Lean Management -
Full Length Lean Management Simulation Test 1.

Sr No	Topics	No of Question
1	Lean in Manufacturing	1
2	Lean - Types of Waste	3
3	Lean in Office	3
4	Lean Metrics	3
5	Lean - Introduction	2
6	Lean - Metrics	8
7	Lean - Tools	20
8	Lean Maturity Model	1
9	Lean in Service	4
10	Other Methodologies That Complement Lean	5
	Total	**50**

Q1.Which one of these item is not a type of standard set of waste
SELECT THE CORRECT ANSWER
A. Over production
B. Taxes
C. Transportation

EXPLANATION
Correct Answer B: Taxes are not one of the seven wastes. Taxes are regulatory obligation and could not be considered as waste

Q2.What item listed below could be used as preconditions for Kanban.
SELECT THE CORRECT ANSWER
A. 100% quality is mandatory.
B. 5S: workplace organization
C. Machines operate correctly when they are needed

EXPLANATION
Correct Answer B: Once we have workplace in order using 5S, it is easier to implement Kanban

Q3.What type of waste is Creating extra reports that no one needs

SELECT THE CORRECT ANSWER

A. Defect
B. Inventory
C. Over Production

EXPLANATION

Correct Answer C: Creating more than what is needed is over production type of waste

Q4.What are the key metrics tracked in OEE

SELECT THE CORRECT ANSWER

A. Loading, Availability, Performance & Quality
B. Security, performance
C. OEM metrics

EXPLANATION

Correct Answer A: The key metrics tracked in OEE are Loading, Availability, Performance, Quality

Q5.At which Lean maturity level you can expect Well Defined Process to Follow Lean Principles

SELECT THE CORRECT ANSWER

A. Level 01
B. Level 02
C. Level 03

EXPLANATION

Correct Answer b: Well defined process to follow Lean principles is usually in Lean maturity level 2. People can still start following this in earlier levels like 0, 1, or 2. But to fully qualify for level 3 and move ahead to level 4 this is a requirement.

Q6.How would one calculate "Days in Inventory" metrics

SELECT THE CORRECT ANSWER

A. Days in Inventory = Avg Inventory / (COGS / Days)
B. In how many days will the item gets expired?
C. Inventory / Days

EXPLANATION

Correct Answer A: Average Inventory is divided by an ratio of COGS per day

Q7.How is First Pass Yield (FPY) Calculated

SELECT THE CORRECT ANSWER

A. FPY = (Output in First Pass) / (Total Output)
B. FPY = (Defect-Free Output in First Pass) / (Total Input)
C. FPY = (Defect-Free Output) / (Total Pass)

EXPLANATION

Correct answer B. The First Pass Yield (FPY) is Calculated as FPY = (Defect-Free Output in First Pass) / (Total Input). Any defect fixed in subsequent pass is not counted here.

Q8.What is Lean philosophy?

SELECT THE CORRECT ANSWER

A. Provide perfect value to the customer through a perfect value creation process that has zero waste

B. Higher output by encouraging people to work hard and have targets

C. Reducing Cost and improving purchasing power for the individuals

EXPLANATION

Correct Answer A. Lean philosophy is to provide perfect value to the customer through a perfect value creation process that has zero waste. While cost reduction is not the main focus on Lean, this approach helps in cost reduction as well.

Q9.Just-In-Time Production methodology was introduced by?

SELECT THE CORRECT ANSWER

A. Ford

B. Toyota

C. Lean Association

EXPLANATION

Correct Answer A: Just-in-time manufacturing was a concept introduced by Ford

Q10.Define "wrong use of metrics" type of waste

SELECT THE CORRECT ANSWER

A. Wrong person using the Metrics leading to waste of time

B. Any Metrics that is incorrectly measured, incorrectly used, misinterpreted or mis-used

C. Metrics causing change in process

EXPLANATION

Correct Answer B. The definition of waste due to wrong use of Metrics is: Any Metrics that is incorrectly measured, incorrectly used, misinterpreted or mis-used is another type of waste called "wrong use of metrics"

Q11.What are the main seven types of waste?

SELECT THE CORRECT ANSWER

A. Money, Software, Entertainment, Waiting, Resources, Under-utilized machines, Excess machine capacity

B. Inventory, Storage, Misalignment, Over heating, Electricity, Chatting, Communication

C. Transportation, Inventory, Motion, Waiting, Over-production, Over-processing, Defects

EXPLANATION

Correct Answer C. The original main 7 types of waste are Transportation, Inventory, Motion, Waiting, Over-production, Over-processing, Defects. Over a period of time people have added some more types, but the original seven are not modified.

Q12.Japanese 5S methodology is created and used for

SELECT THE CORRECT ANSWER

A. Continuous Improvement
B. Prevent Defects
C. Creating a productive work environment

EXPLANATION

Correct Answer C. Japanese 5s methodology was created and used for organizing, cleaning, developing, and sustaining a productive work environment

Q13.Which of the 5S technique requires you to separate necessary and unnecessary items at the workplace

SELECT THE CORRECT ANSWER

A. Seiri (Sort)
B. Seiton (Stabalize)
C. Non-Value Add

EXPLANATION

Correct Answer A. Seiri (Sort), is the first step in making things cleaned up, sorted, and organized. It starts out by sorting the necessary and the unnecessary items and remove the unnecessary items from the workplace

Q14.While implementing 5S, red color tags are used to mark items for what reason

SELECT THE CORRECT ANSWER

A. Identify important items in a process during design
B. Differentiate between good and defective products from assembly line
C. Differentiate between necessary and Unnecessary items in the work place.

EXPLANATION

Correct Answer C. The 5S methodology starts by sorting the necessary and the unnecessary. All the items that are not used frequently and those that are unnessary are marked by red tags so that it can be visually identified and removed.

Q15.What is significance of the Seiso (Shine) phase of 5S methodology

SELECT THE CORRECT ANSWER

A. To ensure the product packaging is good for selling
B. Have clean workspace

C. Removing all the defects

EXPLANATION

Correct Answer B. The third stage of 5S is Seiso, called as Shine in English. In this stage, everything is kept clean and swept. Working in a clean environment enables workers to notice malfunctions in equipment such as leaks, vibrations, breakages, and misalignments.

Q16.What does Seiketsu (Standardize) of 5S methodology focuses on

SELECT THE CORRECT ANSWER

A. Use of process standardization
B. Adopting Industry Standards
C. Standardize best practices at work and ensure Sort, Stabalize and Shine is working as expected.

EXPLANATION

Correct Answer C. Once the first three S of the 5Ss have been implemented, the next pillar is to standardize the best practices in the work area. Seiketsu called as Standardize in English, is the method to maintain the first three pillars. It creates a consistent approach with which tasks and procedures are done.

Q17.What part of 5S promotes that all work stations for a particular job should be identical

SELECT THE CORRECT ANSWER

A. Seiketsu (Standardize)
B. Seiso (Shine)
C. Seiri (Sort)

EXPLANATION

Correct Answer A. Seiketsu (Standardize) is the right answer. All work stations for a particular job should be identical. All employees doing the same job should be able to work in any station with the same tools that are in the same location in every station.

Q18.What tool helps in visualize series of causes to an effect.

SELECT THE CORRECT ANSWER

A. Ishikawa Diagram
B. Six Sigma
C. Value Stream Mapping

EXPLANATION

Correct Answer A. There are normally a series of root causes stemming from one problem, and they can be visualized in cause and effect manner using Cause-and-Effect diagram. This was developed by Ishikawa and also called as Ishikawa diagram.

Q19.Which is the tool or technique used for rapid improvement for discrete process issues

SELECT THE CORRECT ANSWER

A. Kanban
B. Kaizen Blitz
C. Kaizen

EXPLANATION
Correct Answer B. The correct answer is Kaizen Blitz (or as it is also called, kaikaku in Japanese). It is a rapid improvement workshop designed to produce results/approaches to discrete process issues within a few days.

Q20.What is Takt Time
SELECT THE CORRECT ANSWER
A. Time taken to create a unit
B. Throughput time
C. Average customer demand time for an article

EXPLANATION
Correct Answer C. Lean production uses takt time as the rate at which a completed product needs to be finished in order to meet customer demand

Q21.What is the name of the process, tool or technique which help in automatic detection of process malfunction and product defect and prevents it from moving forward in the production process
SELECT THE CORRECT ANSWER
A. Kanban
B. Jidoka (Autonomation)
C. Poka Yoke

EXPLANATION
Correct Answer B. Jidoka is a Japanese term used for autonomation means "intelligent automation" or "humanized automation." In practice, it means that an automated process is sufficiently "aware" of itself so that it will detect when the desired quality is produced, detect process malfunctions, detect product defects, stop itself and alert the operator. A future goal of autonomation is selfcorrection.

Q22.Which of these tools / techniques represents "continuous improvement."?
SELECT THE CORRECT ANSWER
A. Kaizen
B. Six Sigma
C. Kanban

EXPLANATION

Correct Answer A. The word kaizen means "continuous improvement." It is a system of continuous improvement in quality, technology, processes, company culture, productivity, safety, and leadership. It comes from the Japanese words ("kai") which means "change" or "to correct" and ("zen") which means "good."

Q23.Plan Do Check Act (PDCA Cycle) was popularized by:

SELECT THE CORRECT ANSWER

A. Ishikawa
B. Kaizen
C. Deming

EXPLANATION

Correct Answer C. PDCA was made popular by Dr W. Edwards Deming, who is considered by many to be the father of modern quality control.

Q24.The "5 Whys" technique is used for what purpose?

SELECT THE CORRECT ANSWER

A. Continuous Improvement
B. Reduce Waste from a process
C. Find out root cause of a problem

EXPLANATION

Correct Answer C. Five (5) Whys, is a form of root cause analysis in which the user asks "why" to a problem and finds an answer five successive times. There are normally a series of root causes stemming from one problem

Q25.SMED stands for?

SELECT THE CORRECT ANSWER

A. Single-Minute Exchange of Die
B. Standard Material Engineering and Deployment
C. Social Media Enchanged Devices

EXPLANATION

Correct Answer A. SMED is the term used to represent the Single-Minute Exchange of Die or setup time that can be counted in a single digit of minutes. SMED is often used interchangeably with quick changeover.

Q26.For many people, changing a single tire can easily take 15 minutes. But, for a NASCAR pit crew, changing four tires takes less than 15 seconds. This represent good use of what tool?

SELECT THE CORRECT ANSWER

A. SMED (Single-Minute Exchange of Die)
B. Kanban

C. Six Sigma

EXPLANATION

Correct Answer A. The successful implementation of SMED and quick changeover is the key to a competitive advantage for any Process

Q27.What are five phases of 5S

SELECT THE CORRECT ANSWER

A. Shine, Shut-Up, Sustain, Sort, Standardize
B. Sustain, Sort, Standardize, Sushi, Shine
C. Sort, Set-in-Order, Shine, Standardize, Sustain

EXPLANATION

Correct Answer C. The five steps in 5S are Sort, Set-in-Order, Shine, Standardize & Sustain.

Q28.What does PDCA stands for

SELECT THE CORRECT ANSWER

A. Process Delegating Control Automation
B. Plan Do Check Act
C. Prepare, Deliver, Check and Act

EXPLANATION

Correct Answer B. PDCA stands for Plan Do Check Act is the correct.

Q29.Taiichi Ohno developed Kanban based on which model?

SELECT THE CORRECT ANSWER

A. Call Center
B. Supermarkets
C. Toyota Manufacturing

EXPLANATION

Correct Answer B. Taiichi Ohno was inspired by the American supermarket's working and applied to auto industry. The technique is called Kanban that means Signboard

Q30.single-piece flow, pull production" was achieved using which method

SELECT THE CORRECT ANSWER

A. Lean Manufacturing
B. Six Sigma
C. Re-Engineering

EXPLANATION

Correct Answer A. Lean manufacturing represents a fundamental paradigm shift from traditional batch and queue mass production to production systems based on product aligned single-piece flow, pull production.

Q31.In which year Boeing implemented Lean

SELECT THE CORRECT ANSWER

A. Year 1971
B. Year 2000
C. Year 1996

EXPLANATION

Correct Answer C. The Boeing Company began implementing Lean manufacturing throughout its Commercial Airplanes division in February 1996.

Q32.In healthcare service industry "excess amount of blood drawn" is what type of waste

SELECT THE CORRECT ANSWER

A. OverProduction
B. Defect
C. Inventory

EXPLANATION

Correct Answer A. Any access blood drawn than necessary is overproduction.

Q33.What type of waste is "nurse transporting patients to x-ray room"

SELECT THE CORRECT ANSWER

A. OverProduction
B. Motion
C. Under-utilization

EXPLANATION

Correct Answer C. When people are doing some work that could be done by lower skill people, it would fall into this type of waste. An example would be a nurse transporting patients to x-ray room; this could very well be done by ward-boy or assistants.

Q34.What type of waste is Patients waiting to be seen by the doctors

SELECT THE CORRECT ANSWER

A. Waiting
B. Over production
C. Under-utilization

EXPLANATION

Correct Answer A. Patients waiting for doctor to be seen is waiting type of waste. If the doctor is waiting for patients then it would be underutilization.

Q35.What type of waste is "insufficient quantity or overdose of medicine is given to the patient"

SELECT THE CORRECT ANSWER

A. Over Production
B. Defect
C. Under-utilization

EXPLANATION

Correct Answer B. The severity of this waste can be fatal if the work is not done right the first time. If an incorrect medicine, insufficient quantity or overdose of medicine is given to the patient, it will be an critical defect type of waste - which might lead to fatal injury/death or retreatment, etc.

Q36.What type of waste is "Purchasing and storing office supply, sales literature, etc."

SELECT THE CORRECT ANSWER

A. Over production
B. Inventory
C. Motion

EXPLANATION

Correct Answer B. Any access purchase and storage of office supply, sales literature, Reports, etc. would constitute inventory type of waste

Q37.What type of waste is "Excessive or unnecessary emails and document get forwarded multiple times"

SELECT THE CORRECT ANSWER

A. Over Production
B. Inventory
C. Extra Motion

EXPLANATION

Correct Answer C. The Waste type is "Extra Motion". If excessive or unnecessary emails and document get forwarded multiple times sometimes with large attachments due to multiple distribution groups, it constitutes waste of type motion

Q38.What is an appropriate Lean metric to capture effective utilization of manufacturing operation in a factory?

SELECT THE CORRECT ANSWER

A. Overall Equipment Effectiveness (OEE)
B. Efficiency
C. Six Sigma

EXPLANATION

Correct Answer A. Overall equipment effectiveness (OEE) is a hierarchy of metrics which evaluates and indicates how effectively a manufacturing operation is utilized.

Q39.How can one provide assessment of financial, behavioral, and core process performances on an on-going basis to track continuous improvement efforts of the company?

SELECT THE CORRECT ANSWER

A. Using Lean Metrics
B. Using Six Sigma
C. Regular Status Reports

EXPLANATION

Correct Answer A. Lean metrics are established to allow a company to measure, evaluate, and respond to their overall performance across all dimensions. Often, these metrics are a means to discover Lean performance indicators that tell the tale of continuous improvements and Lean implementation effectiveness.

Q40.What metrics capture availability, performance, and quality components of a manufacturing unit

SELECT THE CORRECT ANSWER

A. Quality of Service
B. Overall equipment effectiveness
C. Total effective equipment performance

EXPLANATION

Correct Answer B. Overall Equipment Effectiveness (OEE) breaks the performance of a manufacturing unit into three separate but measurable components: availability, performance, and quality.

Q41.OEE measures production effectiveness against

SELECT THE CORRECT ANSWER

A. Scheduled hours or working hours
B. Calendar hours
C. Wait time vs total time

EXPLANATION

Correct Answer A. Overall equipment effectiveness (OEE) quantifies how well a manufacturing unit performs relative to its designed capacity, during the periods when it is scheduled to run.

Q42.How is First Time Yield (FTY) Calculated

SELECT THE CORRECT ANSWER

A. FTY = (Total Output) / (Total Input)
B. FTY = (Defect-Free Output in First Pass) / (Total Input)
C. FTY = (Defect-Free Output) / (Total Pass)

EXPLANATION

Correct Answer A. "First Time Yield" (FTY) is simply the number of good units produced divided by the number of total units going into the process. First time yield considers only what went into a process step and what went out

Q43.What metrics is used to calculate the timeliness of production or deliveries from suppliers

SELECT THE CORRECT ANSWER

A. Delivery Excellence
B. Overall Equipment Efficiency
C. Schedule Adherence

EXPLANATION

Correct Answer C. Schedule adherence is a business metric used to calculate the timeliness of production or deliveries from suppliers. It is a commonly used supply chain metric and forms part of the quality, cost, delivery group of performance indicators.

Q44.What metrics is used to calculate the timeliness of production or deliveries from suppliers

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B. Overall Equipment Efficiency
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EXPLANATION

Correct Answer C. Schedule adherence is a business metric used to calculate the timeliness of production or deliveries from suppliers. It is a commonly used supply chain metric and forms part of the quality, cost, delivery group of performance indicators.

Q45.Which of the following formula can be used to calculate the Schedule adherence metrics?

SELECT THE CORRECT ANSWER

A. Schedule Adherence = (Total Plan - sum of deviations) / Total Plan
B. Schedule Adherence = Elapsed Time / Total Plan
C. Schedule Adherence = Time Utilized / Total Time

EXPLANATION

Correct Answer A. Full schedule adherence is arrived at when the planned quantity of the product has been produced for each part without any deviation. As deviation increases, the schedule adherence goes down

Q46.Who developed "The theory of constraints"

SELECT THE CORRECT ANSWER

A. Dr. W. Edwards Deming
B. Dr. Eliyahu M. Goldratt
C. Dr. Shigeo Shingo

EXPLANATION

Correct Answer B. The theory of constraints was developed and popularized by manufacturing guru Dr. Eliyahu M. Goldratt in 1984.

Q47.What are three major types of constraints?

SELECT THE CORRECT ANSWER

A. Equipment, People, Policy
B. Process, People, Environment
C. Money, Material and Manpower

EXPLANATION

Correct Answer A. There are three major types of constraints; they are equipment, people, and policy.

Q48.What is the manufacturing strategy for implementing speed throughout the manufacturing process including often neglected areas such as quote processing, engineering, product development, and order processing?

SELECT THE CORRECT ANSWER

A. Quick response manufacturing (QRM)
B. Just In Time Manufacturing (JIT)
C. Kanban

EXPLANATION

Correct Answer A. Quick response manufacturing (QRM) is the latest development in Lean Manufacturing. Typically companies would gain good efficiencies with just-in-time methodologies for manufacturing operations. To get overall effectiveness across all the functions, they need to take it to the next level and include all the support processes as well. This is termed as Quick Response Manufacturing

Q49.What methodology helps in arriving at a systematic description of the underlying behavior of manufacturing systems.

SELECT THE CORRECT ANSWER

A. Value Stream Mapping
B. Lean Manufacturing
C. Factory Physics

EXPLANATION

Correct Answer C. Factory physics is a systematic description of the underlying behavior of manufacturing systems.

Q50.What are the typical phases of Six Sigma based Improvement methodology

SELECT THE CORRECT ANSWER

A. DMAIC (Define, Measure, Analzye, Improve, Control)
B. PDCA (Plan, Do, Check, Act)
C. Sort, Stabalize, Shine, Standardize, Sustain, Support

EXPLANATION
Correct Answer A. Six Sigma typically have DMAIC cycle for improvements