Printed Page:- 04 **Subject Code:- AOE0861**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
B.Tech
SEM: VIII - THEORY EXAMINATION (2023 - 2024)
Subject: Total Quality Management

Time: 3 Hours **Max. Marks: 100**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of* ***three Sections -A, B, & C.*** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

SECTION-A 20

1. Attempt all parts:-

1-a. Select which statement best describes the concept of quality assurance? (CO1) 1

(a) It involves fixing errors after production.
(b) It ensures that products meet certain standards.
(c) It focuses solely on marketing strategies.
(d) It deals with employee training only.

1-b. Select what action can a company take to prevent defects during production? (CO1) 1

(a) Increase production speed
(b) Reduce employee training
(c) Implement quality control measures
(d) Ignore product testing

1-c. According to the concept of customer focus in TQM, which of the following is the most important factor to consider? (CO2) 1

(a) Meeting production quotas
(b) Fulfilling shareholder expectations
(c) Understanding and exceeding customer needs
(d) Maintaining consistent profit margins

1-d. The PDCA cycle (Plan-Do-Check-Act) is a framework used for: (CO2) 1

(a) Performance appraisal

(b) Continuous process improvement
(c) Conflict resolution
(d) Customer segmentation

1-e. DMAIC stand for in Six Sigma methodology : (CO3) 1
(a) Define, Measure, Analyze, Implement, Control
(b) Define, Monitor, Analyze, Improve, Change
(c) Determine, Measure, Analyze, Implement, Control
(d) Develop, Modify, Analyze, Integrate, Customize

1-f. Which of the following is a key component of Six Sigma projects? (CO3) 1
(a) Control Plan
(b) Quality Circle
(c) Gantt Chart
(d) Fishbone Diagram

1-g. The main purpose of a control chart is: (CO4) 1
(a) To detect and correct errors
(b) To improve product quality
(c) To monitor and control the process
(d) To reduce production costs

1-h. The ultimate goal of QFD is: (CO4) 1
(a) To improve product performance
(b) To increase customer satisfaction
(c) To reduce product defects
(d) To reduce production costs

1-i. ISO 14000 standards are focused on: (CO5) 1
(a) Quality management
(b) Occupational health and safety
(c) Environmental management
(d) Information security

1-j. ISO 9000:2000 focuses on: (CO5) 1
(a) Product quality management
(b) Quality management systems
(c) Environmental management systems
(d) Health and safety management

2. Attempt all parts:-

2.a. Differentiate between internal and external barriers to TQM adoption. (CO1) 2

2.b. Briefly explain the "customer focus" concept within the Total Quality Management (TQM) framework. (CO2) 2

2.c. Explain the concept of the Pareto Principle and its relevance in quality 2

	management. (CO3)	
2.d.	Write the importance of data collection and analysis in SPC? (CO4)	2
2.e.	Explain the purpose of document control in quality management. (CO5)	2
SECTION-B		30
3. Answer any five of the following:-		
3-a.	Analyze the potential barriers to implementing TQM in an organization and suggest strategies to overcome them. (CO1)	6
3-b.	Evaluate the impact of poor quality on organizational performance, considering factors such as customer satisfaction, brand reputation, and financial implications. (CO1)	6
3-c.	Discuss the role of recognition and reward programs in motivating employees and fostering a quality culture within an organisation. (CO2)	6
3-d.	Explain the DMAIC methodology used in Six Sigma, highlighting the key steps in this problem-solving framework. (CO2)	6
3.e.	Explain the concept of "Continuous Improvement" in Total Quality Management (TQM) philosophy, outlining its principles and discussing how organizations can foster a culture of continuous improvement. (CO3)	6
3.f.	Describe the role of the relationship matrix in QFD and how it is used to prioritize design requirements. (CO4)	6
3.g.	Explain the role of top management in ensuring the effectiveness of a quality management system? (CO5)	6
SECTION-C		50
4. Answer any one of the following:-		
4-a.	Design a process flowchart for a common task in your daily life, identifying potential quality improvement opportunities. (CO1)	10
4-b.	Analyze the impact of TQM on employee morale and productivity. (CO1)	10
5. Answer any one of the following:-		
5-a.	Describe the role of Quality Councils in promoting employee involvement. (CO2)	10
5-b.	Explain the core concepts of Six Sigma methodology and its philosophy for achieving near-perfect quality. (CO2)	10
6. Answer any one of the following:-		
6-a.	Compare and contrast the principles of Total Quality Management (TQM) and Six Sigma methodologies, discussing their key concepts, methodologies, tools, and applications in organizational quality improvement initiatives. (CO3)	10
6-b.	Explain the concept of "Quality Function Deployment" (QFD) in Total Quality Management (TQM), describing its process, objectives, and benefits, and providing examples of how QFD can be applied to enhance product or service quality. (CO3)	10
7. Answer any one of the following:-		

7-a.	Explain the different types of control charts used in SPC, such as X-bar and R charts, p-charts, np-charts, c-charts, and u-charts. Discuss their applications and the criteria for selecting the appropriate chart. (CO4)	10
7-b.	Discuss the challenges and limitations of implementing SPC in various industries and processes. How can these challenges be addressed? (CO4)	10

8. Answer any <u>one</u> of the following:-

8-a.	Investigate are the potential challenges associated with implementing a quality management system? How can these challenges be overcome? (CO5)	10
8-b.	Discuss the impact of new technologies, such as artificial intelligence and big data, on quality management practices. (CO5)	10