

## Unit - 2

### Part - A

1. What is meant by lean management?

Lean management is an approach to managing an organization that supports the concept of continuous improvement, a long-term approach to work that systematically seeks to achieve small, incremental changes in processes in order to improve efficiency and quality.

2. State the importance of lean management.

The main purpose of Lean management is creating value to the customer by optimizing resources. Lean management principles aims to create a stable workflow based on actual customer's demand. Continuous improvement is a major part of Lean management, ensuring that every employee is involved in the process of improving.

3. State the benefits of lean management.

- Boost Team Morale
- Enhanced Efficiency
- Better Stakeholder Visibility
- Predictable Customer Value
- Decreased Costs
- Improved Priority Shift Management
- Increased Process Stability
- Adopt an Improvement Culture.

4. What are the main tools used in lean management?

Five of the Most Helpful Lean Tools are, **Kaizen, 5S, Kanban, Value Stream Mapping, and Focus PDCA** are among the most useful lean tools.

5. What Kaizen means?

Kaizen is a compound of two Japanese words that together translate as "good change" or "improvement." However, Kaizen has come to mean "**continuous improvement**" through its association with lean methodology and principles. Kaizen has its origins in post-World War II Japanese quality circles.

6. What are the principles of kanban manufacturing?

#### **The 4 principles of Kanban**

- Start with what you do now.
- Agree to pursue incremental, evolutionary change.
- Respect the current process, roles, responsibilities, and titles.
- Encourage acts of leadership at all levels in your organization.

7. What do you meant by kanban in lean management?

In the simplest terms, Kanban is a way to visually manage the work flow at an organization. Using kanban makes it easier to stay efficient and it helps to quickly identify (and solve) problems in the work flow. The basic idea of kanban is that the flow of work is represented on a large board with different columns.

8. What is focus PDCA?

FOCUS is an acronym for the words find, organise, clarify, understand, and select. PDCA is an acronym for plan, do, act, and check results

9. Advantages and disadvantages of lean management.

Advantage

- Eliminates Waste
- Worker Satisfaction
- Just in Time
- Competitive Advantage

Disadvantage

- New Inefficiencies
- Low Margin for Error
- Worker Frustration.

10. Define lean principle.

It is defined as a set of management practices to improve efficiency and effectiveness by eliminating waste. The core principle of lean is to reduce and eliminate non-value adding activities and waste.

11. What are the main principles of lean?

According to Womack and Jones, there are five key lean principles: value, value stream, flow, pull, and perfection.

12. What are the 3 types of lean?

The three types are **Muda (waste)**, **Mura (unevenness)**, and **Muri (overburden)**.

13. What are the 5 steps of Kanban implementation?

**There are five main steps to implementing a Kanban system:**

- Visualize your current workflow.
- Apply Work-in-Process (WIP) limits.
- Make policies explicit.
- Manage and measure flow.
- Optimize iteratively with data.

14. What are the 5 elements of kaizen?

**The Kaizen approach consists of 5 founding elements:**

- Teamwork
- personal discipline
- improved morale
- quality circles
- Suggestions for improvement.

15. What are Kaizen tools?

Kaizen tools are simply **the methods and techniques used to identify and eliminate waste in a process**. These tools are commonly used in the manufacturing industry to eliminate the 'Eight Wastes' namely, Defects, Waiting, Overproduction, Transportation, Non-utilized talent, Inventory, Extra-processing, and Motion.

16. What are the 4 main kaizen principles?

#### **The 4 Types of Kaizen**

- What you will learn:
- Kaizen Teian: Bottom-Up Improvement.
- Kaizen Events: Defined Improvements.
- Kaikaku: Radical Change.
- Kakushin: Break-through Innovation.
- Finding The Right Tool.

17. What are the 3 pillars of Kaizen?

#### **The 3 Pillars of Kaizen**

- Housekeeping. (Housekeeping is the first pillar of Kaizen).
- Elimination of Waste. (Eliminating waste is the second main pillar of Kaizen).
- Standardization. (Standardization is the process of developing standards to which production is performed).

18. Who is the founder of Kaizen?

The KAIZEN™ methodology has gradually developed over many decades. It was publicly and officially introduced to the world in the 1980s as a systematic methodology through the best-selling book “KAIZEN™” by **Masaaki Imai**, the founder of Kaizen Institute.

19. What are 5 phases of 5S?

5S is a cyclical methodology: **sort, set in order, shine, standardize, and sustain the cycle**. This results in continuous improvement.

20. Who is the father of 5S?

5S was popularized by **Taiichi Ohno**, Toyota engineer who is also known as the Father of 5S.

21. What are the seven elements of waste?

#### **The 7 Wastes of Lean Production**

- Overproduction. Overproduction is the most obvious form of manufacturing waste.
- Inventory. This is the waste that is associated with unprocessed inventory.
- Defects.
- Motion.
- Over-processing.

- Waiting.
- Transportation.
- Additional forms of waste.

22. What is the meaning of 7 wastes?

**A framework of seven types of activity that do not add value**; originally defined by Toyota: overproducing producing product before there's a valid order; unnecessary waiting lengthened cycle time, which reduces agility; unnecessary transportation unnecessary transportation of material between sites.

23. What is FMEA?

The overall goal of FMEA is to **provide insight into what actions need to be taken to eliminate or reduce failures, starting with the highest-priority ones**. Failure modes and effects analysis is also used for continuous improvement. For example, FMEA is used during design to prevent failures before systems are built.

24. What are FMEA tools?

Failure Modes and Effects Analysis (FMEA) is a systematic, proactive method for evaluating a process to identify where and how it might fail and to assess the relative impact of different failures, in order to identify the parts of the process that are most in need of change.

25. What are the 4 types of FMEA?

FMEA, or Failure Mode and Effects Analysis, is an organized, systematic approach for assessing potential system failures and the resulting consequences of those failures.

26. What is value stream mapping?

"Value stream mapping is a **Lean management method that allows you to visualize, analyze and improve all the steps in a product delivery process**".

27. What is lean control methods?

Lean control (or simply Lean) is a process used to control non-financial aspects (work processes, purposes, and people) of organizational performance - all with the purpose of improving quality and decreasing waste.

28. What are the tools of value stream mapping?

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|--------------|-----------|
| • Capstera   | • JiraVSM |
| • EDraw Max  | • LinearB |
| • Lucidchart | • Plutora |
| • Copado     |           |

29. What are the components of value stream mapping?

A value stream map is made up of a three distinct looking parts: **a process map, a corresponding timeline, and information flow**. The process map is comprised of the steps and the information associated with the steps of your process.

30. What are the steps of value stream mapping?

- Document the current process.
- Identify and list every step in the process.
- Identify customer value.
- Define what the perfect process looks like.
- Identify those parts of the current process that get in the way of perfection.
- Identify major initiatives to reduce or eliminate waste.
- Assign tasks and responsibilities.

### **Part - B**

1. Briefly explain the tools used in lean management.
2. Explain the any one of the case study for lean management.
3. Explain the how lean principles implemented in industries.
4. Explain the seven elements of waste management system.
5. Explain the tools used in seven elements of waste management system.
6. Explain the Kaizen tools used in industries briefly. And also explain pillars of Kaizen.
7. Explain the case study for 5S concept used in lean management.
8. Explain the 5 elements of kaizen briefly.
9. Explain the types of FMEA briefly with example.
10. List the types of tools used in FMEA and explain each briefly.
11. Explain the lean principles used in industry any one of the case study.
12. Explain lean control methods briefly.
13. Summarize any one of the case study for value stream mapping.
14. What are the steps of value stream mapping? Explain each step briefly.
15. Explain the modern techniques used in lean control methods.