

- Cause and effect diagram for tracing outputs back

## **2. Understand current performance**

- Understand and document the current process
- Those working in the process are the most capable of identifying and correcting problems

### **Pitfalls and criticisms of benchmarking :**

- Idea of copying others
- It is not a cure or a business philosophy
- Some process have to be benchmarked repeatedly
- It is not a substitute for innovation

## **2MARK QUESTIONS WITH ANSWERS**

### **1. Give the Analysis Techniques for Quality Costs?**

- Trend Analysis
- Pareto Analysis

### **2. Define Quality Costs?**

Quality Costs are defined as those costs associated with the non achievement of product or service quality as defined by the requirements established by the organization and its contracts with customers and society.

### **3. Give the primary categories of Quality cost?**

- Preventive cost category
- Appraisal cost category
- Internal failure cost category
- External failure cost category

### **4. Give the sub-elements of Preventive cost category?**

- Marketing/Customer/User
- Product/Service/Design development
- Purchasing
- Operations
- Quality Administration
- Other Prevention Costs

**5. Give the sub-elements of Appraisal cost category?**

- Purchasing appraisal cost
- Operations appraisal cost
- External appraisal cost
- Review of test and application data
- Miscellaneous quality evaluations

**6. Give the sub-elements of Internal failure cost category?**

- Product or Service Design costs (Internal)
- Purchasing failure costs
- Operations failure costs

**7. Give the sub-elements of External failure cost category?**

- Complaint investigations of customer or user service
- Returned goods
- Retrofit and recall costs
- Warranty claims
- Liability costs
- Penalties
- Customer or user goodwill
- Lost sales
- Other external failure costs

**8. Give the typical cost bases?**

- Labor
- Production
- Unit
- Sales

**9. How will you determine the optimum cost?**

- Make comparison with other organizations
- Optimize the individual categories
- Analyze the relationships among the cost categories

**10. Give the seven tools of quality?**

- Pareto Diagram

- Process Flow Diagram
- Cause-and-Effect Diagram
- Check Sheets
- Histogram
- Control Charts
- Scatter Diagrams

### 11.. Define Six Sigma Problem Solving Method?

#### Define

improvement opportunity with an emphasis on increasing customer satisfaction.

#### Measure

determine process capability (Cp/ Cpk) & dpmo (defects per million opportunities).

#### Analyze

identify the vital few process input variables that affect key product output variables (“Finding the knobs”).

#### Improve

Make changes to process settings, redesign processes, etc. to reduce the number of defects of key output variables.

#### Control

Implement process control plans, install real-time process monitoring tools, Standardize processes to maintain levels.

### 12. What are the new seven management tools?

- Affinity Diagram
- Interrelationship Digraph
- Tree Diagram
- .Matrix Diagram
- Prioritization Matrices
- Process Decision Program Chart
- Activity Network diagram

### 13. Define Benchmarking?

Benchmarking is a systematic method by which organizations can measure themselves against the best industry practices. The essence of benchmarking is the process of borrowing ideas and adapting them to gain competitive advantage. It is a tool for continuous improvement.

### 14. Enumerate the steps to benchmark?

- Decide what to benchmark
- Understand current performance
- Plan
- Study others
- Learn from the data
- Use the findings

**15. What are the types of benchmarking?**

- Internal
- Competitive
- Process

**16. Define FMEA?**

Failure Mode Effect Analysis is an analytical technique that combines the technology and experience of people in identifying foreseeable failure modes of a product or process and planning for its elimination.

**17. What are the stages of FMEA?**

1. Specifying possibilities
  - a. Functions
  - b. Possible failure modes
  - c. Root causes
  - d. Effects
  - e. Detection/Prevention
2. Quantifying risk
  - a. Probability of cause
  - b. Severity of effect
  - c. Effectiveness of control to prevent cause
  - d. Risk priority number
3. Correcting high risk causes
  - a. Prioritizing work
  - b. Detailed action
  - c. Assigning action responsibility
  - d. Check points on completion
4. Reevaluation of risk

**18. Give the usage of C&E diagrams?**

- Analyze actual conditions for the purpose of product or service quality improvement, more efficient use of resources, and reduced costs.
- Eliminate conditions causing nonconformities and customer complaints.
- Standardize existing and proposed operations.
- Educate and train personnel in decision-making and corrective-action

**19. Define Six Sigma?**

Six-Sigma is a business process that allows organizations to drastically improve their bottom line by designing and monitoring every day business activities in ways that minimize waste and resources while increasing customer satisfaction. It is achieved through continuous process measurement, analysis & improvement.

**20. What are the various histogram shapes?**

- Symmetrical
- Skewed right
- Skewed left
- Peaked
- Flat
- Bimodal
- Plateau distribution
- Comb distribution
- Double peaked distribution

**21. What are the various patterns of scatter diagrams?**

- Positive correlation
- Negative correlation
- No correlation
- Negative correlation may exist
- Correlation by stratification
- Curvilinear relationship

**22.. Give at least five standard formats of matrix diagram?**

- L-shaped

- T-shaped
- Y-shaped
- C-shaped
- X-shaped

**22. What are the benefits of an activity network diagram?**

- A realistic timetable determined by the users.
- Team members understand the role in the overall plan.
- Bottlenecks can be discovered and corrective action taken.
- Members focus on the critical tasks.

**23. What are the several types of FMEA?**

- Design FMEA
- Process FMEA
- Equipment FMEA
- Maintenance FMEA
- Concept FMEA
- Service FMEA
- System FMEA
- Environment FMEA etc

**PART B**

1. Explain the Bench marking Process and reasons to Benchmark? (16)
3. Explain the House of Quality in Quality Function Deployment? (16)
4. What is FMEA? Explain the stages of FMEA? (16) . . . .
5. Discuss the seven tools of quality?
6. Explain the Six Sigma Problem Solving Method?
7. What are the new seven management tools?
8. Explain the steps to benchmark?
9. Explain the types of benchmarking?