

**K.RAMAKRISHNAN COLLEGE OF TECHNOLOGY**  
**DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**  
**GE6757 - TOTAL QUALITY MANAGEMENT**

UNIT- I : INTRODUCTION

PART – A (2 Marks)

**1. Define Total Quality?**

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.

**2. Define Quality?**

Quality = Performance x Expectations

**3. What are the Dimensions of Quality?**

- Features • Conformance • Reliability • Durability • Service • Response • Aesthetics
- Reputation

**4. Give the Basic Concepts of TQM?**

- A committed and involved management to provide long-term top-to-bottom organizational support.
- An unwavering focus 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.

**5. Give the Principles of TQM?**

Constancy of purpose: short range and long range objectives aligned

Identify the customer(s); Customer orientation

Identification of internal and external customers

Continuous improvement

Workflow as customer transactions

Empower front-line worker as leader

Quality is everybody's business

For a service industry, some elements of quality are: - empathy, trust; i.e. expertise, integrity, courtesy , responsiveness, tangible product attractiveness (curb appeal), reliability, on time, no interruptions

#### 6. Give the Obstacles associated with TQM Implementation? (N-13)

- Lack of management commitment • Inability to change organizational culture
- Improper planning • Lack of continuous training and education
- Incompatible organizational structure and isolated individuals and departments
- Ineffective measurement techniques and lack of access to data and results.
- Paying inadequate attention to internal and external customers.
- Inadequate use of empowerment and teamwork.

#### 7. Give the Analysis Techniques for Quality Costs?

- i. Trend Analysis
- ii. Pareto Analysis

#### 8. Define Quality Costs?

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

#### 9. Give the primary categories of Quality cost?

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

#### 10. How will you determine the optimum cost?

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

#### 11. State the Quality Improvement Strategy?

- Reduce failure costs by problem solving • Invest in the “right” prevention activities
- Reduce appraisal costs where appropriate and in a statistically sound manner
- Continuously evaluate and redirect the prevention effort to gain further quality improvement.

#### 12. Define Quality Planning?

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.

### 13. Give the Objectives of TQM?

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

### 14. What is needed for a leader to be effective?

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.

### 15. What is the important role of senior management?

1. Listening to internal and external customers and suppliers through visits, focus groups and surveys.
2. Communication.
3. To drive fear out of the organization, break down barriers, remove system roadblocks, anticipate and minimize resistance to change and in general, change the culture.

### 16. What are the general duties of a quality council?

1. Develop, with input from all personnel, the core values, vision statement, mission statement, and quality policy statement.
  2. Develop the strategic long-term plan with goals and the annual quality improvement program with objectives.
  3. Create the total education and training plan.
  4. Determine and continually monitor the cost of poor quality.
  5. Determine the performance measures for the organization, approve those for the functional areas, and monitor them.
  6. Continually, determine those projects that improve the processes, particularly those that affect 7. external and internal customer satisfaction.
  8. Establish multifunctional project and departmental or work group teams and monitor their progress.
- Establish or revise the recognition and reward system to account for the new way of doing business.

17. What does a typical meeting agenda contain after establishing the TQM?

1. Progress report on teams
2. Customer satisfaction report
3. Progress on meeting goals
4. New project teams
5. Recognition dinner
6. Benchmarking report

18. What are the various quality statements?

Vision Statement

Mission Statement

Quality Policy Statement

19. Give the basic steps to strategic quality planning?

- Customer needs
- Customer positioning
- Predict the future
- Gap analysis
- Closing the gap
- Alignment
- Implementation

20. What is a quality policy?

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.

21. How can quality be quantified?

(N-2011)

Total Quality Management (TQM) is a philosophy aimed at improving business as a whole. Some of the benefits lie in the continuous improvement of processes and products, and enhanced efficiency of people and machines leading to improved quality. The application of Total Quality Management helps in streamlining processes, and ensures a proactive work system ready to counter deviations from the ideal state.

22. What are some of the major benefits of Total Quality Management?

(N-2011)

The major thrust of Total Quality Management (TQM) is to achieve productivity and process efficiency by identifying and eliminating problems in work processes and systems. TQM addresses key problem areas such as mistakes in work processes, redundant processes, unnecessary tasks, and duplicate efforts. TQM interventions also help with predicting and pre-empting such mistakes and unproductive activities.

23. List out the six basic concept of TQM (N-12) (N-13)

1. Management Commitment
2. Customer Focus
3. Involvement and utilization of entire work force
4. Continuous Improvement
5. Treating Suppliers as Partners
6. Establish Performance Measures for the processes

PART - B (16 Marks)

1. Explain the Deming's philosophy for TQM [Nov/Dec'11, May/June'12, Nov/Dec'12 , Nov/Dec'13, Nov/Dec '14, May/June '15 ]
2. Explain in detail, the barriers in the implementation of TQM [ Nov/Dec'11 ,Nov/Dec '12, Nov/Dec'13]
3. Explain the various dimensions of quality [Nov/Dec'11, Nov/Dec'12, May/June'13, May /June '14]
4. Explain in detail, Juran's principles of quality improvement [May /June '12, May '13, May '14]
5. Explain customer satisfaction & retention in details?
6. How would you summarize customer complaints in detail.
7. Explain customer satisfaction & retention in details.
8. Analyse the cost of quality in detail

## UNIT – II : TQM PRINCIPLES

### PART – A (2 Marks)

#### 1. What is a mission statement?

The mission statement answers the following questions: who we are, who are the customers, what we do, and how we do it.

#### 2. What is a vision statement?

The vision statement is a declaration of what an organization should look like five to ten years in a future.

#### 3. What are the important factors that influenced purchases?

- Performance
- Features
- Service
- Warranty
- Price
- Reputation

#### 4. Give the need for a feedback in an organization?

Discover customer dissatisfaction.

Discover relative priorities of quality.

Compare performance with the competition.

Identify customer's needs.

Determine opportunities for improvement.

#### 5. List the tools used for feedback?

- Comment cards
- Surveys
- Focus groups
- Toll-free telephone lines
- Customer visits
- Report cards
- The internet
- Employee feedback
- American Customer Satisfaction Index

## 6. What are the activities to be done using customer complaints?

1. Investigate customer's experience both positive and negative, and then acting on it promptly.
2. Develop procedures for complaint resolution .
3. Analyze complaints.
4. Work to identify process and material variations and then eliminate the root cause.
5. When a survey response is received, a senior manager should contact the customer and strive to resolve the concern.
6. Establish customer satisfaction measures and constantly monitor them.
7. Communicate complaint information, as well as the results of all investigations and solutions, to all people in the organization.
8. Provide a monthly complain report to the quality council .
9. Identify customer's expectations beforehand rather than afterward through complaint analysis.

## 7. What are the elements of customer service?

- Organization
- Customer care
- Communication
- Front-line people
- Leadership

## 8. Define Customer Retention?

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.

## 9. Define Employee Involvement?

Employee involvement is a means to better meet the organization's goals for quality and productivity at all levels of an organization.

## 10. What are the concepts to achieve a motivated work force?

1. Know thyself
2. Know your employees
3. Establish a positive attitude
4. Share the goals
5. Monitor progress
6. Develop interesting work
7. Communicate effectively
8. Celebrate success



### 11. Define Empowerment?

Empowerment means invest people with authority. Its purpose is to tap the enormous reservoir of creativity and potential contribution that lies within every worker at all levels. 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 to initiate the necessary steps to satisfy customer requirements within well-defined boundaries in order to achieve organizational values and goals.

### 12. What are the three conditions necessary to create the empowered environment?

- Everyone must understand the need for change.
- The system needs to change for the new paradigm
- The organization must enable its employees.

### 13. What are the types of teams?

- Process improvement team
- Cross-functional team
- Natural work teams
- Self-directed/self-managed work teams

### 14. What are the characteristics of successful teams?

- Sponsor
- Team charter
- Team composition
- Training
- Ground rules
- Clear objectives
- Accountability
- Well-defined decision procedures
- Resources
- Trust
- Effective problem solving
- Open communications
- Appropriate leadership
- Balanced participation
- Cohesiveness

### 15. What are the stages of team development?

- Forming
- Storming
- Norming
- Performing
- Adjourning

### 16. Give some common team problems?

- Floundering
- Overbearing participants
- Dominating participants
- Reluctant participants
- Unquestioned acceptance of opinions as facts
- Rush to accomplish
- Attribution
- Discounts and “plops”
- Wanderlust : digression and tangents
- Feuding team members

### 17. What are the common barriers to team progress?

- 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

### 18. 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.

### 19. What are the benefits of employee involvement?

Employee Involvement improves quality and increases productivity because

- Employees make better decisions
- 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.
- Employees are better able to take immediate corrective action.
- Employee involvement reduces labor/management hassle by more effective communications and cooperation.
- Employee involvement increases morale by creating a feeling of belonging to the organization.
- Employees are better able to accept change because they control the work environment.
- Employees have an increased commitment to unit goals because they are involved.

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

- 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.

### 21. What are the three components of the Juran Trilogy?

- Planning
- Control
- Improvement

### 22. What are the steps in the PDSA cycle?

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

Plan carefully what is to be done

Carry out the plan

Study the results

Act on the results by identifying what worked as planned and what didn't.

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

- 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

#### 24. Define 5S? (N-13)

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.

- 1.Sort – (Seiri) the first S focuses on eliminating unnecessary items from the workplace.
- 2.Set In Order (Seiton) is the second of the 5Ss and focuses on efficient and effective storage methods.
- 3.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.
- 4.Standardize: (Seiketsu) Once the first three 5S's have been implemented, you should concentrate on standardizing best practice in your work area.
- 5.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.

#### 25. What is a Kaizen?

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.

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

1. Long-term commitment
2. Trust
- 3.Shared vision

#### 27. What are the three types of sourcing?

- Sole sourcing
- Multiple sourcing
- Single sourcing

#### 28. What are the ten conditions for the selection and evaluation of suppliers?

1. The supplier understands and appreciates the management philosophy of the organization.
2. The supplier has a stable management system.
3. The supplier maintains high technical standards and has the capability of dealing with future technological Innovations.
4. The supplier can supply precisely those raw materials and parts required by the purchaser, and those supplied meet the quality specifications.

5. The supplier has the capability to produce the amount of production needed or can attain that capability.
6. There is no danger of the supplier breaching corporate secrets.
7. The price is right and the delivery dates can be met. In addition, the supplier is easily accessible in terms of transportation and communication.
8. The supplier is sincere in implementing the contract provisions.
9. The supplier has an effective quality system and improvement program such as ISO/QS 9000.
10. The supplier has a track record of customer satisfaction and organization credibility.

**29. What are the four phases of inspection?**

1. 100% inspection
2. Sampling
3. Audit
4. Identity check

**30. What are the objectives of Performance measures?**

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

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

1. Quantity
2. Cost
3. Time
4. Accuracy
5. Function
6. Service
7. Aesthetics

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

1. Time series graph
2. Control chart
3. Capability index
4. Taguchi's Loss Function
5. Cost of poor quality
6. Malcolm Baldrige National Quality Award

33. 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.

34. How will you improve the performance appraisal system?

1. Use rating scales that have few rating categories.
2. Require work team or group evaluations that are at least equal in emphasis to individual-focused evaluations.
3. Require more frequent performance reviews where such reviews will have a dominant emphasis on future planning.
4. Promotion decisions should be made by an independent administrative process that draws on current-
5. Job information and potential for the new job.
6. Include indexes of external customer satisfaction in the appraisal process.
7. Use peer and subordinate feedback as an index of internal customer satisfaction.
8. Include evaluation for process improvement in addition to results.

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

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

36. What are the important habits of quality leader? (N-11)

1. Be Proactive
2. Begin with the End in mind
3. Put First Things First
4. Think Win – Win
5. Seek First to Understand, then to Be Understood
6. Synergy Sharpen the Saw (Renewal)

37. Name few barriers to Teams' Progress. [Nov/Dec'11]

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.

Project scope too large

Project objectives are not significant.

No clear measures of success.

No time to do improvement work

38. List out the characteristics of successful quality leaders. (M-13)

- They give priority attention to external and internal customers and their needs.
- They emphasize improvement rather than maintenance.
- They emphasize prevention.
- They emphasize collaboration rather than competition.
- They train and coach, rather than direct and supervise.
- They learn from the problems.
- They continually try to improve communications.
- They continually demonstrate their commitment to quality.
- They choose suppliers on the basis of quality, not price.
- They establish organizational systems to support the quality effort.
- They encourage and recognize team effort.
- They empower, rather than control, subordinates

39. Write an example for quality statement(May-14)

- Quality Policy Statement
- Vision Statement
- Mission Statement



PART – B : (16 Marks)

1. Explain the concept of PDCA Cycle [Nov /Dec'13,May /June '13]
2. What is a team? Describe the characteristics of a successful team [Nov/Dec'12,May/June '13,Nov / Dec'13, May /June'14,Nov /Dec'14]
3. Explain the different approaches towards continuous process improvement [Nov/Dec'11, May /June '14]
4. How Kaizen is practiced in workplace? Give an example. [Nov/Dec'14][May/June '14]
5. Brief note on Employee Empowerment. [Nov/Dec'12 , Nov/Dec '14]

## UNIT- III : TQM TOOLS AND TECHNIQUES I

### PART – A (2 Marks)

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

Measure - determine process capability ( $C_p$ /  $C_{pk}$ ) & dpmo (defects per million opportunities).

Analyze - identify the vital few process input variables that affect key product output variables ("Finding the knobs Define - improvement opportunity with an emphasis on increasing customer satisfaction.").

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

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

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

(N-11)

1. Diagram
2. Affinity Interrelationship Digraph
3. Tree Diagram
4. Matrix Diagram
5. Prioritization Matrices
6. Process Decision Program Chart
7. Activity Network diagram

#### 3. Give the seven tools of quality?

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

#### 4. 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.

#### 5. Define Six Sigma?

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

#### 6. Define Benchmarking? ( M-12)

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

#### 8. Enumerate the steps to benchmark?

1. Decide what to benchmark
2. Understand current performance
3. Plan
4. Study others
5. Learn from the data
6. Use the findings

PART – B (16 Marks)

1. Explain benchmarking process [Nov/Dec'11, May/June'12, Nov/Dec'12, May/June'13, Nov/Dec'13, May /June '14, Nov/Dec'14]
2. With example, explain six sigma concept [Nov/Dec'11, May/June'12, May/June'13, May /June '14, Nov/Dec'14, May /June '15]
3. Explain new seven tools of quality management [Nov/Dec'12, May/June '13, Nov/Dec'13]
4. Discuss the various stages of FMEA. [May/June'13] [May/June'13]

## UNIT – IV : TQM TOOLS AND TECHNIQUES I

### PART – A (Marks)

#### 1. 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.

#### 2. What are the benefits of QFD?

- Customer driven
- Reduces implementation time
- Promotes teamwork
- Provides documentation

#### 3. What are the parts of house of quality?

- Customer requirements
- Prioritized customer requirements
- Technical descriptors
- Prioritized technical descriptors
- Relationship between requirements and descriptors
- Interrelationship between technical descriptors

#### 4. How will you build a house of quality?

- List customer requirements
- List technical descriptors
- Develop a relationship matrix between WHATs and HOWs\
- Develop an interrelationship matrix between HOWs
- Competitive assessments
- Develop prioritized customer requirements
- Develop prioritized technical descriptors

#### 5. Define FMEA?

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

## 6. What are the stages of FMEA?

Specifying possibilities:

- a. Functions
- b. Possible failure modes
- c. Root causes
- d. Effects
- e. Detection/Prevention

Quantifying risk:

- a. Probability of cause
- b. Severity of effect
- c. Effectiveness of control to prevent cause
- d. Risk priority number

Correcting high risk causes:

- a. Prioritizing work
- b. Detailed action
- c. Assigning action responsibility
- d. Check points on completion

Reevaluation of risk:

- a. Recalculation of risk priority number

## 7. What are the goals of TPM?

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

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

promotes the new philosophy

Training Management learns the new philosophy

Management is funded and developed for everyone in the organization

Areas of needed improvement are identified

Performance goals are formulated

An implementation plan is developed

Autonomous work groups are established

## 9. What are the major loss areas?

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

## 10. What are the several types of FMEA?

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

## 11. 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 the original condition at all times.

## 12 . Explain the parts of house of quality?

- 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

## 13. Define TPM. (N-13)

Total Productive Maintenance (TPM) is defined as keeping the running plant and equipment at its highest productive level with the co-operation of all areas of the organization.

PART – B (16 Marks)

1. Explain the seven step plan to establish the TPM in an organization in detail [Nov/Dec'11, May/June'15]
2. Explain the concept of Taguchi's Quality loss function in detail. Give an example Nov/Dec'11, May/June'13, Nov/Dec'14]
3. Explain the different types of cost contributing to the cost of quality [May/June'12, May/June'13, Nov/Dec'13, May/June'14]
4. Discuss in detail how the voice of customer is transformed into technical and functional requirements by QFD [May/June'12, Nov/Dec'12, Nov/Dec'13, May/June'15]
5. How is house of quality constructed? Explain with an example [May/June'13, May/June'14, May/June'15]
6. Write a note on performance measures of TQM [Nov/Dec'12, Nov/Dec'13, Nov'14]



## UNIT – V : QUALITY SYSTEMS

### PART – A (2 Marks)

#### 1. Give the ISO 9000 Series of Standards?

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”.

#### 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?

QS-9000

TE-9000

AS9000

#### 4. Give the objectives of the internal audit?

Determine the actual performance conforms to the documented quality systems.

Corrective action activities in response to deficiencies.

Follow up on noncompliance items of previous audits.

Provide continued improvement in the system through feedback to management.

The auditee to think about the process, thereby creating possible improvements.

#### 5. What are the requirements of ISO 14001? (M-14)

General requirements

Environmental policy

Planning

Implementation and operation

Checking and corrective action

Management review

## 6. What are the benefits of ISO 14000?

.Global : Facilitate trade and remove trade barriers, Improve environmental performance of planet earth, Build consensus that there is a need for environment management and a common terminology for EMS.

Organizational:

Assuring customers of a commitment to environmental management

Meeting customer requirements

Maintaining a good public / community relations image

Satisfying investor criteria and improving access to capital

Obtaining insurance at reasonable cost

Increasing market share that results from a competitive

Advantage

- Reducing incidents that result in liability
- Improving defense posture in litigation
- Conserving input materials and energy
- Facilitating the attainment of permits and authorization
- Improving industry/government relations

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

Monitoring and measuring

Nonconformance and corrective and preventative action

Records

EMS audit

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

Structure and responsibility

Training, awareness and competency

Communication

EMS documentation

Documentation control

Operational control

Emergency preparedness and response

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

- Environmental aspects
- Legal and other requirements
- Objectives and targets
- Environmental Management Programs

10. Give the types of Organizational Evaluation Standards?

- Environmental Management System
- Environmental Auditing
- Environmental Performance Evaluation

11. De fine Quality Audits.

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

12. 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.

13. Give the ISO 9001 requirements?

- Scope
- Normative Reference
- Terms and Definitions
- Quality Management System
- Management Responsibility
- Resource Management
- Product Realization
- Measurement, Analysis & Improvement

14. What is the concept of environmental management system?

( M-13)

The overall aim of the Environmental Management systems is to provide protection to the environment and to prevent pollution.

PART – B (16 Marks)

1. Discuss various elements of ISO 9000:2000 quality system [Nov/Dec'12, Nov/Dec'13, Nov/Dec'14]
2. Discuss the benefits of ISO 9000 certification [May/June'13, May/June'15]
3. Discuss the benefits of ISO 14000 certification [Nov, Dec'13, Nov/Dec'14]
4. What is QS 9000? State its significance [Nov/Dec'13]
5. Explain the major clauses of QS9000 standard [May/June'13]
6. Explain QMS auditing. [Nov/Dec'11, May/June'12, May/June '15]