

DHANALAKSHMI COLLEGE OF ENGINEERING

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS
ENGINEERING**

MG 1403 - TOTAL QUALITY MANAGEMENT

TWO MARK QUESTION AND ANSWERS

PREPARED BY

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UNIT-I INTRODUCTION

1. Define quality. (Au Nov 05)

- (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(Juran).
- (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. List the dimensions of quality.

The dimensions of quality are

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

3. What do you mean by quality planning? (Au May 04)

The quality planning is strategy planning process in which quality is embedded in each and every step.

4. Where we use the quality planning road map?

Quality planning can be applied for the following levels

1. Supervisory and worker level
2. Multi levels
3. functional levels
4. Major programming.

5. Define quality cost. (Au May 05)

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.

6. List the categories of quality costs.

The categories of quality cost are

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

7.What is meant by cost of prevention?

Prevention costs are the costs that are incurred on preventing a quality problem from arising.

8.List the elements of cost of prevention.

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.

9.What is cost appraisal?

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

10. What are the cost of appraisal?

The cost of appraisal are

1. Cost of receiving test and equipment
2. Cost of Laboratory acceptance testing
3. Cost of installation testing
4. Cost of installation and commissioning
5. Cost of maintenance and calibration of testing and inspecting equipments.

11. What is meant by cost of internal failures?

The costs associated with defective products, components and materials that fail to meet quality requirements and result in manufacturing losses are called as costs of internal failures. These costs are linked to correcting mistakes before delivery of the product

12. List the components cost of internal failures.

The cost of internal failures are

1. Cost associate with scrap and rejects.
2. Cost of repair and rework.
3. Cost of design changes.
4. Cost of trouble shooting
5. Cost of reinspection and retesting., etc;

13. What is meant by cost of external failures?

It consist of the cost which are generated because of defective products being shipped to customers. These cost are associated with the adjustments of malfunctions after delivery of the product.

4. What are the elements of external failure?

The elements of external failures are

1. Cost of processing complaints from customers.
2. Cost of commissioning failure.
3. Cost of servicing are replacing the defective items.
4. Cost of guarantee and warranty claims
5. Cost of lost goodwill of customers.

15. What are the techniques commonly used for analyzing the quality cost?

The techniques used for analyzing the quality cost are

1. Trend analysis and
2. Pareto analysis

16. Define TQM

Total Quality Management is the management approach of an organization, centered on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction and benefits to all members of the organization and to society.

17. what are the six basic concepts that a successful TQM programme requires?

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.

18. What are the elements of TQM?

The three elements of TQM are:

- 1. The philosophical element:** It includes leadership continuous improvement, employee participation and development, design quality and prevention, partnership development, etc.
- 2. The generic tools:** This includes SPC tools, QFD, new seven Management tools, and FMEA
- 3. QC department:** It consists of SQC methods, benchmarking, Taguchi methods, and TPM.

19. What are the pillars of TQM? (Au May 05)

The four pillars of TQM are:

1. Problem solving discipline
2. Interpersonal skills
3. Teamwork and
4. Quality improvement process.

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20. List out any four barriers to TQM implementation.

The four barriers to TQM implementation are

1. Lack of management commitment.
2. Lack of employees commitment.
3. Lack of effective communication.
4. Lack of continuous training and education.

21. Tabulate the tangible and intangible benefits of TQM.

| Tangible Benefits | Intangible Benefits |
|----------------------------------|-------------------------------------|
| ✓ Improved product quality | ✓ Improved employee participation |
| ✓ Improved productivity | ✓ Improved teamwork |
| ✓ Reduced quality costs | ✓ Improved working relationships |
| ✓ Increased market and customers | ✓ Improved customer satisfaction |
| ✓ Increased profitability | ✓ Improved communication |
| ✓ Reduced employee grievances | ✓ Enhancement of job interest |
| | ✓ Enhanced problem-solving capacity |
| | ✓ Better company image. |

22. What do you mean by the term leadership?

Leadership is the process of influencing the activities of an individual or a group towards the achievement of a goal in a given situation.

23. List out the different leadership roles required for effective teamwork.

The eight leadership roles are:

1. Producer role
2. Director role
3. Coordinator role
4. Checker role
5. Stimulator role
6. Mentor role
7. Innovator roles and
8. Negotiator role.

24. What is a quality council? Who are all the members in the quality council?

A quality council is a team to provide overall direction for achieving the total quality culture.

The members of quality council are

- (i) The chief executive officer (CEO)
- (ii) The senior managers of the different functional areas and
- (iii) A coordinator or consultant.

25. What is vision statement?

The vision statement is a short declaration of what an organization aspires to be tomorrow.

26.What is mission statement?

It is bound organizational goal, based on planning premises, which justifies an organization existence.

27.What is quality policy statement? (Au Nov 05)

The quality policy is a guide for everyone in the organization as to how they should provide products and service to the customers.

28..What is strategic planning?

Strategic planning sets the long-term direction of the organization in which it wants to proceed in future.

29..What are the steps involved in strategic planning process?

The strategic planning process involves seven basic steps. They are:

- 1.Customer needs
- 2.Customer positioning
- 3.Predict the future
- 4.Gap analysis
- 5.Closing the gap
- 6.Alignment and
- 7.Implementation

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UNIT-II TQM PRINCIPLES

1. Who are internal and external customers?

The customers inside the company are called internal customers, whereas the customers outside the company are called external customers.

2. What are the customer's perceptions on quality?

The six important customer's perceptions are:

- (i) Performance
- (ii) Features
- (iii) Service
- (iv) Warranty
- (v) Price and
- (vi) Reputation.

3. List the various tools used for collecting customer complaints.

The various tools used are:

1. Comment card.
2. Customer questionnaire
3. Focus groups
4. Toll-free telephone numbers
5. Report cards
6. The Internet and computer etc.

4. What is meant by customer retention?

Customer retention is the process of retaining the existing customers.

5. What is motivation?

Motivation means a process of stimulation people to accomplish desired goals.

6. What are the Maslow's basic needs?

Maslow's basic needs are:

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

7. What are physiological needs?

Physiological needs are the biological needs required to preserve human life. These needs include needs for food, clothing and shelter.

8. List the Herzberg's motivators and dissatisfies.

| Motivator factors | Dissatisfier or hygiene factors |
|---------------------------|-------------------------------------|
| ✓ Achievement | ✓ Supervisors |
| ✓ Recognition | ✓ Working conditions |
| ✓ The work itself | ✓ Interpersonal relationships |
| ✓ Responsibility | ✓ Pay and security |
| ✓ Advancement and growth. | ✓ Company policy and administration |

9. Define empowerment. (Au Nov 05)

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.

10. What are the conditions necessary for empowerment?

The conditions required are:

1. Everyone must understand the need for change.
2. The system needs to change to the new paradigm.
3. The organization must provide information, education and skill to its employees.

11. Define team and teamwork.

- ✓ 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.

12. List the different types of teams.

The different types of teams are

- 1.Process improvement team
- 2.Cross-functional team
- 3.Natural work team and
- 4.Self-directed work team.

13.Name different members in a team.

The different members in a team are

- 1.Team leader
- 2.Facilitator
- 3.Recorder
- 4.Timekeeper and 5.Member

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14. What are the stages of team development?

The six stages of team development are:

1. forming stage
2. Storming stage
3. Norming stage
4. Performing stage
5. Maintenance stage and
6. Evaluating stage.

15. What is meant by recognition in an organization?

Recognition is a process whereby management shows acknowledgement of an employee's outstanding performance.

16. Classify rewards.

1. Intrinsic rewards: These are related to feelings of accomplishment or self-worth.

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

17. What is performance appraisal? (Au June 06)

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

18. List four common barriers to team progress.

The four common barriers to team progress

1. Insufficient training
2. Incompatible rewards and compensation
3. Lack of management support

19. Give the steps involved in training process?

The steps involved in training process are

1. Make everyone aware of what the training is all about.
2. Get acceptance.
3. Adapt the program.
4. Adapt to what has been agreed upon.

20. Define Recognition and Reward?

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.

21. What are the types of appraisal formats?

The types of appraisal formats are

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

22. What are the benefits of employee involvement?

The benefits of employee involvement are

Employee Involvement improves quality and increases productivity because

- Employees make better decisions using their expert knowledge of the Process.
- Employees are more likely to implement and support decisions they had a part in making.
- Employees are better able to spot and pinpoint areas for improvement.

23. What are the basic ways for a continuous process improvement?

The basic ways for a continuous process improvement are

- 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.

24. What are the three components of the Juran Trilogy?

The three components of the Juran Trilogy are

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

25. What are the steps in the PDSA cycle?

The steps in the PDSA cycle are

The basic Plan-Do-Study-Act is an effective improvement technique.

- 1. Plan carefully what is to be done
- 2. Carry out the plan
- 3. Study the results
- 4. Act on the results by identifying what worked as planned and what didn't.

26. What are the phases of a Continuous Process Improvement Cycle?

The phases of a Continuous Process Improvement Cycle are

- a) Identify the opportunity
- b) Analyze the process
- c) Develop the optimal solutions
- d) Implement
- e) Study the results
- f) Standardize the solution
- g) Plan for the future

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27. What is 5S? (Au Nov 05 , May 05)

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.

28. What is a Kaizen?(Au Nov 05 , May 05)

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.

29. What are the three key elements to a partnering relationship?

The three key elements to a partnering relationship are

- i. Long-term commitment
- ii. Trust
- iii. Shared vision

30. What are the objectives of Performance measures?

The objectives of Performance measures are

- i. Establish baseline measures and reveal trends.
- ii. Determine which processes need to be improved.
- iii. Indicate process gains and losses.
- iv. Compare goals with actual performance.
- v. Provide information for individual and team evaluation.
- vi. Provide information to make informed decisions.
- vii. Determine the overall performance of the organization.

31 What are the characteristics used to measure the performance of a particular process?

The characteristics used to measure the performance of a particular Process are

- i. Quantity
- ii. Cost
- iii. Time
- iv. Accuracy
- v. Function
- vi. Service
- vii. Aesthetics

32. Give the six basic techniques for presenting performance measures?

The six basic techniques for presenting performance measures

- a) Time series graph
- b) Control chart
- c) Capability index
- d) Taguchi's Loss Function
- e) Cost of poor quality
- f) Malcolm Baldrige National Quality Award

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UNIT -III
STATISTICAL PROCESS CONTROL (SPC)

1.What are the four basic steps included in SPC?

The four basic steps included in SPC are

- a. Measuring the process
- b. Eliminating variances in the process to make it consistent.
- c. Monitoring the process.
- d. Improving the process to its best target value.

2.Mention the seven basic tools involved in statistic quality control.

The seven tools involved in statistical quality control. They are,

- a. Pareto diagram
- b. Check sheet
- c. Cause and effect diagrams
- d. Scatter diagram
- e. Histogram
- f. Control charts
- g. Graphs

3.What is Pareto chart?

A Pareto chart is a special form of a bar graph and is used to display the relative importance of problems or conditions.

4.Give some applications of Pareto chart.

The applications of Pareto chart are,

- a. Focusing on critical issues by ranking them in terms of importance and frequency (Example: which course causes the most difficulty for students?; which problem with product X is most significant to our customers?)
- b. Prioritizing problems or causes to efficiently initiate problem solving (Example: which discipline problems should be tackled first? or what is the most frequent complaint by parents, regarding the school? solution of what production problem will improve quality most?)

5.What is the use of SPC?

SPC is used to monitor the consistency of processes used to manufacture a product as designed.

6.Define check sheet. Mention its uses.

The check sheet is a data gathering and interpretation tool.

A check sheet is used for,

- a. Distinguishing between fact and opinion (Example: How does the community perceive the effectiveness of the school in preparing students for the world of work?)
- b. Gathering data about how often a problem is occurring? (Example: How often are students missing classes?)
- c. Gathering data about the type of problem occurring. (Example: What is the most common type of word processing error created by the students-grammar, punctuation, transposing letter etc.?)

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7.What is the procedure to create a check sheet?

The procedures to create a check sheet are,

- a. Clarify the measurement objectives. Ask questions such as 'What is the problem?' 'Why should data be collected?', 'Who will use the information being collected?', 'Who will collect the data?'
- b. Create a form for collecting data. Determine the specific things that will be measured and write this down on the left side of the check sheet. Determine the time or place being measured and write this across the top of the columns.
- c. Collect the data for the items being measured. Record each occurrence directly on the check sheet as it happens.
- d. Tally the data by totaling the number of occurrences for each category being measure.

8.Define cause and effect diagram.

A cause and effect diagram is an analysis tool to display possible causes of a specific problem or condition. It is also called a fishbone diagram.

9.What are the uses of cause and effect diagram?

A cause and effect diagram is used for,

- a. Identifying potential causes of a problem or issue in an orderly way. (Example: why has membership in the band decreased? Why isn't the phone4 being answered on time? Why is the production process suddenly producing so many defects?)
- b. Summarizing major causes under four categories. (Example: People, machines, methods and materials or policies, procedures, people and plant.)

10.What is scatter diagram?

A scatter diagram is used to interpret data by graphically displaying the relationship between two variables.

11.Lsit some applications of scatter diagram.

The applications of scatter diagram

- a. Validating 'hunches' about a cause-and-effect relationship between types of variables (examples: I wonder if students who spend more time watching TV having higher or lower average GPA's? IS there a relationship between the production speed of an n operator and the number of defective parts made? Is there relationship between typing speed in WPM and errors made?)
- b. Displaying the direction of the relationship (positive negative, etc). (Examples: will test scores increase or decrease if the students spend more time in study hall? Will increasing assembly line speed, increase or decrease the number of defective parts made? Do faster typists make more or fewer typing errors?)
- c. defective parts produced? How strong is the relationship between typing faster and the number of typing errors made?).

12.Define histogram.

A histogram is used to display in bar graph format measurement data distributed by categories.

13.What are the problems that can be interpreted by the histogram?

The problems that can be interpreted by the histogram are,

- a. Skew problems
- b. Clustering problems.

14.Define control chart.

Control chart is defined as a display of data in the order that they occur with statistically determined upper and lower limits of expected common cause variations. It is used to indicate special causes of process variations to monitor a process for maintenance and to determine if process changes have has the desired effect.

15.What is line graph?

A line graph is a way to summaries how two pieces of information are related and how they vary depending on one another. The numbers along a side of the line graph are called the scale.

17. What is an arrow diagram?

An arrow diagram is another term for a PERT or CPM chart. It is graphic descriptions of the sequential steps that must be completed before a project can completed.

18. Give some applications of arrow diagram.

The applications of arrow diagram are,

- a. Understanding and managing complex project or task.
- b. Understanding and managing a project that is of major importance to the organization, and the consequences of late completion are sever.
- c. Understanding and managing a project in which multiple activities must take place and be managed simultaneously.
- d. Explaining the project status to others.

19.How is an arrow diagram constructed?

Steps in constructing an arrow diagram are,

- a. Select a team that is knowledgeable about the project, its task and subtasks.
- b. Record all of the tasks and subtasks necessary to the completion of the project.
- c. Sequence the tasks.
- d. Assign a time duration to each task.
- e. Calculate the shortest possible implementation time schedule using the critical path method.
- f. Calculate the earliest starting and finishing times for each task.
- g. Locate tasks with slack (extra) time and calculate total slack.
- h. Update the schedule as the project is being completed.

20. What is nominal group technique?

The nominal group technique is a structured process, which identifies and ranks the major problems or issues that need addressing.

21.What are the uses of nominal group technique?

The nominal group technique is used for,

- a. Identifying the major strengths of a department /unit/institution. (Example: why are enrollments decreasing in the business courses making decision by consensus when selecting problem solutions in a business.
- b. Providing each participant with an equal voice. (Example: Defusing a domineering faculty member or influential employee who tends to control the discussion and dominate the process.

22.Define systematic diagram.

A systematic diagram is a hierarchical graphic representation of the prerequisite steps necessary to go accomplish a goal or task.

23.List out the uses of systematic diagram.

A systematic diagram is used for,

- a. Developing a sequence of steps that depend on each other that form the solution to a problem.
- b. When it is known that the implementation of some task will be a complex sequence.
- c. When serious consequences can occur as the result of missing a key step in implementing the solution to a problem.

24. Define Statistics?

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

25. What is a measure of central tendency? (Au , May 05)

A measure of central tendency of a distribution is a numerical value that describes the central position of the data or how the data tend to build up in the center. There are three measures in common in use in quality viz, the average, the median and the mode.

26. What is Measures of dispersion?(Au , May 05)

Measures of dispersion describe how the data are spread out or scattered on each side of the central value. The measures of dispersion used are range and standard deviation.

27. What is a normal curve?

The normal curve is a symmetrical, unimodal, bell-shaped distribution with the mean, median and mode having the same value.

28. What is the use of the control chart?

The control chart is used to keep a continuing record of a particular quality characteristic. It is a picture of process over time.

29. Give the objectives of the attribute charts?

The objectives of the attribute charts are

- i. Determine the average quality level.
- ii. Bring to the attention of management any changes in the average.
- iii. Improve the product quality.
- iv. Evaluate the quality performance of operating and management personnel.
- v. Determine acceptance criteria of a product before shipment to the customer.

30. What are the new seven management tools?

The new seven management tools

- i. Affinity Diagram
- ii. Interrelationship Digraph
- iii. Tree Diagram
- iv. Matrix Diagram
- v. Prioritization Matrices
- vi. Process Decision Program Chart
- vii. Activity Network diagram

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UNIT IV TQM TOOLS

1. what is benchmarking?(Au May 05)

Benchmarking is the process of identifying, understanding and adapting outstanding practices and processes from organizations anywhere in the world to an organization to improve its performance.

2. What are the objectives for benchmarking?

The objectives for benchmarking are

1. Benchmarking aims at a goal setting process to facilitate comparison with 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.

3. What are the different types of benchmarking in relation to objects being benchmarked?

The different types of benchmarking in relation to objects being benchmarked are

1. Product benchmarking
2. Performance benchmarking
3. Process benchmarking and
4. Strategic benchmarking.
5. Relationship benchmarking

4. List out any four benefits of benchmarking.

The benefits of competitive benchmarking include:

1. Creating a culture that values continuous improvement to achieve excellence.
2. Sharing the best practices between benchmarking partners.
3. Prioritizing the areas that need improvement.
4. Enhancing creativity by d evaluating the not-invented-here syndrome.

5. What is a QFD?

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.

6.. What are the benefits of QFD?

The benefits of QFD are

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

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7. What are the steps required to construct an affinity diagram?

- The steps required to construct an affinity diagram are
- i. Phrase the objective
 - ii. Record all responses
 - iii. Group the responses
 - iv. Organize groups in an affinity diagram

8. What are the parts of house of quality?

- The parts of house of quality are
- i. Customer requirements
 - ii. Prioritized customer requirements
 - iii. Technical descriptors
 - iv. Prioritized technical descriptors
 - v. Relationship between requirements and descriptors
 - vi. Interrelationship between technical descriptors

9. How will you build a house of quality?

- a) List customer requirements
- b) List technical descriptors
- c) Develop a relationship matrix between WHATs and HOWs
- d) Develop an interrelationship matrix between HOWs
- e) Competitive assessments
- f) Develop prioritized customer requirements
- g) Develop prioritized technical descriptors

10. Define FMEA? (Au Nov 05 ,)

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 stages of FMEA?

The stages of FMEA are

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. Revaluation of risk

- a. Recalculation of risk priority number

12. What are the goals of TPM? (Au Nov 05)

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

13. Give the seven basic steps to get an organization started toward TPM?

- a) Management learns the new philosophy
- b) Management promotes the new philosophy
- c) Training is funded and developed for everyone in the organization
- d) Areas of needed improvement are identified
- e) Performance goals are formulated
- f) An implementation plan is developed
- g) Autonomous work groups are established

14. What are the major loss areas?

The major loss areas are

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

UNIT V QUALITY SYSTEMS

1. Give the ISO 9000 Series of Standards?

- i. ISO 9000, "Quality Management and Quality Assurance Standards Guidelines for Selection and Use".
- ii. ISO 9001, "Quality Systems – Model for Quality Assurance in Design, Development, Production, Installation & Servicing".
- iii. ISO 9002, "Quality Systems – "Model for Quality Assurance in Production, Installation & Servicing".
- iv. ISO 9003, "Quality Systems – "Model for Quality Assurance in Final Inspection and Test".
- v. ISO 9004-1, "Quality Management and Quality System Elements – Guidelines".

2. What is the need for ISO 9000?

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.

3. Give some other quality systems?

The quality systems are

- i. QS-9000
- i. QS-9000
- ii. TE-9000
- iii. AS9000

4. Enumerate the steps necessary to implement the Quality Management System?

The steps necessary to implement the Quality Management System **are**

- i. Senior management commitment
- ii. Appoint the management representative
- iii. Awareness
- iv. Appoint an implementation team
- v. Training
- vi. Time schedule
- vii. Select element owners
- viii. Review the present system
- ix. Write the documents
- x. Install the new system
- xi. Internal audit
- xii. Management review
- xiii. Pre assessment
- xiv. Registration.

5. What are the three sections of QS-9000?

The three sections of QS-9000 are

- i. Common requirements, which include the exact text of ISO 9001 and the addition of automotive/heavy trucking requirements.
- ii. Additional requirements covering production part approval process, continuous improvement and manufacturing capabilities.
- iii. Customer-specific requirements.

6. Give the objectives of the internal audit?

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.

7. What are the requirements of ISO 14001?

The requirements of ISO 14001 are

- i. General requirements
- ii. Environmental policy
- iii. Planning
- iv. Implementation and operation
- v. Checking and corrective action
- vi. Management review

8. What are the benefits of ISO 14000?

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.
- b. Organizational

9. What are the four elements for the checking & corrective action of ISO 14001?

- a) Monitoring and measuring
- b) Nonconformance and corrective and preventative action
- c) Records
- d) EMS audit

10. What are the seven elements for the implementation & operations of ISO 14001?

- 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

11. What are the four elements for the planning of ISO 14001?

- a) Environmental aspects
- b) Legal and other requirements
- c) Objectives and targets
- d) Environmental Management Programs

12. Give the types of Organizational Evaluation Standards?

- i. Environmental Management System
- ii. Environmental Auditing
- iii. Environmental Performance Evaluation

13. Give the types of Product Evaluation Standards?

- i. Environmental Aspects in Product Standards
- ii. Environmental Labeling
- iii. Life-Cycle Assessment

14. Define Quality Audits? (Au Nov 05 , May 05)

Quality Audits examine the elements of a quality management system in order to evaluate how well these elements comply with quality system requirements.

15. Give the usage of an effective recognition and reward system?

- Serves as a continual reminder that the organization regards quality and productivity as important.
- Offers the organization a visible technique to thank high achievers for outstanding performance.
- Provides employees a specific goal to work toward. It motivates them to improve the process.
- Boosts morale in the work environment by creating a healthy sense of competition among individuals and teams seeking recognition.

16. What are the typical measurements frequently asked by managers and teams?

- Human Resource
- Customers
- Production
- Research & Development
- Suppliers
- Marketing/Sales
- Administration

17. What are the criteria to evaluate the performance measures?

Simple
Few in number
Developed by users
Relevance to customer
Improvement
Cost
Visible
Timely
Aligned
Results

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 activities.

19. Define Six Sigma?(Au Nov 05 , May 05)

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

21. Differentiate Population & Sample?

Population represents the mathematical world and Sample represents the real world. A population frequency distribution is represented by a smooth curve whereas a sample frequency distribution is represented by a histogram.

22. Give the sources of variation?

ï Equipment
ï Material
ï Environment
ï Operator

23. Define Run chart?

A run chart is a very simple technique for analyzing the process in the development stage or, for that matter, when other charting techniques are not applicable.

24. Define Control chart?

Control chart is a means of visualizing the variations that occur in the central tendency and the dispersion of a set of observations. It is a graphical record of the quality of a particular characteristic.

25. What are the various patterns of scatter diagrams?

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

26. What is the procedure for constructing the tree diagram?

- Choose an action –oriented objective statement from the interrelationship diagram, affinity diagram, brainstorming, team mission statement, and so forth.
- Using brainstorming, choose the major headings.
- Generate the next level by analyzing the major headings.

27. Give atleast five standard formats of matrix diagram?

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

28.. 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.

29.. What are the generic steps for the development and execution of action plans in benchmarking?

- Specify tasks.
- Sequence tasks.
- Determine resource needs.
- Establish task schedule.
- Assign responsibility for each task.
- Describe expected results.
- Specify methods for monitoring results.

30. What are the phases of QFD process?

- i. Product planning
- ii. Part development
- iii. Process planning
- iv. Production planning

31. What are the several types of FMEA?

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

32. What does a Process FMEA document contain?

- Process Function / Requirements
- Potential Failure Mode
- Potential Effects of Failure
- Severity
- Classification
- Potential Causes / Mechanisms of Failure
- Occurrence
- Current Process Controls
- Detection

33. Define TPM?

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 te original condition at all times.

34.. What are the benefits of ISO?

- 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.

35. Give the ISO 9001 requirements?

- Scope
- Normative Reference
- Terms and Definitions
- Quality Management System
- Management Responsibility
- Resource Management
- Product Realization

36.. What are the methods of actual audit?

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