



CHAPTER 1

Foundations of Six Sigma & Quality

This chapter usually gives **15 easy marks** if you know the definitions & logic.



1. Quality Gurus (VERY HIGH WEIGHT)

| Guru | Quality Means | Key Tool |
|----------|-----------------------------|---------------------------------------|
| Crosby | Conformance to requirements | Zero Defects, Cost of Non-conformance |
| Juran | Fitness for use | Quality Trilogy |
| Deming | What customer says | PDCA |
| Ishikawa | Customer is next process | Fishbone |
| Taguchi | Loss to society | Quality Loss Function |

Exam rule:

If you see:

- Requirements → Crosby
 - Fitness → Juran
 - PDCA → Deming
 - Cause-effect → Ishikawa
 - Loss → Taguchi
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2. Crosby's 4 Absolutes

1. Quality = conformance
2. Prevention > inspection
3. Zero defects
4. Measure = cost of non-conformance

Cost of non-conformance = rework, scrap, warranty, complaints

3. Juran Trilogy

Planning → Control → Improvement

Used to manage quality.

4. Six Sigma

Six Sigma = data-driven way to reduce defects

Target = **3.4 DPMO**

Higher sigma → less variation → more profit

5. DMAIC

Used for **existing process**

Define → Measure → Analyze → Improve → Control

6. Roles

| Role | Does |
|------------|---------|
| Executives | Sponsor |
| Black Belt | Lead |
| Green Belt | Run |
| Team | Support |

CHAPTER 2

Stakeholders, Customers & Financial Measures

This chapter gives **15 easy logic-based marks**.

1. Balanced Scorecard

Used to balance stakeholders

| Perspective | Focus |
|-------------|--------------|
| Financial | Profit |
| Customer | Satisfaction |
| Process | Efficiency |
| Learning | Skills |

2. $Y = f(X)$

Result depends on causes

Customer satisfaction depends on:
Quality, Service, Price, Defects

Six Sigma improves **X** to improve **Y**

3. Vital X

Few causes create most of the problem

Fix Vital X → Big improvement

4. VOC (Voice of Customer)

Steps:

1. Identify customers
 2. Collect data
 3. Find CTQs
-

5. Kano Model

| Type | Meaning |
|-------------|----------------|
| Basic | Must have |
| Performance | More → happier |
| Attractive | Delight |

6. Data Types

| Type | Example |
|------------|---------|
| Discrete | Defects |
| Continuous | Time |

7. Surveys & Focus Groups

Survey → many people
Focus group → deep ideas

8. Financial Decision Tools

| Tool | Rule |
|------------------|-------------------|
| IRR | Higher is better |
| Payback | Shorter is better |
| BCR | Must be > 1 |
| Sunk cost | Ignore |
| Opportunity cost | Consider |



CHAPTER 1 – 15 MCQs

(Quality & Six Sigma Basics)

Q1. According to Crosby, quality means:

- A. Customer satisfaction
- B. Fitness for use
- C. Conformance to requirements
- D. Zero defects

Q2. Which guru defined quality as “fitness for use”?

- A. Deming
- B. Juran
- C. Crosby
- D. Taguchi

Q3. The PDCA cycle was introduced by:

- A. Ishikawa
- B. Juran
- C. Deming
- D. Crosby

Q4. Which quality guru developed the Fishbone diagram?

- A. Juran
- B. Crosby
- C. Ishikawa
- D. Taguchi

Q5. The Six Sigma target is:

- A. 6 defects per million
- B. 3.4 defects per million
- C. Zero defects
- D. 66,807 defects per million

Q6. DMAIC is mainly used for:

- A. New product design
- B. Existing process improvement
- C. Marketing analysis
- D. Cost accounting

Q7. Who is responsible for sponsoring Six Sigma projects?

- A. Green Belts
- B. Black Belts
- C. Executives / Champions
- D. Team members

Q8. Which of the following measures quality in Crosby’s philosophy?

- A. Customer complaints

- B. Cost of non-conformance
- C. Profit
- D. Market share

Q9. The Juran Trilogy includes:

- A. Define, Measure, Analyze
- B. Plan, Do, Check
- C. Quality planning, control and improvement
- D. Cost, quality and delivery

Q10. Taguchi is associated with:

- A. Zero defects
- B. Quality loss to society
- C. PDCA
- D. Fitness for use

Q11. Which Six Sigma role leads improvement projects?

- A. Team member
- B. Executive
- C. Black Belt
- D. Customer

Q12. Which is NOT a Six Sigma objective?

- A. Reduce variation
- B. Improve customer satisfaction
- C. Increase inspection
- D. Reduce defects

Q13. What does Six Sigma mainly focus on?

- A. Inspection
- B. Prevention
- C. Marketing
- D. Advertising

Q14. Which level of sigma has the least defects?

- A. 3 Sigma
- B. 4 Sigma
- C. 5 Sigma
- D. 6 Sigma

Q15. Which phase of DMAIC focuses on sustaining the improvement?

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



CHAPTER 2 – 15 MCQs

(Stakeholders, Customers & Financial Measures)

Q1. The Balanced Scorecard helps to:

- A. Reduce costs only
- B. Increase profit only
- C. Balance all stakeholder needs
- D. Improve production only

Q2. Which Balanced Scorecard perspective focuses on customer satisfaction?

- A. Financial
- B. Customer
- C. Learning
- D. Internal process

Q3. $Y = f(X)$ means:

- A. Output depends on input
- B. Cost depends on profit
- C. Employees depend on managers
- D. Sales depend on price

Q4. Vital X refers to:

- A. All possible causes
- B. Few causes with major impact
- C. Random causes
- D. Minor problems

Q5. VOC stands for:

- A. Voice of Company
- B. Voice of Customer
- C. Value of Customer
- D. Variation of Cost

Q6. The Kano Model classifies customer needs into:

- A. Basic, performance and attractive
- B. Cost, quality and delivery
- C. Design, service and warranty
- D. Sales, profit and loss

Q7. Which Kano attribute delights customers?

- A. Basic
- B. Performance

- C. Attractive
- D. Mandatory

Q8. Discrete data is best described as:

- A. Time
- B. Weight
- C. Number of defects
- D. Temperature

Q9. Continuous data includes:

- A. Defect count
- B. Number of orders
- C. Cycle time
- D. Customer count

Q10. Surveys are mainly used to:

- A. Repair defects
- B. Collect customer opinions
- C. Improve machines
- D. Train employees

Q11. A focus group usually contains:

- A. 1–2 people
- B. 3–5 people
- C. 6–10 people
- D. 50 people

Q12. IRR is best when it is:

- A. Low
- B. Zero
- C. Negative
- D. High

Q13. A project with $BCR = 1.5$ means:

- A. Loss
- B. Break-even
- C. Profit
- D. No decision

Q14. Which cost should be ignored in decision making?

- A. Opportunity cost
- B. Sunk cost
- C. Variable cost
- D. Fixed cost

- Q15.** Payback period refers to:
- A. Total project cost
 - B. Time to recover investment
 - C. Profit earned
 - D. Interest rate
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ANSWER KEY

Chapter 1 Answers

- 1-C
 - 2-B
 - 3-C
 - 4-C
 - 5-B
 - 6-B
 - 7-C
 - 8-B
 - 9-C
 - 10-B
 - 11-C
 - 12-C
 - 13-B
 - 14-D
 - 15-D
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Chapter 2 Answers

- 1-C
- 2-B
- 3-A
- 4-B
- 5-B
- 6-A
- 7-C
- 8-C
- 9-C
- 10-B
- 11-C
- 12-D
- 13-C

14-B
15-B