

Lean Management -

Simplilearn Lean Management Exam Paper 1

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1	Lean Tools	21
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Q1.Which of the following is true about Kaizen?

SELECT THE CORRECT ANSWER

- A. Kaizen requires substantial investment to bring in large scale improvements.
- B. Any improvement can be classified as Kaizen.
- C. Kaizen concentrates on small, gradual improvements over the long term.

EXPLANATION

Answer: (C) Kaizen is a daily process which concentrates on small, gradual improvements over the long term.

Q2.Some waste is necessary or required by law (personnel files, financial records, meetings, maintenance) which can not be eliminated from the system.

SELECT THE CORRECT ANSWER

- A. TRUE
- B. FALSE
- C. Not sufficient information

EXPLANATION

Answer: (A) Some activities which can be otherwise be considered waste under lean methodology can not be eliminated from the system as they are the required by the laws of the land.

Q3.Lean principles finds its roots in the approaches initially developed by

SELECT THE CORRECT ANSWER

- A. Toyota
- B. Xerox

C. Motorola

EXPLANATION

Answer: (A) Lean principles are derived mostly from the Toyota Production System(TPS) created by Taiichi Ohno & his autonomous study group at Toyota.

Q4.Which one of the following is NOT an element of lean thinking?

SELECT THE CORRECT ANSWER

- A. Specifying value from customer's point of view
- B. Striving for perfection
- C. Increasing the production capacity

EXPLANATION

Answer: (C) Increasing the production capacity is not an element of lean thinking.

Q5.A methodology to establish stability in a system where customer demand is erratic with Levelling and Sequencing is called

SELECT THE CORRECT ANSWER

- A. Just-In-Time
- B. Jidoka
- C. Heijunka

EXPLANATION

Answer: (C) Heijunka is one of the pillars in Toyota Production System (TPS) which focuses on establishing stability in a system where customer demand is erratic with Levelling and Sequencing. It requires extraordinary system flexibility.

Q6.A technique that results in a well-organized workplace complete with visual controls and order is

SELECT THE CORRECT ANSWER

- A. Jidoka
- B. 5S
- C. Kanban

EXPLANATION

Answer: (B) 5S is the name of a workplace organization method with visual controls and order

Q7.The five phases of 5S are

SELECT THE CORRECT ANSWER

- A. Sort-Stabilize-Shine-Standardize-Sustain
- B. Shine-Stabilize-Sort-Sustain-Standardize
- C. Sort- Shine-Stabilize-Standardize-Sustain

EXPLANATION

Answer: (A) The five phase of 5S are Sort-Stabilize-Shine-Standardize-Sustain.

Q8.Poka-yoke' is the Japanese term for
SELECT THE CORRECT ANSWER

- A. Continuous improvement
- B. Mistake proofing
- C. Fishbone diagram

EXPLANATION

Answer: (B) Poka Yoke is a Japanese term that means 'mistake-proofing'. A poka-yoke is any mechanism in a lean manufacturing process that helps an equipment operator avoid mistakes.

Q9.Overproduction is
SELECT THE CORRECT ANSWER

- A. Making more than is expected from the next process
- B. Making faster than is expected from the next process
- C. Both the above

EXPLANATION

Answer: (C) Producing faster or excess quantity than the internal or external customer needs is Overproduction. This is one of the seven types of wastes.

Q10.Which one of the 5S explains arranging needed items so that they are labelled and readily accessible when needed?
SELECT THE CORRECT ANSWER

- A. Sort
- B. Set-in-order
- C. Shine

EXPLANATION

Answer: (B) Seiton (Set-in-order) explains arranging needed items so that they are readily accessible and labelled so that anyone can find them or put them away.

Q11.The first pass yield (FPY) metrics is calculated as
SELECT THE CORRECT ANSWER

- A. $FPY = (\text{Defect-free output in first pass}) / (\text{Total output})$
- B. $FPY = (\text{Defect-free output}) / (\text{Total pass})$
- C. $FPY = (\text{Defect-free output in first pass}) / (\text{Total input})$

EXPLANATION

Answer: (C) $FPY = (\text{Defect-free output in first pass}) / (\text{Total input})$

Q12.The successful execution of Six Sigma program requires

SELECT THE CORRECT ANSWER

- A. Champion, MBB, BB, GB
- B. CEO, Sr. Mgmt, Coach, GB
- C. None of the above

EXPLANATION

Answer: (A) Successful execution and implementation of Six Sigma program requires Champion, Master Black Belt, Black Belt and Green Belt.

Q13.Which statement is true about Kanbans?

SELECT THE CORRECT ANSWER

- A. Each pull station can require only one resupply component.
- B. The kanban cards provide a direct control on the amount of work-in-process between production units.
- C. If the producer and user are not in visual contact, a particular kind of sound can be used as a signal.

EXPLANATION

Answer: (B) The kanban card is a message that signals that there is a depletion of product, parts, or inventory and will trigger the replenishment of that product, part, or inventory. Kanban cards therefore help create a demand-driven system providing direct control on the amount of work-in-process between production units.

Q14.Which one of the 5S technique calls for the removal of variation from the process via consistent training, tooling, and procedures is

SELECT THE CORRECT ANSWER

- A. Standardize
- B. Sustain
- C. Simplify

EXPLANATION

Answer: (A) Seiketsu (Standardize) focuses on the removal of variation from the process through consistent training, tooling, and procedures.

Q15.A production facility wants to determine the number of Kanbans necessary for one of the parts used to make its most popular model of Cars. This part's daily demand is 400; it has a production lead time of 1/2 day; its safety stock is 1/4 day, and the container size is 10. How many Kanbans are needed?

SELECT THE CORRECT ANSWER

- A. 50
- B. 10
- C. 30

EXPLANATION

Answer: (C) Number of kanbans equals the sum of demand during lead time and safety stock, divided by container size. Calculation = $\{400 \cdot (1/2 + 1/4)\} / 10 = 30$.

Q16. The focus of this tool is on identifying and eliminating the non value adding activities in each process step thus reducing the overall cycle time

SELECT THE CORRECT ANSWER

- A. Poka-Yoke
- B. Value stream mapping
- C. Kaizen

EXPLANATION

Answer: (B) Value Stream Mapping is the Lean tool which focuses on identifying and eliminating the non value adding activities in each process step thus reducing the overall cycle time.

Q17. Processing beyond the specifications as required by the customer falls under which waste type

SELECT THE CORRECT ANSWER

- A. Overproduction
- B. Over processing
- C. Defects

EXPLANATION

Answer: (B) Enhancements which are not valued by customers are considered Over processing type of waste. Over processing is the effort which adds NO value to a product or service.

Q18. What is the speed at which units must be manufactured to meet customer demand?

SELECT THE CORRECT ANSWER

- A. Cycle time
- B. Throughput time
- C. Takt Time

EXPLANATION

Answer: (C) The Takt time concept aims to match the pace of production with customer demand and the net available work time available.

Q19. Which methodology uses the common idiom 'a chain is no stronger than its weakest link' ?

SELECT THE CORRECT ANSWER

- A. Six Sigma
- B. Theory of constraints
- C. Factory physics

EXPLANATION

Answer: (B) Theory Of Constraints adopts the common idiom 'a chain is no stronger than its weakest link'. This means that processes, organizations, etc., are vulnerable because the weakest person or part can always damage or break them or at least adversely affect the outcome.

Q20.The 5 phases of DMAIC six sigma methodology are

SELECT THE CORRECT ANSWER

- A. Define-Measure-Analyze-Improve-Control
- B. Design-Measure-Apply-Improve-Control
- C. Define-Monitor-Analyze-Improve-Control

EXPLANATION

Answer: (A) The 5 phases of DMAIC six sigma methodology are Define-Measure-Analyze-Improve-Control.

Q21.Lean reduces cost, improves quality, and speeds delivery by

SELECT THE CORRECT ANSWER

- A. Increasing production rates
- B. Eliminating waste
- C. Introducing automation

EXPLANATION

Answer: (B) Lean reduces cost, improves quality, and speeds delivery by eliminating non-value-added activity in a process by identifying and eliminating waste.

Q22.When the market demands more from the system than it can deliver, it is called

SELECT THE CORRECT ANSWER

- A. Internal constraint
- B. External constraint
- C. Economical constraint

EXPLANATION

Answer: (A) An internal constraint is in evidence when the market demands more from the system than it can deliver. If this is the case, then the focus of the organization should be on discovering that constraint and taking necessary steps to potentially remove it.

Q23.An activity that moves the product closer to the form or location that the customer desires is

SELECT THE CORRECT ANSWER

- A. Non value adding activity
- B. Enabling activity
- C. Value adding activity

EXPLANATION

Answer: (C) Value adding activity moves the product closer to the form or location that the customer desires.

Q24.As per the theory of constraints every system must have

SELECT THE CORRECT ANSWER

- A. At least one constraint limiting its output
- B. Thousands of constraints limiting its throughput
- C. Exactly hundred constraints

EXPLANATION

Answer: (A) As per the theory of constraints every system must have at least one constraint limiting its output.

Q25.Which type of waste is it ' Patients waiting for bed assignments'?

SELECT THE CORRECT ANSWER

- A. Inventory
- B. Waiting
- C. Movement

EXPLANATION

Answer: (B) Long period of inactivity for people, machine, or material waiting for each other is considered as 'Waiting' type of waste.

Q26.Which one of the following is a non value added activity?

SELECT THE CORRECT ANSWER

- A. Assembling two parts together
- B. Packing parts for shipment
- C. Picking up a part, putting it down and picking it up again

EXPLANATION

Answer: (C) Picking up a part, putting it down and picking it up again does not add any value to the process.

Q27.One of the major barriers to inventory reduction is

SELECT THE CORRECT ANSWER

- A. Long set-up changeover times
- B. Material handlers
- C. Unskilled labour

EXPLANATION

Answer: (A) Long set-up changeover times is one of the major barriers to inventory reduction.

Q28.5S efforts often fail to be sustained because

SELECT THE CORRECT ANSWER

- A. Everyone is involved
- B. Managers don't allow or make time for 5S activities and organizations fail to adequately implement the sustain step
- C. 5S does not really add value

EXPLANATION

Answer: (B) The 5S efforts often fail to be sustained because managers don't all or make time for 5S activities because of other priorities. This is why organizations fail to adequately implement the sustain step.

Q29. Calculate the Takt time based on following information: Customer demand is 9,460 parts per month. The company works 5 days per week and on an average 22 days per month. There are two 8 hours shifts per day. There is 30 minutes lunch break and two 10 minutes breaks per shift. The Takt time is:

SELECT THE CORRECT ANSWER

- A. 2 minutes per part
- B. 1 minute per part
- C. 0.5 parts per minute

EXPLANATION

**Answer: (A) Total time available for production per day = $8 \times 2 \times 60 - (30 \times 2 + 10 \times 4) = 860$ minutes
Total work days in a month = 22 Total time available for production in a month = $22 \times 860 = 18920$ minutes
Total demand per month = 9,460 parts Takt time = $18920 / 9460 = 2 = 2$ minutes per part.**

Q30. Value added activity can be defined as

SELECT THE CORRECT ANSWER

- A. Something which enhances employee morale
- B. Something which customer is willing to pay for
- C. Something which enhances suppliers morale

EXPLANATION

Answer: (B) Value added activity can be defined as something which customer is willing to pay for.

Q31. In the implementation of kaizen, the principle asset is considered to be

SELECT THE CORRECT ANSWER

- A. Technology
- B. Financial investment
- C. People

EXPLANATION

Answer: (C) People are considered as principle asset in Kaizen implementation as Kaizen is a daily process of continuous improvement best implemented by the people on the shop floor.

Q32.Which of the following is NOT true regarding Kaizen?

SELECT THE CORRECT ANSWER

- A. Kaizen requires substantial investment to fund improvement efforts.
- B. Kaizen is different than cutting-edge innovation.
- C. Kaizen is a daily process of small gradual improvements.

EXPLANATION

Answer: (A) Kaizen focuses on small gradual improvement and not the cutting edge innovation which requires huge investments. It is more of a daily process for small improvements.

Q33.Focusing on how to sustain improvements in the long run occurs in which DMAIC phase?

SELECT THE CORRECT ANSWER

- A. Analyze
- B. Improve
- C. Control

EXPLANATION

Answer: (C) Control phase in DMAIC focuses on maintaining the improvements through well defined processes and control plan.

Q34.Lean philosophy is

SELECT THE CORRECT ANSWER

- A. To provide perfect value to the customer through a perfect value creation process that has zero waste
- B. To provide goods and services that meet customer requirements at minimum cost
- C. To generate more revenue through reduction in operational costs and optimum utilization of resources

EXPLANATION

Answer: (A) Lean philosophy is to provide perfect value to the customer through a perfect value creation process that has zero waste.

Q35.There are ____ key principles of Lean

SELECT THE CORRECT ANSWER

- A. 4
- B. 5
- C. 6

EXPLANATION

Answer: (B) There are 5 key principles of lean: Identify Value - Map Value Stream - Create Flow - Establish Pull - Seek Perfection.

Q36. In a typical software development environment testing and rework are conducted to gain confidence that customer requirements are met. As per lean philosophy testing and rework are considered as

SELECT THE CORRECT ANSWER

- A. Value adding activity
- B. Non value adding activity
- C. Value enabling activity

EXPLANATION

Answer: (B) Effort spent on reviewing, testing and fixing the identified defects is considered as non value added activity.

Q37. Which of the following techniques requires producers to accurately forecast demand and use integrated production management tools?

SELECT THE CORRECT ANSWER

- A. Kanban
- B. Six Sigma
- C. Just-in-time

EXPLANATION

Answer: (C) Just-in-time requires producers to accurately forecast demand and use integrated production management tools for better inventory control and to ensure smooth flow of production.

Q38. Fluctuating customer demands and need for customization results in

SELECT THE CORRECT ANSWER

- A. High variability in the production process
- B. Reduced variability in the production process
- C. Increased waste in the production process

EXPLANATION

Answer: (A) Fluctuating customer demands and need for customization results in high variability in the production process.

Q39. Any movement of materials, supplies or resources that does not add value to the internal or external customer needs, for example extra forklifts, multiple storage locations is classified as

SELECT THE CORRECT ANSWER

- A. Inventory type of waste
- B. Transportation type of waste
- C. Motion type of waste

EXPLANATION

Answer: (B) Any movement of materials, supplies or resources that does not add value to the internal or external customer needs is Transportation type of waste.

Q40. Which of the following is true for just-in-time (JIT) production systems?

SELECT THE CORRECT ANSWER

- A. Raw materials are received just in time to go into production
- B. Raw materials are stored in bulk near the production center for easy access
- C. The flow of parts is controlled by a push approach

EXPLANATION

Answer: (A) In JIT production system raw materials are received just in time to go into production.

Q41. Which of the following is TRUE about the Theory of Constraints?

SELECT THE CORRECT ANSWER

- A. Identify the strongest link
- B. Concentrate improvement efforts on strengthening the strongest link
- C. Improvement efforts must be focused on the constraint

EXPLANATION

Answer: (C) Theory of constraint uses a procedure to identify the constraint and take necessary actions to either remove the constraint or exploit the constraint as per the organization context and needs.

Q42. Manufacturing cycle time is best defined as the

SELECT THE CORRECT ANSWER

- A. Time from raw materials receipt to finished product exit
- B. Time taken by a part to move from one workstation to the next
- C. Time between the start of one unit and the start of the next unit

EXPLANATION

Answer: (A) Manufacturing cycle time is the time from raw materials receipt to finished product exit.

Q43. Deming's cycle of PDCA refers to

SELECT THE CORRECT ANSWER

- A. Plan, Do, Correlate, Act
- B. Plan, Do, Check, Act
- C. Plan, Detect, Check, Accuse

EXPLANATION

Answer: (B) PDCA (plan-do-check-act) is an iterative four-step management method used in business for the continuous improvement of processes and products. It is also known as the Deming cycle.

Q44.Management using metrics for performance evaluation of employees has resulted in employees reporting wrong data for productivity measures. This is an example of

SELECT THE CORRECT ANSWER

- A. Management control
- B. Wrong use of metrics
- C. Dissatisfied employees

EXPLANATION

Answer: (B) Management using metrics for performance evaluation of employees has resulted in employees reporting wrong data for productivity measures is 'Wrong use of metrics'.

Q45.Some of the organizations consider one more S in addition to 5S for workplace management. This 6th S is for

SELECT THE CORRECT ANSWER

- A. Safety
- B. Silence
- C. Self-discipline

EXPLANATION

Answer: (A) The 6th S as implemented by some organization refers to 'Safety' measures at the work place.

Q46.Takt time is determined by

SELECT THE CORRECT ANSWER

- A. Suppliers production rate
- B. Employee productivity
- C. Customers buying rate

EXPLANATION

Answer: (C) The Takt time concept aims to match the pace of production with customer demand and the net available work time available. It is determined by Customer's buying rate.

Q47.At which level in Lean Maturity Matrix 'People believe in Lean, follow and optimize'?

SELECT THE CORRECT ANSWER

- A. Level 1
- B. Level 3
- C. Level 4

EXPLANATION

Answer: (C) Level 4 in Lean Maturity Matrix signifies that people believe in Lean, follow and optimize.

Q48.Lean metric 'Days in Inventory' is calculated as

SELECT THE CORRECT ANSWER

- A. Average Inventory / Cost of Goods Sold per day
- B. Cost of Goods Sold / Average inventory per day
- C. Average inventory per day

EXPLANATION

Answer: (A) 'Days in Inventory' is calculated as Average Inventory / Cost of Goods Sold per day.

Q49.You see heaps of old files, catalogues, printed papers, etc lie cluttered on the desks of the clerks in a government office. You need to identify what is needed and what can be discarded. Which of the 5S would you apply?

SELECT THE CORRECT ANSWER

- A. Shine
- B. Sort
- C. Standardize

EXPLANATION

Answer: (B) Sort focuses on separating what is needed and what is unnecessary and can be discarded.

Q50.Which tool helps in establishing possible causes to an effect?

SELECT THE CORRECT ANSWER

- A. Ishikawa diagram
- B. Factor physics
- C. Value stream mapping

EXPLANATION

Answer: (A) Ishikawa diagram, also known as cause and effect diagram, helps in establishing possible causes to an effect.