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**QUESTION BANK**

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**SUB CODE/NAME:** GE6757 -TOTAL QUALITY MANAGEMENT

**UNIT I - Introduction**

**Part-A**

**1. Define quality. (May 2010) (APRIL 2014) (May/June2014) (Apr/May 2015) [D]**

Quality = Performance x Expectations (i) Quality is defined as the predictable degree of uniformity and dependability, at low cost Suited to the market. (Deming). (ii) Quality is defined as fitness for use (Juan). (iii) Quality is defined as conformance to requirements (Crosby). (iv) Quality is totality of the characteristics of entity that bear on its ability to satisfy stated And implied needs (ISO).

**2. Define Total Quality? (DEC 2010) [D]**

TQM is an enhancement to the traditional way of doing business. It is the art of managing the whole to achieve excellence. It is defined both a philosophy and a set of guiding principles that represent the foundation of a continuously improving organization. It is the application of quantitative methods and human resources to improve all the processes within an organization and exceed customer needs now and in the future. It integrates fundamental management techniques, existing improvement efforts, and technical tools under a disciplined approach.

**3. Give the Basic Concepts of TQM? (DEC 2011) [D]**

A committed and involved management to provide long-term top-to bottom

- organizational support. An unwavering focuses on the customer, both internally and externally.
- Effective involvement and utilization of the entire work force.
- Continuous improvement of the business and production process.
- Treating suppliers as partners.
- Establish performance measures for the processes.

**4. List the dimensions of quality./What are the element of TQM? (MAY 2010) [D]  
(MAY/JUNE 2013)**

The dimensions of quality are

1. Performance
2. Futures
3. Conformance
4. Reliability
5. Durability
6. Service
7. Response
8. Aesthetics and 9. Repetition.

**5. What are the three components of the Juran Trilogy? (JUNE 2012) [D]**

The three components of the Juran Trilogy are

- i. Planning
- ii. Control
- iii. Improvement

**6. What are the six basic concepts that a successful TQM programme requires? OR  
Mention the basic features of TQM? (DEC 2012) (APRIL/MAY 2012/Nov-13) [D]**

The six basic concepts that a successful TQM programme requires

1. Top management commitment
2. Focus on the customer
3. Effective employee involvement
4. Continuous improvement
5. Treating suppliers as partners and
6. Establishing performance measures.

**7. Give the Objectives of TQM? (DEC 2011) [D]**

- a. To develop a conceptual understanding of the basic principles and methods associated with TQM
- b. To develop an understanding of how these principles and methods have been put into effect in a variety of organizations;
- c. To develop an understanding of the relationship between TQM principles and the theories and models studied in traditional management
- d. To do the right things, right the first time, every time.

**8. Tabulate the tangible and intangible benefits of TQM. (NOV/DEC 2011/MAY 2012) [ID]**

- Improved product quality
- Improved productivity
- Reduced quality costs
- Increased market

**9. What is meant by service quality (MAY/JUNE 2013) [D]**

Service quality is a comparison of expectations with performance. A business with high service quality will meet customer needs whilst remaining economically competitive. Improved service quality may increase economic competitiveness

**10. Why Quality is required in products and services today (MAY/JUNE 2014)[D]**

Management leadership and long term commitment

1. A management culture of partnership, learning together, guidance and support for employees
2. Clearly defined business objectives communicated by managers and supervisors, M understood and “owned” by all employees. “Ownership” can be viewed as the “acceptance of accountability”.
3. Encouraging and empowering all employees to adopt “ownership” behavior. Ownership of their outputs, ownership of customer’s problems, ownership of improvement actions.

**11. What is the concept of TQM (NOV/DEC 2013) (Apr/May 2015) [D]**

A comprehensive, organization-wide effort to improve the quality of products and services, applicable to all organizations.

**12. What are barriers to implement to TQM? (April/May 2015, May-2013 / Nov/Dec 2014) [ID]**

1. Lack of commitment from top management – avoiding training for self and employees, meetings
2. Lack of employee involvement – particularly at managerial level, supportive attitude, trust
3. Lack of team work – Co-operation and co-ordination within workers.
4. Lack of customer oriented approach – Know the customer need, demand, taste, shortcomings
5. Lack of attention to feedback and complaints –
6. Supplier control – in terms of materials, cost, quality, delivery etc
7. Review quality procedures – up gradation, correct past errors. Learn from experience

**13. What are the customer's perceptions on quality? (DEC 2011) [D]**

The six important customer's perceptions are: (i) Performance (ii) Features (iii) Service (iv) Warranty (v) Price and (vi) Reputation.

**14. What is meant by customer retention? (May 2010) [D]**

Customer retention is the process of retaining the existing customers.

**15. What are the different ways to create customer oriented culture in an industry? (NOV/DEC2016) [D]**

1. Start at the top
2. Hire people who fit
3. Get everyone involved
4. Trust your team
5. Establish good lines of communication

**16. What are the four absolutes of quality defined by Crosby? (April/May 2017, Nov/Dec 2012) [D]**

- o First absolute: quality is conformance to requirements, not goodness.
- o Second absolute: The system for causing quality is preventive, not appraisal.
- o Third absolute: The performance standard must be zero defects, not "that's close enough".
- o Fourth absolute: The measurement of quality is the price of non conformance, not indexes.

**17. Define Quality Policy Statement? (April/May 2017) [D]**

The Quality Policy is a guide for everyone in the organization as to how they should provide products and service to the customers. The common characteristics are •Quality is first among equals.

- Meet the needs of the internal and external customers.
- Equal or exceed the competition.
- Continually improve the quality.
- Include business and production practices.
- Utilize the entire work force.

**18. Write down the categories of quality cost? (Nov/Dec 2016) [D]**

- Prevention costs.
- Appraisal costs.
- Internal failure costs.
- External failure costs.

**19. Define Total Quality Management. (Dec. 11, Nov. 13, April/May 2015) [D]**

- 1.The art of managing the total organization to achieve excellence in all spheres of activity.(Besterfield).
- 2.The integration of all functions and processes within an organization in order to achieve the continuous improvement of the quality of goods and services. (Omachonu).TQM aims at reducing the input costs; increases profit and return on investment by improving the quality and productivity thereby usher the company or organization to stay in business.

**20. What are the benefits of TQM? (April-2014, Dec. 11, Dec. 14) [D]**

Improved quality, higher productivity, employee participation, teamwork, working relationships, customer satisfaction, employee satisfaction, communication, profitability, market share, and stock price performance.

1. Tangible Benefits-Improved product quality, Improved productivity
2. Intangible Benefits-Improved employee participation, improved teamwork

**21. Define quality planning? (NOV/DEC 2010, APRIL/MAY 2011) [D]**

A quality plan sets out the desired product qualities and how these are assessed and define the most significant quality attributes. It should define the quality assessment process. It should set out which organizational standards should be applied and, if necessary, define new standards.

**22. What do you mean by the term cost of quality? (APRIL/MAY 2010) [ID]**

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

**23. What are the advantages of implementing TQM in a manufacturing organization? (NOV/DEC 2014) [D]**

Tangible benefits	Intangible benefits
Improved product quality	Improved employee participation
Improved productivity	Improved team work
Reduced quality costs	Improved working relationship
Increased market and customers	Improved customer stratifications
Increased profitability	Improved communication

**24. What is quality habit? (May. 11) [D]**

A. Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction and skillful execution; it represents the wise choice of many alternatives.

**25. What is quality according to Juran? (Dec. 12) [D]**

A. Juran defines quality as fitness for use in terms of design, conformance, availability, safety & field use.

**26. What is customer satisfaction? (Apr.14) [D]**

Customer satisfaction is a marketing term that measures how products or services supplied by a company meet or surpass a customer's expectation.

**27. How can quality be quantified? [D]**

Quality is mostly subjective but it can be quantified in terms of perceived expectations of the customers and the actual performance delivered by the product.  $Q = P / E$ .

**28. What is TQM triangle? [D]**

The essence of the total quality management concept is a triangle, each corner being a key point; the focus on the customer, Continuous improvement, and teamwork.

**29. Mention the names of some major contributors to the quality movement.[ID]**

Edwards Deming, Joseph M. Juran, Philip Crosby, Feigenbaum, Ishikawa, Taguchi, Shingo, Walter Shewhar etc.

**30. What is the Need for Quality? [D]**

1. It gives a positive company image.
2. It improves competitive ability both nationally and internationally.
3. It increases market share which translates into improved profits.
4. Overall, it reduces costs, which also translates into improved profits
5. -it reduces or eliminates product liability problems, avoiding unnecessary costs.
6. It creates an atmosphere for high employee morale, which improves productivity

**31. Quality Guru's of TQM[ID]**

JURAN- Juran trilogy for managing quality

DEMING- 14 Points of management, Statistical quality control

ISHIKAWA- Quality circle concept, cause & effect diagram

FEIGENBAUM- Companywide Quality control, Management involvement

SHEWHART- Control charts, PDCA cycle.

TAGUCHI- Robust design, loss function concept

CROSBY- Zero defects, "Quality is free"

**32. PRINCIPLES OF TQM: [D]**

1. Customers requirements - (both internal & external) must be met first time & every time 2. Everybody must be involved 3. Regular two way communication must be promoted 4. Identify the training needs and supply it to the employees 5. Top management commitment is must 6. Every job must add value 7. Eliminate waste & reduce total cost 8. Promote creativity 9. Focus on team work.

**PART-B**

**1. Elaborate the fourteen steps involved in Crosby's total quality approach (April/May 2017) [D]**

[13]

- 1) Make it clear that management is committed to quality.
- 2) Form quality improvement teams with representatives from each department.
- 3) Determine where current and potential quality problems lie.
- 4) Evaluate the cost of quality and explain its use as a management tool.
- 5) Raise the quality awareness and personal concern of all employees.
- 6) Take actions to correct problems identified through previous steps.
- 7) Establish a committee for the zero-defects program.
- 8) Train supervisors to actively carry out their part of the quality improvement program.
- 9) Hold a "zero-defects day" to let all employees realize that there has been a change.
- 10) Encourage employees to communicate to management the obstacles they face in attaining their improvement goals.
- 11) Encourage individuals to establish improvement goals for themselves and their groups.
- 12) Recognize and appreciate those who participate.
- 13) Establish quality councils to communicate on a regular basis.
- 14) Do it all over again to emphasize that the quality improvement program never ends.

- 2. Explain the common customer feedback collection tools? (April/May 2017) [D]**
- 3. Write down the underlying principles of TQM? (Nov/Dec 2016) [8][D]**
- 4. Describe the various dimensions of quality? ( April /May 2017,Nov/Dec 2016) [8][ID]**
- 5. Describe the barriers to TQM implementation.(OR) What are the obstacles to TQM implementation?Explain.(NOV/DEC 2012,NOV-2013, NOV/DEC 2014) [13] [D]**
- 6. Elaborate the Deming's philosophy over the quality and productivity improvement?  
Or Describe the Deming's 14 points for the improvement of quality management?  
(NOV/DEC 2012, MAY-2013, NOV-2013,APRIL-2014, NOV/DEC 2014) [13] [ID]**
- 7. Explain in detail about Juran Trilogy? (MAY-2013, APRIL-2014) [13] [D]**
- 8. What are quality statement explain with example? (MAY-2013) [8][D]**
- 9. Explain the basic concepts of TQM. (APRIL/MAY 2010) (8) [D]**
- 10. Write down the seven step procedure of strategic planning cycle.(NOV/DEC 2010)[D]  
(8)**
- 11. Elaborate Juran's principles of quality improvement.(APRIL/MAY 2012)[D] (8)**
- 12. Discuss in detail the dimensions of Quality in the context of 'Service' (MAY/JUNE  
2013) (13)[ID]**
- 13. Explain "Various difficulties can be anticipated in the implementation of TQM  
programme Validate the statement. (MAY/JUNE 2013) (8) [ID]**
- 14. Explain the characteristics of TQM derived from its definitions. (MAY/JUNE  
2013)(8) [D]**
- 15. Elaborate Juran's principles of quality improvement.[D] (8)**
- 16. Discuss about the implementation steps of TQM and mention the importance of the  
Management commitment. (13) [D]**

## UNIT II -TQM PRINCIPLES

### PART-A

#### 1. What is a kaizen philosophy? ( April/May 2017, May-2013,NOV/DEC 2012) [ID]

Kaizen is a Japanese word for the philosophy that defines management's role in continuously encouraging and implementing small improvements involving everyone. It is the process of continuous improvement in small increments that make the process more efficient, effective, under control and adaptable.

#### 2. Why team and team work are required in TQM? ( April/May 2017) [D]

##### The Need for Team:

- Teams satisfy the human social need to belong
- It promotes better communication
- It multiplies the potential of individual members
- It produces positive peer pressure

##### The Need for Team work:

- Teamwork enables various parts of the organization to work together in meeting customer needs that can seldom be fulfilled by employees limited in one specialty.
- TQM recognizes interdependence of various parts of the organization and uses teams as a way to coordinate work.
- Teams provide the capacity for rapid response to changes in customer demands.

#### 3. Write the requirements of reliable supplier rating?( NOV/DEC 2016) [D]

Supplier General Quality Requirements document is defined as the basis of all quality agreements between all Fusion legal entities ("Buyer") and Fusion suppliers ("Seller" or "Supplier").

#### 4. How employee involvement can be improved in an organization?( NOV/DEC 2016)[D]

1. Create targets or expectations.
2. Track performance.
3. Analyze performance.
4. Correct performance.
5. Review performance

#### 5. What is meant by customer retention? (NOV/DEC 2014) [D]

- Customer retention** is the process of retaining the existing customers. It is obvious that customer retention is more powerful and effective than customer satisfaction.
- Customer care** can be defined as every activity which occurs within an organization that ensures that a customer is not only satisfied but also retained

#### 6. State the importance of customer retention? (NOV/DEC 2012, NOV/DEC 2010)[D]

Customer retention represents the activities that produce the necessary Customer satisfaction that creates customer loyalty, which actually improves the bottom line. It is the nexus between the customer satisfaction and the bottom line.

#### 7. What are the Maslow's basic needs? (DEC 2011) [ID]

Maslow's basic needs are:

1. Physiological
2. Safety
3. Society
4. Esteem and
5. Self-actualization needs.

## 8. Define empowerment. (Nov /Dec 2011) (May-2013) [D]

Empowerment is an environment in which people have the ability, the confidence, and the commitment to take the responsibility and ownership to improve the process and initiate the necessary steps to satisfy customers' requirements within well-defined boundaries in order to achieve organizational values and goals.

## 9. Define team and teamwork. (May 2010)[D]

A team can be defined as a group of people working together to achieve common objectives or goals. Teamwork is the cumulative actions of the team during which each member of the team subordinates his individual interests and opinions to fulfill the objectives or goals of the group.

## 10. What is needed for a leader to be effective? (MAY 2013)[ID]

To be effective, a leader needs to know and understand the following:  
People, paradoxically, need security and independence at the same time. People are sensitive to external rewards and punishments and yet are also strongly self-motivated. -People like to hear a kind word of praise. People can process only a few facts at a time; thus, a leader needs to keep things simple. -People trust their gut reaction more than statistical data. People distrust a leader's rhetoric if the words are inconsistent with the leader's actions.

## 11. What are the common barriers to team progress? (NOV/DEC 2010) [D]

- insufficient training
- incompatible rewards and compensation
- first-line supervisor resistance
- lack of planning
- lack of management support
- access to information systems
- lack of union support

## 12. Distinguish between internal and external customers? (APRIL/MAY 2011)[D]

### *Internal customers*

1. The customers inside the company are called internal customers.
2. As there is a flow of work, product and service in the organization, each department is dependent on the other. In this, each department or each quality management unit is considered as a customer by the previous department and as a supplier for the next department. Similarly every person in a process is considered as a customer of the preceding operation. This explains the concept of internal customer.

### **External customers**

- The customers outside the company are called external customers.
- In other words, an external customer is the one:
  - Who uses the product or service ;
- Who purchases the product or service; or
- Who influences the sale of the product or service.

## 13. What is customer feedback? (APRIL/MAY 2011)[D]

Customer feedback must be continually solicited and monitored. Customers continually change. They change their minds, their expectations, and their suppliers. Customer feedback is not a one-time effort; it is an ongoing and active probing of the customers' mind. Feedback enables the organization to: Discover customer dissatisfaction. Discover relative priorities of quality Compare performance with the competition. Identify customers' needs. Determine opportunities for improvement.



**14. List the benefits of team work. (APRIL/MAY 2010)[D]**

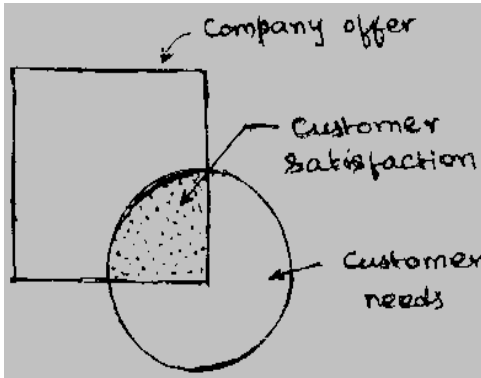
The benefits of teamwork include:

1. Improved solutions to quality problems.
  2. Improved ownership of solutions.
  3. Improved communications.
- Improved integration.

**15. What is customer satisfaction? (APRIL/MAY 2010 ,April-2014)[D]**

Meeting or exceeding customer expectations, so that the customers are delighted.

**Customer satisfaction model**



In figure shows the teboul's model of customer satisfaction. In figure, the customers' needs are represented by the circle, and the square represents the product or service offered by the company. The intersection portion, shown with dots, is perceived as the customer satisfaction. So it is understood that the company should strive for increasing the intersection portion i.e. Customer satisfaction.

**16. Define 5s? (Nov-2013, April-2014) [ID]**

5s philosophy focuses on effective work place organization and standardized work procedures. 5s simplifies your work environment, reduces waste and non-value activity while improving quality efficiency and safety. **Sort** – (seiri) the first s focuses on eliminating unnecessary items from the workplace. **Set in order** (seiton) is the second of the 5ss and focuses on efficient and effective storage methods. **Shine**: (seISO) once you have eliminated the clutter and junk that has been clogging your work areas and identified and located the necessary items, the next step is to thoroughly clean the work area. **Standardize**: (seiketsu) once the first three 5s's have been implemented, you should concentrate on standardizing best practice in your work area. **Sustain**: (shitsuke) this is by far the most difficult s to implement and achieve. Once fully implemented, the 5s process can increase morale, create positive impressions on customers, and increase efficiency and organization.

**17. What is supplier partnering? (NOV/DEC 2014)[D]**

**Partnering** is defined as a continuing relationship, between a buying firm and supplying firm, involving a commitment over an extended time period, an exchange of information, and acknowledgement of the risks and rewards of the relationship.

**18. List the key elements of supplier partnering?(May-2013) [D]**

Key elements to Partnering · Long term Commitment · Trust · Shared vision - To satisfy the end users is the common goal of both supplier an Customer.

**19. Give the basic steps to strategic quality planning? (DEC 2011)[D]**

- i. Customer needs
- ii. Customer positioning
- iii. Predict the future
- iv. Gap analysis
- v. Closing the gap
- vi. Alignment
- vii. Implementation

**20. Classify rewards.[D]**

**1. Intrinsic rewards:** These are related to feelings of accomplishment or selfworth.

**2. Extrinsic rewards:** These are related to pay or compensation issues.

**21. What is performance appraisal? (June 06)[D]**

Performance appraisal is a systematic and objective assessment or evaluation of performance and contribution of an individual.

**22. Define Recognition and Reward?[D]**

**Recognition** is a form of employee motivation in which the organization publicly acknowledges the positive contributions an individual or team has made to the success of the organization.

**Reward** is something tangible to promote desirable behavior. Recognition and reward go together to form a system for letting people know they are valuable Members of the organization.

**23. What are the types of appraisal formats?[D]**

The types of appraisal formats are

- i. Ranking
  - ii. Narrative
  - iii. Graphic
- Forced choice

**24. What are the three components of the Juran Trilogy? (May 2011)[D]**

The three components of the Juran Trilogy are

- i. Planning
- ii. Control
- iii. Improvement

**25. What are Quality Circles (QC)?[D]**

QC is a small team of people (around 8 to 10) coming from the same work area/department who voluntarily meet on a regular basis (about an hour every week) to identify, investigate, analyze and solve work-related problems. QC can be viewed from three angles: (i) as a form of participative management, (ii) as a HRD technique, and (iii) as a problem-solving technique.

**26. What is motivation?[D]**

Scott defines motivation is the process of stimulating people to accomplish desired goals.

**27. What are the stages of team development? [D]**

- Forming : Team purpose, roles, authority and process of functioning are learnt in this stage.
- Storming: initial agreements and role allocation are challenged and personal needs are resolved.
- Norming: formal and informal relationships are established.
- Performing: Team starts operating.
- Maintenance: performance is maintained.
- Evaluation: team performance is evaluated based on the set targets

**28. What is meant by ‘Cost of quality’?[D]**

Quality costs are defined as costs associated with non-achievement of product/service quality. In simple terms, quality cost is the cost of poor products/services. All costs associated with poor quality and its correction are integrated into one system to enhance the quality management function.

**29. What are the basic ways for a continuous process improvement?[ID]**

• reduce resources • reduce errors • meet or exceed expectations of downstream customers • make the process safer • make the process more satisfying to the person doing it.

**30. What are the types of teams? [D]**

- process improvement team
- cross-functional team
- natural work teams
- self-directed/self-managed work teams

**31. What are the four categories of quality costs? [D]**

1. Prevention costs, 2. Appraisal costs, 3. Internal failure costs and 4. External failure costs.

**32. What are the roles assigned to people in Quality Circles? [D]**

The QC organization has a four-tier structure consisting of Members, Leaders, Facilitators, and Steering Committee.

**PART-B**

1. Enumerate the duties of quality council? (April/ May 2017) [8][D]
2. Explain McGregor's theory X and theory Y? (April/ May 2017) [7] [ID]
3. What do you understand the term quality statements? Elaborate them with examples? (April/ May 2017) [13]
4. Explain PDCA/PDSA improvement cycle in detail?(April/May2016,NOV/DEC-2012,Nov-2013) [13][ID]
5. Brief on employee empowerment. (April/ May 2016,NOV/DEC 2012, NOV/DEC 2010) [7][D]
6. What is a team? And explain the functions and characteristics of a successful team.(Team leader)NOV/DEC 2012,Nov-2013 ,May-2013 [13][D]
7. Describe the importance of customer retention in an organization?(APRIL/MAY 2010) [13][D]
8. Explain all the elements of 5s principles in detail. APRIL/MAY 2010,NOV/DEC 2010 [13] [D]
9. Explain with a neat sketch the continuous improvement cycle.NOV/DEC-2010,Apl/May-11,May- 2013 [13] OR Understand the different approaches towards Continuous Process Improvement (NOV/DEC2011)[D]
10. Explain the steps in forming a performance appraisal system?April-2014 OR What are the suggestions to improve the appraisal system? (NOV/DEC 2011) [13][D]
11. Write a note on quality planning ?April-2014 [7][D]
12. Explain the various techniques of performance measures?Nov-2013 [8][D]
13. Maslow's theory of need hierarchy. (APRIL/MAY 2008)[7][ID]
14. Discuss about the supplier partnership procedures. (APRIL/MAY 2008)[D]
15. Distinguish between internal and external customers. (APRIL/MAY 2012)[D]
16. What is a team? Explain the functions and characteristics of a successful team.(Nov/Dec-12)[D]
17. What is meant by strategic planning? Narrate the seven steps procedure of strategic planning cycle. (MAY/JUNE 2013)

## UNIT III-TQM TOOLS AND TECHNIQUES I

### PART – A

#### 1. Mention the use of stratification chart in TQM? (April/May 2017) [D]

- Before collecting data.
- When data come from several sources or conditions, such as shifts, days of the week, suppliers or population groups.
- When data analysis may require separating different sources or conditions.

#### 2. State the primary objectives of six sigma? (April/May 2017) [D]

- To reduce the variation.
- To solving the problem in scientific manner.
- Six sigma places an emphasis on the DMAIC approach (define, measure, analyze, improve and control) to problem solving.
- To develop the bottom line responsibilities towards continuous improvement.
- Organization using six sigma often utilizes teams that are assigned well-defined projects with a direct impact on the bottom line.

#### 3. What are the different ways of benchmarking? (Nov/Dec 2016)[D]

- i. Internal ii. Competitive iii. Process

#### 4. How cause and effect diagram used in TQM? (Nov/Dec 2016) [ID]

A Cause-and-Effect Diagram is a tool that helps identify, sort, and display possible causes of a specific problem or quality characteristic. It graphically illustrates the relationship between a given outcome and all the factors that influence the outcome. This type of diagram is sometimes called an "Ishikawa diagram" because it was invented by Kaoru Ishikawa, or a "fishbone diagram"

#### 5. What is six sigma? (NOV/DEC 2010 ,May-2013,Nov-2013,April-2014)[D]

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.

#### 6. What is the purpose of pareto diagram?(APRIL/MAY 2011, May-2013)[ID]

Pareto principle states that a few of the defects accounts for most of the effects. pareto analysis can be used in a wide range of situations, where one need to priorities problems based on its relative importance

#### 7. How is benchmarking used in the industry?(APRIL/MAY 2011) [D]

1. Benchmarking aims at a goal setting process to facilitate comparISON with the best.
2. It aims at motivating and stimulating company employees towards the goal of continuous quality improvement.
3. It aims at external orientation of the company
4. It aims at identifying a technological breakthrough
5. It aims at searching for industry best practices.

#### 8. What is benchmarking? (APRIL/MAY2010,April-2014) [D]

American productivity and quality centre has defined the benchmarking as “the process of identifying, understanding, and adopting outstanding practices and process from organizations anywhere in the world to an organization to improve its performance. David kearns defines benchmarking as “the continuous process of measuring products, services and practices against the toughest competitors or those companies recognized as industry leaders.” Thore defines

benchmarking as “the systematic comparISON of elements of performance of an organization against those of other organizations, usually with the aim of mutual improvement.”

**9. What are the benefits of benchmarking? (NOV/DEC 2012) [D]**

- a. Creating a culture that values continuous improvement to achieve excellence.
- b. Sharing the best practices between benchmarking PARTners.
- c. Prioritizing the areas that need improvement.
- d. Enhancing creativity by devaluing the not invented here syndrome
- e. Increasing sensitivity to changes in the external environment.shifting the corporate mindset from relative complacency to a strong sense of urgency for ongoing improvement.
- f. focusing resources through performance target set with employee unit.

**10. Define FMEA?Nov-2013[D]**

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.

**11. What are the several types of FMEA? [D]**

- design FMEA
- process FMEA
- equipment FMEA
- maintenance FMEA
- concept FMEA
- service FMEA
- system FMEA
- environment FMEA etc.

**12 What are the types of check sheets commonly used?[ID]**

1. Process distribution check sheet.
2. Defective item check sheet.
3. Defect location check sheet, and
4. Defect factor check sheet.

**13. What is histogram? [D]**

histogram is a bar chart / diagram showing a distribution of variable quantities or characteristics. It is graphical display of the frequency distribution of numerical data.

**14. What are the various types of histogram? [D]**

1. Bell-shaped. 2. Double-peaked. 3. Plateau. 4. Comb. 5. Skewed. 6. Truncated. 7. ISOLated peak

**15. Enumerate the steps to benchmark? (NOV/DEC 2016) OR What are the types of benchmarking? (May 2012)[D]**

- a) Decide what to benchmark
- b) Understand current performance
- c) Plan
- d) Study others
- e) Learn from the data
- f) Use the findings
  - i. Internal
  - ii. Competitive
  - iii. Process

**16. What is the use of prioritization matrices? (NOV/DEC 2014)[D]**

Prioritization Matrice can help you decide what to do after key actions, criteria or Critical-To-Quality (CTQ) characteristics have been identified, but their relative importance (priority) is not known with certainty. Prioritization matrices are especially useful if problem-solving

resources, such as people, time or money, are limited, or if the identified problem-solving actions or CTQs are strongly interrelated.

**17. What is scatter diagram? (NOV/DEC 2014) [D]**

1. The **Scatter Diagram** is a simple graphical device to depict the relationship between two variables. It is the graphical component of regression analysis.
1. A scatter diagram is composed of a horizontal axis containing the measured values of one variable (independent i.e Cause) and a vertical axis, representing the measurements of the variable ( dependent, i.e.,effect)
2. This diagram displays the paired data as a cloud of points. The density and direction of the cloud indicate how the two variables influence each other.

**18. What is process capability? (May. 11)[D]**

Process capability analyses the relationship between two aspects of process like on design specification. If the specification limit is greater than control limits the process is capable of meeting specification and if it exceeds is not capable of meeting specifications.

**19. What are the measure benefits of six sigma? (Dec. 12)[D]**

In addition to a focus on defect, six sigma seeks to improve all aspects of operation. The key matrices include cycle time, process variation and yield.

**20. What is Risk Prioritization Number? (May. 12)[D]**

It is a number used to prioritize the risk of failure in Failure Mode and Effect Analysis. It ranges from 1 to 1000 and it's the multiplication of severity, detection and occurrence.

**21. What is the use of prioritization matrices? (Dec. 14) [D]**

prioritization matrix is a simple tool that provides a way to sort a diverse set of items into an order of importance. It also identifies their relative importance by deriving a numerical value for the priority of each item.

**22. What is quality loss? (Apr. 14) [D]**

Mathematical formula that estimates the loss of quality resulting from the deviation of a product characteristic from its target value. It is developed by Dr. Genichi Taguchi of Japan.

**23. What are the Objectives of benchmarking? [D]**

1. Benchmarking aims at a goal setting process to facilitate comparISON with the best.
2. It aims at motivating and stimulating company employees towards the goal of continuous quality improvement.

**24. Define statistics applications of statistical techniques? [D]**

Statistics is defined as the science that deals with the collection, tabulation, analysis, interpretation and presentation of quantitative data.

**25. When do you use control chart? [D]**

The purpose of control chart is to identify when the process has gone out of statistical control, thus signaling the need for some corrective action to be taken.

**26. When do you use the scatter diagram? [D]**

The purpose of the scatter diagram is to display what happens to one variable when another variable is changed.

**27. What are the purposes of pareto principle.[D]**

Pareto analysis can be used in a wide range of situations, where one need to priorities problems based on its relative importance.

**28. What is Pareto diagram? [D]**

pareto diagram is a diagnostic tool commonly used for separating the vital few causes that account for a dominant share of quality loss.

**29. What is cause and effect diagram? [D]**

The cause and effect diagram or fishbone diagram is a graphical-tabular chart to list and analyze the potential causes of a given problem.

**30. What is stratification? [D]**

Stratification is a method of analysis of data by grouping it in different ways.

**PART-B**

1. Why bench marking is required in an organization? Illustrate the different types of benchmarking process? Write down the general procedure for benchmarking process? (April/May 2017) [13][D]
2. List out the different situations where FMEA is to be carried out? Give detailed FMEA procedure? (April/May 2017) [13] [D]
3. Discuss the new seven management tools in detail with their typical application OR Explain the new seven tools of quality and its applications in detail. (APRIL/MAY 2008) (NOV/DEC2016,NOV/DEC2012,May-2013,Nov-2013,April-2014) [13][D]
4. Discuss about the various stages in failure mode and effect analysis? (NOV/DEC2016) [D]
5. Discuss six sigma quality and how is it achieved. (OR) Six sigma concepts can be applied to non manufacturing processes. Do you agree with this statement justify your answer with a suitable example. (NOV/DEC2016,APRIL/MAY 2011, APRIL/MAY 2010, May-2013, NOV/DEC 2014) [D]
6. Discuss the reasons for benchmarking and state the advantages and limitations (NOV/DEC 2012, Ma 2013,Nov-2013) [D]
7. Discuss different scatter diagram patterns. APRIL/MAY 2011 [D]
8. List the various stages, types and benefits of FMEA. (APRIL/MAY 2010 ,May-2013, April-2014) OR Prepare a FMEA work sheet for an induction motor's shaft failure or a failure of your choice (Apr/May 2015)[D]
9. What is a tree diagram? How it is useful for quality management? (NOV/DEC 2014) [D]
10. Discuss about the need, types, construction, and applications of control charts. (APRIL/MAY 2008)[D]
11. With a specific application compare the affinity diagram and relationship diagram in terms of getting highly creative solutions for managerial problems. (APRIL/MAY 2009)[D]

## UNIT IV-TQM TOOLS AND TECHNIQUES II

### PART – A

#### 1. Write the key concepts of six sigma? (April/ May 2017)[D]

**Critical to Quality:** Attributes most important to the customer **Defect:** Failing to deliver what the customer wants

**Process Capability:** What your process can deliver

**Variation:** What the customer sees and feels

**Stable Operations:** Ensuring consistent, predictable processes to improve what the customer sees and feels. **Design for**

**Six Sigma:** Designing to meet customer needs and process capability

• Six Sigma is named after a statistical concept where a process only produces 3.4 defects per million opportunities (DPMO).

Sigma	% Good	% Defects	DPMO
1	30,9%	69,1%	691.462
2	69,1%	30,9%	308.538
3	93,3%	6,7%	66.807
4	99,38%	0,62%	6.210
5	99,977%	0,023%	233
6	99,9997%	0,00034%	3,4

#### 2. List out the benefits of total productive maintenance? (April/ May 2017) [D]

- Total Productive Maintenance helps to take immediate attention to some smaller problems before the problem aggravates.
- Reduction in total manpower.
- Reduction in delays and downtime losses by reducing breakdowns and equipment failures and by reducing adjustment and set up times e.g., guide setting, tool and dies changing etc.
- Reduction in speed losses, by reduction of idle times and minor stoppages caused by operator-maintenance interfacing and by reducing losses because of lower speed and lower rate of output than designed.
- Reduction in losses by defectives and yield losses by improving the quality output and by quicker stabilization of production.
- TPM ensures better and more energy saving measures and also better safety of men and machine as all concerned persons know about the equipment and those devices.
- TPM ensures quicker availability of quality spares, materials and other services as the persons responsible for these are also more involved and connected with maintenance and up-keep of equipment.

#### 3. Write the specific use of np- chart? (Nov/ Dec 2016)[ID]

An np-chart is an attributes control chart used with data collected in subgroups that are the same size. Np-charts show how the process, measured by the number of nonconforming items it produces, changes over time. The process attribute (or characteristic) is always described in a yes/no, pass/fail, go/no go form.

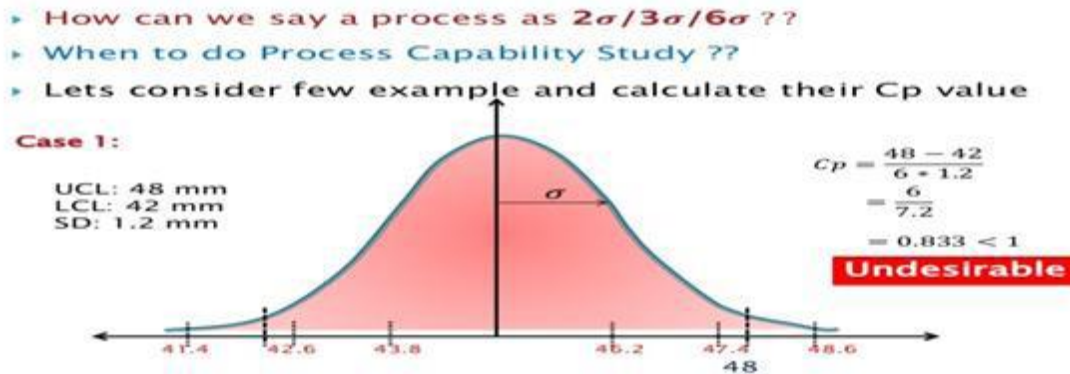


#### 4. Define process capability index? (Nov/ Dec 2016) [D]

Process capability index is the ratio of the tolerance to the capability. There are two measures:

- Cp: it measures the ability of the process to meet specifications.
- Cpk: it indicates the centering of the process on the target.

Process capability compares the output of an in-control process to the specification limits by using capability indices. The comparison is made by forming the ratio of the spread between the process specifications (the specification "width") to the spread of the process values, as measured by 6 process standard deviation units (the process "width").



#### 5. What is Taguchi quality loss function? NOV/DEC 2012 ,April-2014,May-2013[D]

This technique combines target, cost and specifications into one measurement.

#### 6. What are the basic structure of house of quality ? NOV/DEC 2012 [D]

1. Customer requirements
2. Prioritized customer requirements
3. Technical descriptors
4. Relationship matrix
5. Prioritized technical descriptors
6. Competitive assessments
7. Develop a relationship matrix between whats and hows

#### 7. What are the areas in which QFD is used? APRIL/MAY 2011 [D]

Quality function deployment is a planning tool used to fulfill customer expectations. It is a disciplined approach to product design, engineering, and production and provides in-depth Evaluation of a product.

#### 8. What is QFD?[D]

Quality function development may be defined as a system for translating consumer requirements into appropriate requirements at every stage, from research through product design and development, to manufacture, distribution, installation and marketing, sales and service.

#### 9. What are the goals and objective of TPM?Nov-2013,April-2014[D]

The overall goals of total productive maintenance, which is an extension of TQM are

- Maintaining and improving equipment capacity
- Maintaining equipment for life
- Using support from all areas of the operation Encouraging input from all employees
- Using teams for continuous improvement

**10. What are the phases of QFD process? [D]**

Product planning  
Product development  
Process planning  
Production planning

**11. List the categories of quality costs. [D]**

1. Cost of prevention
2. Cost of appraisal
3. Cost of internal failures, and
4. Cost of external failures

**12. What is a Quality circle what are its functions? OR State the significance of quality circles. (May-2013,Nov- 2013 , NOV/DEC 2014) [D]**

Quality circle is a main ingredient of Ishikawa's company-wide quality control.

Quality circles are the principal method for achieving participation composed of between 4 and 12 workers from the same area of activity. They aim to contribute and improve processes and activities, build up job satisfaction and company loyalty and utilize existing and hidden resource potential.

**13. What is quality circle? (June. 13, Nov. 13)[D]**

QC is a group activity practiced at regular intervals which focuses on quality practices.

**14. What is the structure of Quality Circle? [D]**

Executive committee, steering committee, facilitators, QC leader, Deputy leader, members 5-8%.

**15. What is the essential feature of Total Productive Maintenance (TPM)? (May. 12, Nov. 13) [ID]**

TPM is keeping plant and equipment at their highest productive level through cooperation of all areas of the enterprise. TPM brings maintenance into focus as a necessary and vital part of the business. It is not regarded as a non-profit activity. Down time for maintenance is scheduled as an integral part of the manufacturing process.

**16. What are the overall goals of TPM ? (Nov. 08)[D]**

The overall goals of TPM are: Maintaining and improving equipment capacity. Maintaining equipment for life. Using support from all areas of operation. Encouraging inputs from all employees. Using teams for continuous improvement.

**17. What is Taguchi's Loss function? (May. 12) [D]**

The essence of the loss function concept is that whenever a product deviates from its target performance it generates a loss to society. This loss is minimum when performance is right on target, but it grows gradually as one deviates from the target.

**18. Give Taguchi's definition of quality. [D]**

"loss imparted to society by a product during its life cycle", i.e. the costs incurred in the production process as well as the costs encountered during use by the customer.

**19. Indicate the different parameters used for quality performance measurement. (Apr/May 2015)[D]**

There are four types of performance measures

- Process measure
- Outcome measure
- Balancing measure
- Structure of care measure

**20. Give the typical cost bases?[D]**

- i. Labour
- ii. Production
- iii. Unit
- iv. Sales

**21. Give the sub-elements of Preventive cost category?[D]**

- i. Marketing/Customer/User
- ii. Product/Service/Design development
- iii. Purchasing
- iv. Operations/
- v. Quality Administration
- vi. Other Prevention Costs

**22. What is cost appraisal? (MAY 2012)[D]**

Appraisal costs are the cost that are incurred in assessing that the products/services conform to the requirements

**23. List the elements of cost of prevention.[D]**

The elements of cost of prevention are

- 1. Cost of quality planning
- 2. Cost of documenting
- 3. Process control cost
- 4. Cost of training
- 5. Costs associated with preventing recurring defects.

**24. Define TPM? (MAY 2011)[D]**

T : Total = All-encompassing by maintenance and production individuals working together

P : Productive = Production of goods and services that meet or exceed customer's expectations.

M : Maintenance = Keeping equipment and plant in as good as or better than the original condition at all times.

**25. What are the benefits of QFD[D]**

- i. Customer driven
- ii. Reduces implementation time
- iii. Promotes teamwork
- iv. Provides documentation

**26. What are the goals of TPM? (MAY 2010)[D]**

The overall goals of Total Productive Maintenance, which is an extension of TQM are

- i. Maintaining and improving equipment capacity
- ii. Maintaining equipment for life
- iii. Using support from all areas of the operation
- iv. Encouraging input from all employees
- v. Using teams for continuous improvement

**27. What are the major loss areas?[D]**

- i. Planned downtime
- ii. Unplanned downtime
- iii. Idling and minor stoppages
- iv. Slow-downs
- v. Process nonconformities
- vi. Scrap

## **28. Define quality cost.[D]**

Quality cost is defined as the cost associated with the non-achievement of product/service quality as defined by the requirements established by the organisation and its contracts with customers and society.

## **29. What is voice of customer?[D]**

It is the requirements of the customers in a product and the requirements are described by them in their own words.

### **PART-B**

1. Write down the objectives of implementing total productive maintenance? Discuss about the core elements of TPM program? Compare TQM and TPM? ( April / May 2017) [D]
2. List out the benefits of performance measures? ( April / May 2017) [7][D]
3. Briefly explain the DMAIC procedure? ( April / May 2017) [8][D]
4. Describe a basic structure of house of quality, a primary planning tool used in quality function deployment (QFD)? NOV/DEC 2016 [8][D]
5. Explain the differences between X-bar and R-charts? How can they be used together and why would it be important to use them together? [D]
6. Write short notes on QFD and quality circles. NOV/DEC 2012/May-2013 [8][D]
7. What are the goals and stages of TPM ? Explain the stages involved in developing TPM and explain the six losses in TPM. NOV/DEC 2012, May-2013, April-2014 [D]
8. Explain each section of the basic structure of 'House of quality'. (APRIL/MAY 2010, APRIL/MAY 2011) [D]
9. Explain the objectives and benefits of QFD, Discuss on four phases on QFD? APRIL/MAY 2010 , Nov-2013, May-2013 [D]
10. Explain the various types of cost contributing to the cost of quality? Nov-2013 [D]
11. Explain Taguchi loss function and the evaluation method of the loss developed by him? OR Discuss the need for Taguchi's quality loss function. (May-2013, NOV/DEC 2014)
12. List and explain the various measures of performance in evaluating the success of an organization. (NOV/DEC 2014) [D]
13. Pillars of TPM and its Benefits. (APRIL/MAY 2008) (Apr/May 2015) [8]  
With suitable example explain various stages of building a house of quality matrix. ( MAY/JUNE 2013)[D]
14. Write notes on :[D]
  - i. QFD
  - ii Quality circles
  - iii Typical performance measures of TQM. (NOV/DEC 2012)

## UNIT V-QUALITY SYSTEMS

### PART – A

- 1. What are the important requirements of QS9000? (April/May 2017) [D]**
  - QS 9000 quality statement requirements
  - Advanced product quality planning and control planning
  - Failure Mode Effect Analysis
  - Measurement System Analysis
  - Fundamental Statistical Process Control
  - Quality System Assessment
  
- 2. Mention the different types of quality audits? (April/May 2017)[D]**

Quality audit can also be classified on the basis of the area taken into account for the audit such as: System Audit, Process Audit, Product Audit, Adequacy Audit and Compliance Audit.
  
- 3. Name any two generic ISO standards? Why it is called generic standards? (Nov/ Dec 2016) 4. What are the core elements of QMS? (Nov/ Dec 2016) [D]**
  - Quality policy.
  - Quality objectives.
  - Quality manual.
  - Organizational structure and responsibilities.
  - Data management.
  - Processes – including purchasing.
  - Product quality leading to customer satisfaction.
  - Continuous improvement including corrective and preventive action.
  
- 4. List out the global benefits of adopting ISO 9000 quality system?NOV/DEC 2012,APRIL/MAY 2011 [D]**
  - fewer on-site audit by customers.
  - increased market share.
  - improved quality, both internally and externally.
  - improve product and service quality levels from suppliers.
  - greater awareness of quality by employees.
  - a documented formal systems.
  - reduced operating costs.
  
- 5. What are the ISO 9000 standards?APRIL/MAY 2010,April-2014 [D]**
  - ISO 9000, “quality management and quality assurance standards guidelines for Selection and use”.
  - ISO 9001, “quality systems – model for quality assurance in design, development, production, installation & servicing”.
  - ISO 9002, “quality systems – “model for quality assurance in production, installation & servicing”.
  - ISO 9003, “quality systems – “model for quality assurance in final inspection and Test”. ISO 9004-1, “quality management and quality system elements – guidelines”.
  
- 6. Give the objectives of the quality audit? APRIL/MAY 2010 A) [D]**

determine the actual performance conforms to the documented quality systems. B) initiate corrective action activities in response to deficiencies. C) follow up on

noncompliance items of previous audits. D) provide continued improvement in the system through feedback to management.

**7. List out the various product evaluation standards of ISO 14000?NOV/DEC 2010[D]**

Environmental aspects in product standards

- environmental labeling
- life-cycle assessment

**8. What is the aim of the environmental management system? (APRIL/MAY 2011, NOV/DEC 2014) [D]**

It do not address the performance of the product or service ,the committee used the concept that the standards addressed the process rather than the end goal, Cause the auditee to think about the process, thereby creating possible improvements.

**9. Explain briefly the Environmental Management System. (NOV/DEC 2014) [D]**  
**The Environmental management system c**

onsists of five stages:

1. Environmental policy
2. Planning
3. Implementation and operation
4. Checking and corrective action and
5. Management review

**10. Give some other quality systems? [D]**

Qs-9000  
Te-9000  
As9000

**11. What are the requirements of ISO 14000? [D]**

- General requirements
- Environmental policy
- Planning
- Implementation and operation
- Checking and corrective action
- Management review

**12. Give the types of organizational evaluation standards?[D]**

- Environmental management system
- Environmental auditing
- Environmental performance evaluation

**13. Define Quality audit s? What are its type? Nov-2013[D]**

*Quality audits* examine the elements of a quality management system in order to evaluate How well these elements comply with quality system requirements. Internal and External

**14. What are the methods of actual audit?[D]**

- i.Examination of documents
- ii . Observation of activities
- iii .Interviews

**15. What is the need for ISO 9000?[D]**

ISO 9000 is needed to unify the quality terms and definitions used by Industrialized nations and use terms to demonstrate a supplier"s capability of controlling its processes.

**16. Specify the objective of quality policy? May-2013 [D]**

In quality management **quality policy** is a document jointly developed by management and quality experts to express the quality objectives of the organization, the acceptable level of quality and the duties of specific departments to ensure quality. Quality policy management is a long term strategic issue and often has a 10 year scope.

**17. What are the uses of ISO standards? April-2014 [D]**

The ISO standards provide a framework for fundamental quality management. The standards were developed to effectively document the quality system elements to be implemented in order to maintain an efficient quality system within organizations. Most organizations have obtained registration from an accredited independent third party registering body that certifies the organization complies with the standards.

**18. List the documents required for Qs -9000? April-2014 [D]**

- QS 9000 quality statement requirements
- Advanced product quality planning and control planning
- Failure Mode Effect Analysis
- Measurement System Analysis
- Fundamental Statistical Process Control
- Quality System Assessment

**19. What are the benefits of ISO-9000 certification? Nov-2013 [D]**

A good foundation builds a good business, and ISO 9000 is a good foundation for small businesses that want to expand their market. By introducing a quality management system like ISO 9000 to a small business, the quality of processes will increase and costs due to inefficiency will decrease. In addition, a small business will be able to advertise their use of the internationally recognized ISO 9000. This may create business opportunities that were not available before an objectively verified quality management system was in place.

**20. What are the benefits of ISO-9000 certification? Nov-2013 [D]**

A good foundation builds a good business, and ISO 9000 is a good foundation for small businesses that want to expand their market. By introducing a quality management system like ISO 9000 to a small business, the quality of processes will increase and costs due to inefficiency will decrease. In addition, a small business will be able to advertise their use of the internationally recognized ISO 9000. This may create business opportunities that were not available before an objectively verified quality management system was in place.

**21. What are the objectives of ISO 9000 Standards (MAY/JUNE 2014), (NOV/DEC 2013)[D]**

- Achieve, maintain, and improve product quality
- Improve quality of operations to continually meet customers' and stakeholders' needs
- Provide confidence to management, employees, customers, and stakeholders that quality requirements are fulfilled

**22. What is QS 9000 standard? (NOV/DEC 2014) [D]**

QS 9000 is a set of quality system requirements recently adopted by members of the automotive industry.

QS9000 was proposed by Chrysler, Ford and General Motors in 1994. QS 9000 is harmonization of Chrysler's supplier quality Assurance Manual, Ford's.

QS 9000 focuses on helping automotive suppliers to ensure that they are meeting exceeding automotive customer requirements.

**23. What are the general requirements of quality management system? (Dec. 11) [D]**

The organization shall establish, document, implement and maintain a quality management system and continually improve its effectiveness in accordance with the requirements of this International Standard.

**24. Give any five elements of ISO 9000. [D]**

[1] Management responsibility, [2] Quality system, [3] Contract review, [4] Design control, [5] Document control, [6] Purchasing, [7] Purchaser supplied product, [8] Product identification and traceability, [9] Process control, [10] Inspection & testing

**25. What are the different types of documents found in ISO 9000? (Apr. 14) [D]**

1) Quality Policy Manual (*What? Why?*) 2) Quality System Procedures (*Who? When? Where?*) 3) Work Instructions (*How?*) 4) Records, formats, forms (*Evidence*)

**26. Define quality system audit. (May. 10) [D]**

Quality system audits is a systematic, independent examination to determine whether quality activities and results comply with planned arrangements, whether these arrangements are implemented effectively, and whether these are suitable to achieve objectives.

**27. What are the different types of audit? [D]**

First party audit (internal), Second party audit (by customer), and Third party audit (by independent agency). *Another classification:* System audit, Process audit, Product audit, Adequacy audit, and Compliance audit.

**28. What are the different stages in conducting quality audit? [D]**

1. Audit planning – schedules, personnel, notifications, checklist. 2. Performance – opening meetings, audit process, noting of non-conformities. 3. Reporting – Observations, suggestions for corrective action 4. Follow-up – implementation of corrective action.

**29. What are the quality function needs served by the computer?[D]**

[1] data collection, [2] data analysis and reporting, [3] statistical analysis, [4] process control, [5] test and inspection, and [6] system design.

**30. What is the need for ISO 9000? (MAY 2010)[D]**

ISO 9000 is needed to unify the quality terms and definitions used by industrialized nations and use terms to demonstrate a supplier's capability of controlling its processes.

**31. Give the objectives of the internal audit? (May 2011)[D]**

The objectives of the internal audit

- a) Determine the actual performance conforms to the documented quality systems.
- b) Initiate corrective action activities in response to deficiencies.
- c) Follow up on noncompliance items of previous audits.
- d) Provide continued improvement in the system through feedback to management.
- e) Cause the auditee to think about the process, thereby creating possible improvements.

**32. What are the benefits of ISO 14000? (May 2012)[D]**

The benefits of ISO 14000 are a. Global

- i. Facilitate trade and remove trade barriers
- ii. Improve environmental performance of planet earth
- iii. Build consensus that there is a need for environment management and a common terminology for EMS.

**33. What are the seven elements for the implementation & operations of ISO 14001?[D]**

- a) Structure and responsibility
- b) Training, awareness and competency
- c) Communication
- d) EMS documentation
- e) Documentation control
- f) Operational control
- g) Emergency preparedness and response



## PART-B

1. Enumerate the various aspects of ISO 14000 environmental management system? Brief the various principles of ISO 14000 series? (April/ May 2017) [D]
2. Illustrate the detailed procedure for quality auditing? Brief the attributes of a good auditor? (April/ May 2017) [D]
3. Explain about the various processes used in ISO 9001 quality management system?(Nov/ Dec 2016) [D]
4. With the help flow chart explain the various divisions of ISO 14000 standard? (Nov/ Dec 2016) [D]
5. Discuss the elements of ISO 9000:2000 quality system.(NOV/DEC 2012,APRIL/MAY 2010,Nov-2013,April-2014) [D]
6. Explain the steps involved in the implementation of Quality System? APRIL/MAY 2010? [D]
7. Explain in detail the elements of ISO 14000.What are the benefits of ISO 14000?NOV/DEC 2010,Nov-2013 [D]
8. Explain the major elements of Environmental Management System?April-2014 [D]
9. Specify the difference between ISO9000 and Qs9000? May-2013 [D]
10. Explain about the auditing process and role of external agencies (APRIL/MAY 2008)[D]
11. Remember the different types of quality audits available in practice and explain when each has to be carried out? OR Remember and explain the elements of ISO 9000 quality system. (MAY/JUNE 2013) (APRIL/MAY 2009)[D]
12. Explain the major clauses of QS 9000 standards. (Apr/May 2016)[D]
13. Discuss the benefits of ISO 9000 certification. (MAY/JUNE 2013)[D]