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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 explains the importance of customer focus in business? (CO1) 1

(a) It ensures the highest profits.

(b) It increases employee satisfaction.

(c) It fosters brand loyalty.

(d) It decreases market competition.

1-b. The approach that would be the most effective for retaining customers in an e-commerce business is (CO1) 1

(a) Slow response to customer inquiries

(b) Providing personalized recommendations

(c) High shipping costs

(d) Limited payment options

1-c. Quality Function Deployment (QFD) is a tool used to: (CO2) 1

(a) Develop detailed engineering drawings

(b) Translate customer needs into product or service requirements

(c) Conduct performance appraisals

(d) Schedule production tasks

1-d. An SPC control chart shows: (CO2) 1

(a) Individual data points without any context

(b) The process average and control limits for identifying variations

(c) Employee performance ratings

(d) The desired production output for a specific period

1-e. Which of the following is a common metric used to measure process capability in Six Sigma? (CO3) 1

(a) Mean Time Between Failures (MTBF)

(b) Process Sigma Level (σ)

(c) Overall Equipment Effectiveness (OEE)

(d) Customer Satisfaction Index (CSI)

1-f. In Six Sigma, what does the term "Kaizen" refer to? (CO3) 1

(a) A rapid improvement event focused on a specific process or problem

(b) A statistical method for analyzing process variations

(c) A technique for prioritizing improvement opportunities

(d) A tool for visualizing process flows and identifying bottlenecks

1-g. The concept of Taguchi's Quality Loss Function was developed by: (CO4) 1

(a) Genichi Taguchi

(b) Joseph Juran

(c) Kaoru Ishikawa

(d) Shewhart

1-h. According to Taguchi, the consequence of producing a defective product is: (CO4) 1

(a) It reduces the cost of production

(b) It increases the cost of production

(c) It increases the cost of product modification

(d) It reduces the cost of quality loss

1-i. ISO 9001 certification is commonly sought by organizations to: (CO5) 1

(a) Ensure effective waste management

(b) Improve customer satisfaction

(c) Enhance employee salaries

(d) Reduce corporate taxes

1-j. ISO 50001 is related to: (CO5) 1

(a) Quality Management

(b) Environmental Management

(c) Energy Management

(d) Risk Management

2. Attempt all parts:-

2.a. List two reasons why customer complaints are important. (CO1) 2

2.b. Describe one key benefit and element of Total Productive Maintenance (TPM). (CO2) 2

2.c. Explain the significance of "Quality Circles" in fostering employee involvement and continuous improvement in organizations. (CO3) 2

2.d. Discuss the role of parameter design in the Taguchi methodology? (CO4) 2

2.e. Explain the term "corrective action plan." (CO5) 2

SECTION B **30**

3. Answer any <u>five</u> of the following:-

3-a. Define quality and list its dimensions according to various quality scholars such as Juran, Crosby, and Deming. (CO1) 6

3-b. Design a customer feedback survey to measure satisfaction with a specific product or service, including questions that capture both quantitative and qualitative feedback. (CO1) 6

3-c. Briefly explain the Statistical Process Control (SPC) concept and its role in a quality management system. (CO2) 6

3-d. Describe the key steps in implementing a successful TPM program within an organization. (CO2) 6

3.e. Explain the importance of "Supplier Quality Management" in Total Quality Management (TQM), discussing strategies for selecting, evaluating, and collaborating with suppliers to ensure the delivery of high-quality materials and services. (CO3) 6

3.f. How can the Taguchi method be used to optimize process parameters and reduce variability? (CO4) 6

3.g. Discuss the purpose of establishing a quality policy in an organization? (CO5) 6

SECTION C **50**

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

4-a. Evaluate the effectiveness of Total Quality Management in improving organizational performance. (CO1) 10

4-b. Technology plays an increasingly important role in quality management. Discuss how advancements in technology, such as automation, data analytics, and artificial intelligence, can be leveraged to enhance TQM practices. (CO1) 10

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

5-a. Explain the growing importance of data analysis and the use of big data in modern quality management practices. (CO2) 10

5-b. Discuss the challenges and opportunities associated with implementing and maintaining quality management systems in a globalized business environment. (CO2) 10

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

6-a. Explain the concept of "Total Quality Management (TQM) Culture" in organizations, describing its key elements, characteristics, and benefits, and discussing strategies for creating and sustaining a TQM culture that promotes continuous improvement and excellence. (CO3) 10

6-b. Explain the concept of "Continuous Learning and Improvement" in quality management, discussing its importance in fostering innovation, agility, and competitiveness in organizations, and providing examples of how organizations can promote continuous learning and improvement among employees. (CO3) 10

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

7-a. Discuss the origins and evolution of TPM, including its development in Japan and its adoption in other countries. (CO4) 10

7-b. Elaborate on the steps involved in implementing TPM in an organization, including the preparatory phase, implementation phase, and sustaining phase. (CO4) 10

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

8-a. The future of quality management is likely to be influenced by trends such as sustainability and social responsibility. How can organizations integrate these concepts into their quality strategies? (CO5) 10

8-b. Explain the purpose and benefits of using tools like FMEA (Failure Mode and Effects Analysis) and SPC (Statistical Process Control) in quality management. (CO5) 10