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About LeanQuiz

The author is an experienced lean practitioner who has worked in both the aerospace and automotive industries for the past 15 years. He has delivered training and facilitated continuous improvement across North America, Asia and Europe. His passion for learning and sharing along with his love of trivia spawned LeanQuiz.com.

Content is written and edited by experts and each question is accompanied by a detailed explanation.

Please feel free to email any questions, suggestions or technical problems to admin@leanquiz.com

Happy studying!

Questions

Business Results

1. After 3 months of running the CI Plan, the leadership team reviews the results to decide how they want to proceed next- what part of the PDCA process is the team demonstrating?

    A. Plan
    B. Do
    C. Check
    D. Act

2. OEE helps company understand how effectively an operation or piece of equipment is utilized. Which of the following is NOT considered in the OEE calculation?

    A. Scrap/Rework
    B. Lead Time
    C. Changeover Time
    D. Daily Standup Meeting Time

3. Inventory turns helps us to measure the rate at which a business can turn inventory around and sell it to the customer. Which of the following are impacts of increasing inventory turns?

    A. Reduced warehouse costs
    B. Reduced cost of cycle counting
    C. Less Quality risk
    D. All of the above

4. Which of the following is not an attribute of a SMART Goal?

    A. Specific
    B. Timely
    C. Measurable
    D. Repeatable

Consistent Lean Enterprise Culture

1. A company has realized that their departments are working in silos and that there isn't a common strategic direction. Different departments make decisions just to achieve their own goals without understanding the impact on the entire organization. A tool that should be a focus for this organization is:

    A. 5S
    B. CI Planning
    C. Hoshin Kanri
    D. Employee Recognition

2. The Acronym PQCDSM is associated with

    A. A core set of goals and measures
    B. A management process for coaching
    C. A set of lean tools and techniques
    D. Elements of the House of Quality

3. An employee on the production floor who delivers and picks up material at the pace of production is known as a:

    A. Fork Lift Driver
    B. Supervisor
    C. Operations Team Leader
    D. Water Spider

4. The first step in value stream mapping is always to:

    A. Map the process flow
    B. Create the product family matrix
    C. Determine customer demand
    D. Identify the customer and define value

5. Which of Demings 14 Points for management refers to leaders defining a shared vision of improvement with an aim to becoming competitive and providing jobs?

    A. Focus on Waste Elimination
    B. Constancy of Purpose
    C. Focus on People and Development
    D. #14

6. Leader Standard Work is critical to sustaining improvements and system in the organization. Which of the following is true about leader standard work?

> A. The checks at every level of the organization should be identical
> B. Leaders closer to the value adding operations typically spend more time using leader standard work
> C. Factory managers don't need to use leader standard work since they should focus on strategy
> D. All of the above

7. Which of the following statements are true regarding an A3?

> A. It is a problem solving tool that can be used by any employee in the company
> B. Its a coaching tool between a learner and a teacher
> C. It is a document A3 size that helps capture and share knowledge in a structured way
> D. All of the above

Continuous Process Improvement

1. The book that was widely credited with popularizing lean manufacturing across North America in the 1990s was called:

    A. The Toyota Way
    B. The Goal
    C. Learning to See
    D. The Machine That Changed the World

2. Batch Processing often creates the following:

    A. Longer Intervals
    B. Quality Issues
    C. Longer Leadtimes
    D. All of the above

3. Which of the following is not a core element of the Toyota Production System?

    A. Statistical Process Control
    B. Standardized Work
    C. Stability
    D. Pull Systems

4. A tool used to implement a pull system is a _____

    A. Jidoka
    B. Tablet
    C. FIFO Lane
    D. Kanban

5. Which of the following wastes is typically viewed as the worst form of waste?

    A. Overproduction
    B. Defects
    C. Waiting
    D. Inventory

6. The problem solving process most commonly associated with Six Sigma is:

    A. PDCA
    B. 8D
    C. FMEA
    D. DMAIC

7. Takt time refers to:

    A. The rate at which your factory needs to produce the product or service to meet the customer demand.
    B. The speed that the machine runs
    C. The time it takes to transport the product
    D. The overall processing time from raw material to the customer

8. The relationship between Work in Process (WIP), Throughput and Leadtime is captured in which theory?

    A. Hypothesis Testing
    B. Little's Law
    C. Deming Theory
    D. Taylor's Law of Inventory Management

Cultural Enablers

1. A unique aspect of employment at Toyota in Japan that helps make lean possible is:

      A. Free Healthcare
      B. Equal bonuses at all levels
      C. Lifetime employment guarantee
      D. None of the above

2. The concept of Management by Walking Around (MBWA) is most closely related to _____?

      A. Kaizen
      B. Pull Scheduling
      C. Gemba
      D. Recognition

3. The heart and soul of a lean organization according to Masaaki Imai (Gemba Kaizen)?

      A. Empowered Employees
      B. A Lean System
      C. Trained Leadership
      D. Problem Solving

4. Which of the following is not a feature of standards according to Masaaki Imai?

      A. Represents the best, easiest, safest way to do the job
      B. Provides a way to measure performance
      C. Provides a basis for training
      D. Provides a guideline for delivering disciplinary actions

5. Developing and engaging teams is an often difficult but important part of running a lean business. There are several different types of teams. Employees from different areas coming together to complete a task or solve a problem is often described as a:

A. Kaizen Team
B. Tiger Team
C. Quality Circle
D. Cross Functional Team

6. Idea management systems are an important part of engaging employees at all levels. Which of the following are NOT elements of a good suggestion system?

A. A suggestion box on the wall
B. A simple approval process
C. A plan for recognition of ideas
D. All ideas are encouraged even small ones

Answers

Business Results

1. Answer: **C** - Check

When a leadership team is looking at the results and changes the plan based on the trend, the team is demonstrating the Check phase of the PDCA process where we review results and adjust accordingly.

2. Answer: **B** - Leadtime

OEE = Quality x Availability x Performance

Scrap and Rework are components of Quality Changeover Time and Daily Standup meeting time are components of Availability

Overall Process Leadtime is not a measure taken into consideration when calculating OEE.

3. Answer: **D** - All of the above

Increasing inventory turns means we are reducing the average inventory value in our factory with relation to sales. The benefits of reducing the amount of inventory we carry includes reduced warehouse costs, reduced costs attributed to cycle counting and inventory management and lowered quality risks. It must be said however that a narrow focus on inventory can be dangerous to a business also - inventory may be neccesary to protect your customer from variation and reducing inventory too far can cause delivery and performance issues.

4. Answer: **D** - Repeatable

A SMART goal is one that is Specific, Measurable, Achievable, Realistic and Timely (or Timebound) Having a repeatable process is a good thing but its not a way you would define a well written target.

Consistent Lean Enterprise Culture

1. Answer: **C** - Hoshin Kanri

Hoshin Kanri helps to create a common direction for all departments within an organization. It ensures that everyone in the business is working toward an aligned vision.

2. Answer: **A** - A core set of goals and measures

PQCDSM is a core set of goals and measures that we are tracking on a daily basis.
Productivity
Quality
Cost
Deliver
Safety/Environment
Morale

3. Answer: **D** - Water Spider

An employee on the production floor who delivers and picks up material at the pace of production is known as a water spider.

4. Answer: **D** - Identify the customer and define value

A value stream must be from the customers perspective so we must understand "value as defined by the customer". Waste identification is impossible without first defining value.

5. Answer: **B** - Constancy of Purpose

Constancy of Purpose refers to leaders defining a shared vision of improvement with an aim to becoming competitive and providing jobs. This ensures that leaders make decisions that are focused on the long term strategies of the business and not just the short term financial targets.

6. Answer: **B** - Leaders closer to the value adding operations typically spend more time using leader standard work

Leaders closest to the value adding operations typically spend the most time using leader standard work because of the frequency at which they have to check on the process. As you go up the value stream hierarchy, the leaders are checking (less and less frequently at each tier) that the subordinates are executing their leader standard work.

7. Answer: **D** - All of the Above

An A3 is any document A3 size that helps capture and share knowledge in a structured way. Its commonly used as a problem solving tool. A3 should also be used as a coaching tool between a coach and a learner. Reference Managing to Learn by John Shook.

Continuous Process Improvement

1. Answer: **D** - The Machine That Changed the World

The book that was widely credited with popularizing lean manufacturing across North America in the 1990s was called The Machine That Changed the World by James Womack and Dan Jones.

2. Answer: **D** - All of the above

Batch processing often creates longer intervals (time to cycle through all the parts in the mix). Quality issues arise because we have more parts in inventory that may be at risk if a problem comes up. We also tend to do less problem solving with more inventory because we can just move on to the next part. Leadtimes are longer also because we have to complete entire batches before moving parts along.

3. Answer: **A** - Statistical Process Control

Statistical Process Control is not a core element of the Toyota Production System. Although SPC is important and widely used across the manufacturing industry, it predates the development of the Toyota Production System. It was developed in the 1920s by Walter Shewhart.

4. Answer: **D** - Kanban

A tool used to implement a pull system is a Kanban. Kanbans are visual signals that are used to trigger production or withdrawal within kanban loops. Kanbans control inventory levels and manage production flow.

5. Answer: **A** - Overproduction

Overproduction is typically viewed as the worst form of waste because it causes the other wastes.

6. Answer: **D** - DMAIC

DMAIC is the problem solving process most commonly associated with Six Sigma. It stands for Define, Measure, Analyze, Improve, Control.

7. Answer: **A** - The rate at which your factory needs to produce the product or service to meet the customer demand.

Takt time refers to the rate at which your factory needs to produce the product or service to meet the customer needs. Its the drumbeat of the factory. Its calculated by taking available time (considering shifts) and dividing by customer demand. The lean guidelines including takt time are detailed in Learning to See by Shook and Rother.

8. Answer: **B** - Little's Law

The relationship betwen work in process (WIP), throughput and leadtime is explained by Little's Law. Little's Law is based on research done in the service industry.

Cultural Enablers

1. Answer: **C** - Lifetime employment guarantee

A unique aspect of employment at Toyota in Japan that helps make lean possible is that employment is guaranteed for their entire life. This was a deal struck between the company and the union after World War II. This helps enable lean because employees feel secure which allows them to openly share ideas and engage with management.

2. Answer: **C** - Gemba

The concept of Management by Walking Around (MBWA) is most closely related to Gemba. The origin of the term MBWA comes from Hewlett Packard management practices from the 1970s.

3. Answer: **A** - Empowered Employees

According to Masaaki Imai (Gemba Kaizen), the soul of a lean company is empowered employees. A strong lean system, trained leadership and problem solving are also important but without empowered employees, a company can not fully realize the benefits of lean tools and techniques. The goal of a lean system is to develop all employees to see problems, understand how to solve them, and feel empowered to help make the change.

4. Answer: **D** - Provides a guideline for delivering disciplinary actions

According to Masaaki Imai in his book Gemba Kaizen Standards:
-Represent the best, easiest, and safest way to do a job
-Offer the best way to preserve the know-how and expertise
-Provide a way to measure performance
-Show the relationship between cause and effect
-Provide a basis for both maintenance and improvement
-Provide objectives and indicate training goals
-Provide a basis for training
-Create a basis for audit or diagnosis
-Provide a means for preventing recurrence of errors and minimizing variability

5. Answer: **D** - Cross Functional Team

Employees from different areas coming together to complete a task or solve a problem is often described as a cross functional team. Cross functional teams are useful when a task requires the engagement of multiple departments across the company - they help drive diverse ideas and better ownership when actions are deployed.

6. Answer: **A** - Suggestion box on the wall

A suggestion box on the wall is not viewed as a good method for idea management. Ownership of the action is often passed to management and this creates frustration between the employees and leaders when the action isn't completed in a timely manner. Suggestion systems should be highly visible, with a simple approval process and a recognition plan.