

MG1352 TOTAL QUALITY MANAGEMENT
UNIT I INTRODUCTION
PART-A

1. Define Quality.
2. What are the dimensions of quality?
3. Why quality planning is needed?
4. What are the essential steps of quality planning?
5. Write down the Juran's quality planning.
6. What is the cost of quality?
7. List out the different quality costs.
8. Distinguish between appraisal and failure costs.
9. What are prevention costs?
10. What are hidden cost?
11. Write down the objectives of quality cost evaluation.
12. Define TQM & TQM frame.
13. Write down the basic concepts of TQM.
(What are the elements of TQM)
14. What are the popular awards for quality?
15. List out the Indian companies which won Deming award.
16. Who are quality Gurus? Among them who trained Japanese CEO after second world war?
17. Define leadership. What are the principles of leadership?
18. What is quality council?
19. What are the duties of quality council?
20. What is quality statement? Give example for each.
21. Write down Deming's 14 points.
22. What are the barriers to TQM implementation?
23. What is the role of senior management?
24. What is strategic planning?
25. Why is it difficult to change organization culture?

Part-B

- 1.a. Write down the dimensions of quality with example.
b. Enumerate the duties of quality council.
2. Explain Deming's 14 points for improving quality, productivity and competitiveness.
- 3.a. what are the consumer prescriptions on quality?
b. Explain quality planning?
4. Explain the cost of quality in detail.
5. Discuss about the basic concepts and principles of TQM?
- 6.a. Discuss the importance of leadership.
b. What are the barriers for TQM implementation?
7. What is the role of senior management?
8. Describe the steps involved in strategic planning.

UNIT II TQM PRINCIPLES

PART-A

1. Draw a TQM framework.
2. Why are customer complaints important?
3. What is customer satisfaction?
4. Distinguish between Internal and External customers?
5. List out the customer prescription of quality
6. Why is customer retention important?
7. What is meant by motivation?
8. Write down the need for empowerment? What are the benefits?
9. Why is teamwork required?
10. What is the role of team leader?
11. What is the role facilitator?
12. What are the barriers to team progress?
13. Write about recognition and reward.
14. Why is performance appraisal conducted?
15. Write about management involvement.
16. Write about employee involvement.
17. Why is continuous improvement process required?
18. What is Juran's Trilogy?
19. What is PDCA cycle?
20. Write about 5S
21. Distinguish between Kaizen and Kairyo.
22. Why is customer – supplier partnership required?
23. Classify the sources of supplier.
24. What is performance measure?
25. Mention the categories for which Malcom Baldrige National Quality Award given?

PART-B

1. Explain the following things are treated important :
 - i. Customer satisfaction
 - ii. Customer complaints
 - iii. Service quality
 - iv. Customer retention
2. a. Describe employee involvement and empowerment
b. Why are “performance appraisal” and “recognition and reward” are needed?
3. a. What are the various teams? Explain.
b. Explain the role and responsibility of team leader and facilitator.
4. Explain Juran's Trilogy.
5. Explain: i. 5S concept ii. Kaizen iii. Supplier selection iv. Relationship development
6. Describe the performance measure in detail.
7. Describe the Maslow's need hierarchy theory and Herzberg's two factor theory for motivation.

UNIT III STATISTICAL PROCESS CONTROL (SPC)

PART-A

1. List out the Seven Tools of quality.
2. What is Pareto diagram?
3. Draw a Cause and Effect diagram.
4. Draw the sample diagrams for the following:
 - i. Graph
 - ii. Histogram
 - iii. Scatter diagram
 - iv. Check sheet
5. Define: Mean, Median and Mode.
6. Define: Range and Standard deviation.
7. What are the measures of central tendency and dispersion?
8. What do you mean by population and sample?
9. What is control chart?
10. What is called control chart for variables?
11. What is called control chart for attributes?
12. Distinguish between 'defect' and 'defective' ?
13. Write down Control limits for i. **P** chart ii. np chart iii.c chart & iv.u chart
14. Give example for p and np charts
15. Give example for c and u charts
16. Define process capability
17. What is process capability index?
18. Write down the steps for calculating the process capability index
19. What is six sigma?
20. What are the stages of six sigma?
21. What are the new seven management tools of quality?
22. What is affinity diagram?
23. What is the use of relationship diagram?

24. When do we use tree diagram?
25. What is matrix diagram?
26. What is use of PDPC?
27. What is arrow diagram?
28. What is matrix data analysis diagram?

PART-B

1. Explain the seven tools of quality
2. How the pareto analysis done? explain with example
3. How is cause and effect diagram constructed? Discuss in detail with a case study.
4. a. Discuss the properties of normal curve.
b. What are the measures of central tendency and dispersion?
5. Describe the control charts for variable and attributes.
6. Describe the control charts for defects or non-conformities
7. Describe the process capability analysis concept of six – sigma.
8. Discuss about the new seven management tools of quality.
9. Draw the general structure of 'house of quality' and indicate the constituents.
10. Explain with example how affinity and relation diagrams are used.
11. Explain with examples how tree and arrow diagrams are used.
12. Explain with examples how Matrix diagrams and Matrix data analysis methods are used.
13. Describe with suitable examples how the PDPC method and affinity diagram are used.

MG 1401 TQM UNIT III PROBLEMS

1. Find the arithmetic mean of the following runs scored by 10 cricketers in a test match :
43, 31, 112, 4, 66, 32, 20, 7, 6.
2. Given the following frequency distribution, calculate mean:

WEEKLY WAGES(Rs.)	NO. OF WORKERS	WEEKLY WAGES(Rs.)	NO. OF WORKERS
125-175	2	375-425	4
175-225	22	425-475	6
225-275	19	475-525	1
275-325	14	525-575	1
325-375	3		

3. Find the median wage of the following distribution:

WAGES(Rs.)	20-30	30-40	40-50	50-60	60-70
NO.OF LABOURERS	3	5	20	10	5

4. Find the mode of the following distribution:

CLASS INTERVAL	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
FREQUENCY	5	8	7	12	28	20	10	10

5. A manufacturer produces air mail envelopes where weight is normal with mean $\bar{x}=1.95$ gm and S.D = 0.025 gm. The envelope are solid in lots of 1000. How many envelopes in a lot may be heavier than 2 gms?
6. In the manufacturer of armatures for electric motors, inspection results pf of 20 samples of each having 100 unit of armatures given in the following table. Calculate the average fraction defective and control a p chart and comment on the process .

SAMPLES NO.	1	2	3	4	5	6	7	8	9	10
NO. OF DEFECTIVES	8	4	7	9	11	4	5	3	8	9

SAMPLES NO.	11	12	13	14	15	16	17	18	19	20
NO. OF DEFECTIVES	12	14	6	9	5	8	4	10	7	11

7. In the manufacture of connecting rod assembly, the no. of defectives found in the inspection of 15 samples of 50 items in each sample are given in the following table.

SAMPLE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	16	15
NO. OF DEFECTIVES	8	7	5	4	8	7	9	21	12	10	9	8	16	15	17

- a. Determine the trial control limits, construct the np chart and state whether the process is in control.
- b. If any point goes outside the control limits, determine the reverse control limits eliminating the point.
8. In the final inspection of 20 aircrafts, the missing rivets are found in the plane are given in the following table. Find the trial control limits and plot the chart for c. what value of would you suggest for the subsequent period?

9.

AIRPLANE NO.	1	2	3	4	5	6	7	8	9	10
NO. OF DEFECTS	12	8	7	15	14	15	10	9	15	16

AIRPLANE NO.	11	12	13	14	15	16	17	18	19	20
NO. OF DEFECTS	17	29	23	22	14	17	19	20	21	22

10. In a textile mill, the following defects are found in the inspection of cloth from a weaving process. Find the trial control limits for u chart, if the sample size is to be considered as 20 meters for u charts.

S.NO	LENGTH OF CLOTHING METERS	NO. OF DEFECTS(C)
1	20	12
2	20	14
3	20	16
4	20	6
5	20	8
6	20	7
7	20	9
8	20	16
9	20	20
10	20	20

UNIT IV TQM TOOLS

PART-A

1. What is benchmarking?
2. List out the reasons for benchmarking.
3. What are the types of benchmarking?
4. Write down the benefits of benchmarking.
5. What are the pitfalls of benchmarking?
6. What is quality function development?
7. What are the objectives of QFD?
8. What is house of quality?
9. Draw the structure of house of quality.
10. Write about QFD process.
11. Write down the benefits of QFD.
12. List out the QFD uses.
13. What is 5W1H concept?
14. Define Taguchi Loss function.
15. Distinguish between Taguchi approach and traditional approach.
16. Write the concept of TPM.
17. What are the types of TPM?
18. What are the objectives of TPM?
19. List out the pillars of TPM.
20. What is quality loss as per Taguchi?
21. What are the 6 big losses?
22. Write down the 12 steps for TPM development.
23. What is OEE?
24. Write down the benefits of TPM.
25. What is FMEA?
26. What are the types of FMEA?
27. Write down the benefits of FMEA.
28. List out the stages of FMEA.
29. Draw the FMEA form.
30. List out a brief procedure for performing FMEA.

PART-B

1. Explain the benchmarking process in detail.
2. a. Draw the general structure of house of quality and explain.
b. Explain quality function development process.
3. Explain the TPM process in detail
4. a. what are the 6 major loss areas that are measured, tracked and measured in a TPM program?

- b. Indicate the method of measuring major losses.
5. Write detailed information on Taguchi's Quality loss function.
6. List out the 4 stages of FMEA and indicate the activities carried out under each stage.
- 7.a. Explain how the Taguchi's Loss function differ from traditional loss function assumed from the specifications and tolerances.
 - b. Explain the objectives, process, outcome and benefits of FMEA.
- 8.a. Explain Taguchi's quality engineering using loss – to – society concept.
 - b. How can the failures of a product be classified? Write the stages of FMEA.
- 9.a. Explain the 5W1H concept?
 - b. Explain the step by step procedure to perform design FMEA with computer mouse as an example.

UNIT V QUALITY SYSTEMS

PART-A

1. What is ISO? Write down the need for ISO 9000
2. What are the elements of ISO?
3. What are the ISO 9000 series standards?
4. What is the need for documentation?
5. What are the main elements of ISO 14000?
6. What is the equivalent Indian standard for ISO:8402?
7. Define quality audit
8. Draw the model of process based quality management system given in ISO 9001: 2000
9. Differentiate TS 16949 and ISO 14001 standards
10. What are the concepts of ISO 14000?
11. What is an environmental objective?
12. Indicate the importance of documentation while developing the quality system in an organization.
13. What are the types of audit?
14. What are the stages of audit?
15. List out the benefits of ISO 14000
16. What is meant by quality auditing?
17. Explain about NCR
18. What is the responsibility of management?
19. Explain the need for the quality systems in an organization
20. What is EMS?

PART-B

1. Explain the steps to be followed in implementing quality system ISO 9001: 2000
2. a. Distinguish between internal and external audit
 - b. What are the requirements of ISO: 14000? Explain them briefly
3. a. Explain the steps followed to get ISO 9000 certification for an educational institute
 - b. What are the elements of ISO 9000: 2000.
4. a. Define quality system audit and explain the evaluation of ISO 9000
 - b. Explain ISO 14000 with an industrial application
5. Consider a company involved in testing the strengths of components. Currently 50 engineers are working in the company. Explain the steps that the company should take to implement ISO 9001:2000 based quality system and obtain the certificate from a certifying agency.

6.
 - a. With the aid of a pyramidal diagram, describe the documentation hierarchy stipulated in ISO 14001 based
 - b. Enumerate the organization benefits achievable on implementing ISO 14001 based systems
7.
 - a. What are the objectives of ISO 9000?
 - b. Discuss in detail the elements of ISO 9000
8.
 - a. What is the registration process of ISO 9000? What questions will the auditors might ask?
 - b. Explain in detail different types of quality audits
9. Briefly explain the concepts, requirements and benefits of ISO 14000
10. Write short notes on
 - a. Policy, procedures, work instructions and records
 - b. Quality auditing