

QUIZ MODULE 1: BASIC CONCEPTS IN QUALITY AND TQM

These questions cover Sessions 1, 2, 5, 6, 7.

The correct answer is shown in bold

A fundamental attribute of TQM is

- Drawing control charts
- Having team meetings
- **Top management's direct involvement**
- Meeting ISO 9000 audit
- All of the above

Process capability =1 indicates that

- Suppliers can be trusted
- Workers are motivated
- Process is in control
- There are no random variations
- **Some fraction of production is outside specs**

Drawing control charts requires

- **Calculation of statistics from data**
- Adjusting the machines
- Teamwork training of workers
- Top management involvement
- Meetings with suppliers

SPC helps determine

- **If assignable causes are disturbing the process**
- If vendor performance is falling
- If customers are happy
- If customers are motivated
- If top management is involved

Inspection assures that

- The process is in control
- Workers are motivated
- **Product meets specification**
- Quality problems are solved
- Supplier quality is acceptable

Vision states

- Where the workers want to go after work
- Whether we should use SPC
- Whether we should use inspection
- **Where the company wants to be in the long run**
- That customers are the boss

A control chart displays

- Whether workers are motivated
- Top management takes interest in quality
- Inspectors are doing their job
- **Process variability**
- Process capability

Quality is wanting generally because

- Workers lack team spirit
- **No competition exists**
- People don't know statistics

A stakeholder is generally

- Someone who manages the company
- People who run the company's payroll
- **Interested in the success of the enterprise**
- Only the customer
- Only the vendor

Systematic problem solving requires

- Motivating the worker
- **Defining the problem to be solved**
- Drawing control charts
- Keeping management informed
- Keeping tab on the environmental impact

ISO 9000 determines

- **If the company practices its written procedures**
- If vendors are performing well
- Process capability
- The kind of control chart to be used
- Random causes of variation

An example of a random cause is

- Absenteeism
- Shortage of material supplies
- Photocopy machine failure
- **Small vibrations in the equipment**
- Word Processor not having Spellchecker

An assignable cause is generally known to

- Vendors
- Top management
- Product designer
- **Workers**
- Customers

Flow charts indicate

- Causes of process variation
- The kind of forms to fill out
- Who reports to whom
- **How inputs get processed into outputs**
- How samples are rejected

A sampling plan helps in

- Keeping the process in control
- Keeping workers motivated
- Tuning the machines
- Adjusting ovens in the kitchen
- **Rejecting lots that are of unacceptable quality**

Process Diagnosis determines

- If the workers are doing their job
- **The possible cause of a failure**
- If control charts are in control
- When top management should talk to vendors
- If vendors are motivated

Team orientation means

- Workers having lunch with their families
- Workers getting daily briefing
- **Working collectively toward a common goal**
- Cooperation with government regulators
- ISO 9000 orientation meetings

Creativity requires

- Control charts
- Complete knowledge of vendor's capability
- Managing the quality of ideas generated
- **Facilitation**
- Physical exercise

Problem identification requires

- **Flow charting the process**
- Monitoring customer complaints
- Knowing how to draw control charts
- Team meetings
- Maintaining clean cafeterias

Problem solving begins with

- Team discussions
- SPC
- Design of experiments
- **Problem identification**
- Punching time clock

Benchmarking determines

- Customer requirements
- Process capability
- **How company is doing relative to others**
- Getting ISO 9000 audit done
- If management is motivated

Control charts help in

- Reaching six sigma
- Rejecting parts supplied by vendors
- Keeping workers motivated
- **Deciding when to investigate the process**
- Zero defect production

Seven tools include

- Team meetings
- Management meeting regularly with workers
- Workers' toolkit
- **Histogram**
- All above

A Pareto chart shows

- That the process is in control
- **The vital few from the trivial many**
- Process capability
- A line drawn as production proceeds
- Fraction defective

Individuals who have no role in quality management

- Teachers in universities
- **Government regulators**
- Workers
- ISO 9000 trainers
- Vendors

Quality management requires

- ISO 9000 certification
- Workers not working overtime
- Printing promotional brochures
- **Keeping internal customers satisfied**
- Keeping oil off the floor

A problem definition should include

- A control chart
- Names of members of the team
- **What the problem is and what it is not**
- Who was operating the machine that day
- Ideas to solve the problem

The role of R&D is

- To improve working conditions in the lab
- To keep top management informed of competition
- To regularly study control charts
- **To determine how processes work**
- To keep the company competitive

Efficiency means

- There are no defects in the output
- Process is capable
- Cost of quality is low
- **Resources are made the most of**
- Workers arrive on time

The case of waiting too long at the elevator is

- A well-structured problem
- A candidate for control charts
- Indication of timely arrival at work
- **Ignoring external customers**
- None of the above

The difference between manufacturing and service is

- Nonexistent
- Products cannot be inventoried
- Service can't be backordered
- Production is instantaneous
- **Service is consumed as produced**

Service quality cannot be managed when

- No vendors are involved
- **Customer expectations are not known**
- Workers don't meet regularly with management
- Consultants are not consulted
- Histogram cannot be drawn

Accuracy can be improved by

- **Use of Xbar charts**
- Team meetings
- TQM principles
- Management talking to workers
- Customer visits

Design of Experiments implies

- Good instruments used in the lab
- Team meetings in product trials
- **A method to find factor effects**
- Aesthetic quality of products
- Careful recording of data

Cause-effect diagram is used in

- Problem identification
- Field visits
- Vendor surveys
- **Problem analysis**
- Negotiating with unions

Cost of quality is really

- **A way to prioritize actions**
- Cost of production
- Cost of sales
- Cost of high-quality products
- An accounting jargon

The Baldrige Award is

- A ISO 9000 requirement
- An indication of SPC being used
- Indication of no competition
- **Indication that TQM programs are effective**
- All of the above

TQM does not imply

- Strong external customer orientation
- Partnership with vendors
- **Meticulously re-stocking defective products**
- Training
- Team meetings

Precision in production means

- Workers are well-trained
- Hi-tech equipment is used
- Instruments are kept clean
- **Parts produced have little or no variation**
- Shop uses control charts

Accuracy implies

- We know customer targets
- Computerized machines
- **Average performance is on target**
- All products are of same size

Six sigma is

- Latest Japanese Quality Theory
- A BMW
- **$C_{pk} = 2.0$**

The American model for TQM is

- ISO 9000
- ISO 14000
- **The Baldrige Award criteria**
- Use of control charts
- Use of quality circles in the shop

Six Sigma implies

- A statistical method
- A trouble-shooting method
- Teams are effective
- **3 defects per million in output**
- All above

A **service** cannot be

- **Stored**
- Inspected
- Targeted
- Appraised
- Flowcharted

SPC implies

- Statistical process control
- Use of control charts
- Fixing assignable causes
- Sometimes leaving the process alone
- **All above**

A Stable Process has

- No defects in output
- 3 ppm output
- Good control on vendors
- Motivated workers
- **No variation with time in output**

Fishbone diagrams are drawn

- To find customer needs
- To find the cost of quality
- **To brainstorm causes of an effect**
- To screen workers' suggestions
- To explain what the process does

Process Flow Charts help explain

- **Process steps and their relationship**
- Cost of quality
- A clause in ISO 9000
- Customer complaints
- Assignable causes

Quality control does not apply to

- Drawing flow charts
- Drawing control charts
- Driving
- **Idea generation**
- PTA meetings

Strategy implies

- What level of quality the customers want
- **What the company has to do to reach its vision**
- How competitive we are
- Practices on the shop floor
- Workers can talk to management

QFD is the way to

- Fix typing errors
- Fix sampling plans
- Conduct quality circle meetings
- **Develop product specs**

A key reason for lost productivity is

- Not implementing TQM
- Mgmt. not listening to workers
- **The hidden factory**

Most auto accidents are

- Correlated with fuel efficiency
- Caused by chance
- **Preventable**
- At 6 sigma level
- Caused by bad design

A system involves

- Components
- An overall objective or mission
- Humans, procedures, technology
- Environment in which it operates
- **All above**

A process is predictable if

- **We can forecast its output**
- It is always at the same level
- It has no humans involved
- The data can be plotted on a chart
- The same workers stay employed

Range of 1, 2, 3, 4, 5 is

- 5
- **4**
- 3
- 2
- 0

The quantity sigma (σ) indicates

- Trend in the process
- **Dispersion in the data**
- Lack of attention by workers
- Average
- Range

When you have too many factors on a fish-bone chart, then

- Take top ten
- Take top five
- **Inquire to find which factors are suspected to be significant**
- Conduct design of experiments
- Talk to customers

The word **Control** implies

- Inspecting every item
- Plotting charts
- **Using a signal to adjust the process**
- Management by Objectives
- Team control the shop

QFD is a method for

- Controlling quality in production
- Controlling quality in restaurants
- Finding out what customer wants
- **Translating customer needs to product specs**
- Quality circles

A Capable Process

- Is never outside control limits
- **Meets or exceeds spec requirements**
- Has no defects in output
- Has good management support
- Is ISO 9000 certified

DOE may fail because

- Control charts are incorrectly drawn
- No team involvement
- **A key factor has been left out**
- Top management not visible
- Workers overzealous

TQM is part of

- **Strategic management**
- ISO 9000 certification
- QS 9000 certification
- Hospital management
- Project reviews

The word **target** in quality means

- The specification
- The control limits
- Xbar points on the chart
- **The ideal quality requirement**
- Six sigma production

Six sigma requires

- Process knowledge
- An indulging mindset
- Action on causes of defects
- DOE trials
- **All above**

Spec limits are used for

- Talking to workers about quality
- Adjusting control charts
- **Finding process capability**
- Drawing R charts
- Troubleshooting

ISO 9002 requires

- Constantly holding meetings with customers
- Frequent vendor visits
- **Getting production and inspection/installation methods certified**
- Getting final inspection methods shipshape
- Team deliberations for quality

Quality is a problem because

- Modern processes are too complex
- Workers don't do the job
- It is expensive to control
- **All processes have some variation**
- Management do not fund projects

A Reaction Plan is

- A flow chart
- An afterthought
- A way to produce good products
- **A checklist to use when things don't look right**
- A way to check incoming parts

The best strategy in quality is

- To inspect the output before shipment
- **To aim to produce on target**
- To check machines every day
- To keep workers relaxed
- To hold training meetings every week

DOE identifies

- Causes of delayed shipments
- **Factors that affect the output**
- Traffic congestion points
- Control limits
- Why meetings are not running smoothly

Interaction implies

- **Effect of one factor depends on where some other factor is set**
- Managers moving about
- Team meetings
- Xbar and R charts looking similar
- Teamwork

Weather variation is difficult to explain because

- Atmosphere is too large a system
- We cannot plot temperature on Xbar charts
- **Don't understand the process behind it**
- Experts have not taken trouble to explain weather
- TV channels use graphics

Cost of quality is affected by

- Workers' performance
- Field failures
- Calibration of instruments
- Preventive actions
- **All above**

Quality of education can be impacted by

- Surplus in federal budget
- Sports programs
- **Attention to details**
- Parents meeting with city officials
- Kids having friends
- Closer tab on principals

Study methods can be improved by

- **Benchmarking**
- Improved note taking
- Vacations
- Sitting in the front row
- Buying books