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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: VIII - THEORY EXAMINATION (2025 - 2026)

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:-

- | | | |
|-------|--|---|
| (1.1) | Select term that describes the continuous effort to improve processes and products.
(CO1, K2) | 1 |
| (a) | Quality control | |
| (b) | Total Quality Management | |
| (c) | Efficiency | |
| (d) | Cost-cutting | |
| (1.2) | A customer-focused approach in a retail store is best shown by: (CO1, K2) | 1 |
| (a) | Arranging products without considering customer preferences | |
| (b) | Suggesting products based on individual customer needs | |
| (c) | Limiting store hours to reduce staff workload | |
| (d) | Ignoring customer complaints and feedback | |
| (1.3) | Select a benefit of achieving high customer retention. (CO2, K2) | 1 |
| (a) | Reduced need for marketing and advertising | |
| (b) | Increased likelihood of receiving customer referrals | |
| (c) | Both a and b | |
| (d) | Neither a nor b | |
| (1.4) | In total quality management, the acronym PDCA stands for (CO2, K2) | 1 |
| (a) | Plan, Do, Check, Act | |
| (b) | Process, Develop, Control, Analyze | |
| (c) | Production, Deployment, Coordination, Assessment | |
| (d) | Prevent, Detect, Correct, Analyze | |

- (1.5) Select the factor that plays a critical role in achieving successful Six Sigma implementation in an organization. (CO3, K2) 1
- (a) Quick-fix solutions
 - (b) Top management involvement and commitment
 - (c) Resistance to change among employees
 - (d) Lack of training for project teams
- (1.6) Select the statistical tool that analyzes process variations and highlights potential sources of defects in Six Sigma. (CO3, K2) 1
- (a) Scatter Plot
 - (b) Control Chart
 - (c) Histogram
 - (d) Pareto Chart
- (1.7) The ISO 9000 family of standards focuses on: (CO4, K2) 1
- (a) Product design and development
 - (b) Quality management systems
 - (c) Environmental management
 - (d) Marketing and sales practices
- (1.8) The goal of TPM "education and training" stage is: (CO4, K2) 1
- (a) To train maintenance personnel in TPM principles
 - (b) To educate management on TPM benefits
 - (c) To train equipment operators on TPM best practices
 - (d) To train customers on TPM benefits
- (1.9) Standard for Occupational Health and Safety Management Systems. (CO5, K2) 1
- (a) ISO 9001
 - (b) ISO 14001
 - (c) ISO 18001
 - (d) ISO 27001
- (1.10) ISO 9000:2000 introduced a process-based approach to (CO5, K1) 1
- (a) Environmental management
 - (b) Quality management
 - (c) Safety management
 - (d) Financial management

2. Attempt all parts:-

- (2.1) Classify examples of strategies for enhancing customer satisfaction. (CO1, K2) 2
- (2.2) State two factors an organisation should consider in selecting the most appropriate quality system standard. (CO2, K2) 2
- (2.3) Explain the purpose of SIPOC (Supplier, Input, Process, Output, Customer) diagram and how it is used in process improvement initiatives. (CO3, K2) 2
- (2.4) Explain the difference between control limits and specification limits. (CO4, K2) 2
- (2.5) Determine the standard used for auditing management systems. (CO5, K2) 2

SECTION-B

30

Answer any one of the following:-

- (3.1) Analyze the factors influencing customer loyalty in a competitive market environment, considering variables such as product quality, price, and customer service. (CO1, K4) 6
- (3.2) Define service quality and explain its various elements that contribute to customer satisfaction. (CO1, K2) 6

Answer any one of the following:-

- (3.3) Explain the concepts of 5S and Kaizen in Total Quality Management. Also, discuss the contributions of TQM gurus in the development and promotion of quality management practices. (CO2, K2) 6
- (3.4) Identify and explain two significant barriers that can hinder the successful implementation of total quality management. (CO2, K2) 6

Answer any one of the following:-

- (3.5) Explain the concept of Six Sigma in quality management. Describe its key objectives and discuss how it is used to improve processes in manufacturing and service sectors, including IT. (CO3, K3) 6
- (3.6) Explain the DMAIC methodology used in six sigma, highlighting the key steps in this problem-solving framework. (CO3, K2) 6

Answer any one of the following:-

- (3.7) Briefly explain the statistical process control concept and its role in a quality management system. (CO4, K2) 6
- (3.8) Describe the difference between verification and validation. (CO4, K2) 6

Answer any one of the following:-

- (3.9) Briefly explain the key differences between ISO 9000 and ISO 9001. (CO5, K2) 6
- (3.10) Explain the process of collecting and documenting audit evidence during a quality audit. (CO5, K2) 6

SECTION-C 50

4. Answer any one of the following:-

- (4.1) Discuss the challenges and limitations associated with implementing total quality management in organizations, and provide recommendations for overcoming these challenges and ensuring the successful adoption and sustainability of total quality management practices. (CO1, K2) 10
- (4.2) Employee engagement is crucial for the success of total quality management initiatives. Describe various strategies that organizations can use to empower employees and encourage their active participation in quality improvement efforts. (CO1, K2) 10

5. Answer any one of the following:-

- (5.1) You are the product development manager for a company aiming to foster a culture of continuous improvement and innovation. Design a process for integrating quality management principles with your product development cycle. This may include incorporating voice of the customer (VOC) feedback and utilising quality tools to optimise new product design and functionality. (CO2, K3) 10
- (5.2) Explain the concept of total quality management and its core principles. (CO2, K2) 10

6. Answer any one of the following:-

- (6.1) Discuss the role of total quality management tools in driving continuous improvement and organizational excellence, provide examples of commonly used total quality management tools and techniques and explain how they can be applied to solve quality-related challenges. (CO3, K2) 10
- (6.2) Discuss the importance of supplier relationship management in total quality management, explain how organizations can build strong partnerships with suppliers, collaborate on quality improvement initiatives, and ensure the delivery of high-quality materials and services. (CO3, K2) 10

7. Answer any one of the following:-

- (7.1) Explain the role of total quality management audits in evaluating organizational performance and compliance with quality standards, discuss how total quality management audits help identify areas for improvement and ensure the effectiveness of quality management systems. (CO4, K2) 10
- (7.2) The Plan-Do-Check-Act cycle is a fundamental principle of continuous improvement. Analyze how other quality tools and techniques can be integrated within the PDCA framework. (CO4, K4) 10

8. Answer any one of the following:-

- (8.1) Discuss the role of risk management in a quality management system and explain ways identifying and mitigating risks contributes to quality improvement.(CO5, K3) 10
- (8.2) Discuss the impact of new technologies, such as artificial intelligence and big data, on quality management practices. (CO5, K2) 10