evaluate measurement system
d)   Implement control strategy

44   Which documentation describes how to accomplish a specific task within a Quality Management System (QMS)?

a)   Statement of requirement
b)   Standard operation procedure
c)   Time and motion study
d)   Records and forms

45   Which activity does NOT belong to the Plan step in the PDCA approach?

a)   Determine the problem
b)   Think up an improvement
c)   Implement an improvement
d)   Analyze the problem

46   Which is a Value Adding Activity?

a)   An activity required for the process that the customer doesn't want to pay for
b)   An activity to change the product that the customer is willing to pay for
c)   An action taken to correct a defect or error in the process
d)   An action in the process that prevents changes to a product or service

47   What is the Process Capability index (Cp) formula where USL is the Upper Specification Limit, LSL is the Lower Specification Limit and S is the standard deviation?

a)   Cp = (LSL - USL) / 3S
b)   Cp = (LSL - USL) / 6S
c)   Cp = (USL - LSL) / 3S
d)   Cp = (USL - LSL) / 6S

48   Which is NOT an example of Visual Management?

a)   Operating instructions
b)   Process flow mapping
c)   Visual inspection
d)   Publication boards with pictures

49   What role is a process improvement expert?

a)   Champion
b)   Project Manager
c)   Master Black Belt
d)   Orange Belt

50   What is a purpose of Volume leveling in Lean manufacturing?

a)   Plan the production so that it follows customer demand as closely as possible
b)   Level out the differences between Cycle Time of sub-processes
c)   Maximize the capacity of a production line
d)   Stabilize the production when customer demand is fluctuating