

Plot No. 2, Knowledge Park-III, Greater Noida (U.P.) –201306

POST GRADUATE DIPLOMA IN MANAGEMENT (2024-26)
END TERM EXAMINATION (TERM -III)

Subject Name: **Total Quality Management**

Time: **02.00 hrs**

Sub. Code: **PGO32**

Max Marks: **40**

Note: All questions are compulsory. Section A carries 12 marks: 6 questions of 2 marks each, Section B carries 18 marks having 3 questions (with internal choice question in each) of 6 marks each and Section C carries 10 marks one Case Study having 2 questions of 5 marks each.

- CO-1** Students will be able to understand the theoretical and basic concepts of total quality management. Recognize the practices of quality management systems to meet the customers' and stakeholders' expectations.
- CO-2** Students will be able to Apply theoretical knowledge in the key decision-making areas and use of International Quality Certification Systems and standards and their applicability in design manufacturing quality control and services.
- CO-3** Students will be able to analyze quality management with mathematical models and IT tools to improve overall business performance.
- CO-4** Students will be able to enhance creativity, critical thinking and analytical ability through developing an integrated approach to TQM
- CO-5** Students will be able to incorporate the Practical Implications of the course which helps them in analyzing the real-time scenario
- CO-6** Students will be able to co-relate the course identity with the real case scenarios implemented by large-scale organizations.

SECTION - A

Attempt all questions. All questions are compulsory.

2×6 = 12 Marks

Questions	CO	Bloom's Level
Q. 1: (A). Define Total Quality Management and its core objective.	CO1	L-1
Q. 1: (B). What are the four types of quality costs?	CO1	L-1
Q. 1: (C). What are the four types of quality costs?	CO1	L-2
Q. 1: (D). Differentiate between Kaizen and Benchmarking.	CO2	L-1
Q. 1: (E). What is the role of customer satisfaction in TQM?	CO2	L-3
Q. 1: (F). State two benefits of using control charts in SPC.	CO2	L-3

SECTION – B

All questions are compulsory (Each question has an internal choice. Attempt anyone (either A or B) from the internal choice)

6 x 3 = 18 Marks

Questions	CO	Bloom's Level
Q. 2: (A). A process has an upper specification limit of 10 and a lower limit of 4. The process mean is 7, and the standard deviation is 1.5. Calculate Cp and Cpk and interpret the result.	CO3	L-4, L-5
Or		
Q. 2: (B). Draw a simple $\bar{X}$ and R chart from the following data: • Sample 1: 5, 7, 6		

• Sample 2: 8, 7, 9 • Sample 3: 6, 6, 7 Q. 3: (A). Briefly explain DMAIC methodology with an example of quality improvement in a manufacturing setup. Or Q. 3: (B). A product shows a 1.5% defect rate. Assuming a binomial distribution, what is the probability of finding at most 2 defects in a sample of 10 units? Q. 4: (A). Discuss the role of BPR in improving organizational performance with any one industry example. Or Q. 4: (B). Explain the steps of implementing a CRM system and how it enhances customer satisfaction.	CO4	L-6
<u>SECTION - C</u> Read the case and answer the questions 5×02 = 10 Marks		
Questions	CO	Bloom's Level
Q. 5: Case Study: Maruti Suzuki, India's largest passenger car manufacturer, encountered persistent challenges in its production system, marked by inconsistent output, frequent line stoppages, and significant wastage on the assembly line. These issues not only hampered the company's manufacturing efficiency but also impacted customer satisfaction due to recurring delays in vehicle deliveries. In response, the company launched a comprehensive Process Management Initiative, aligned with the principles of Total Quality Management (TQM). The primary objective was to enhance process visibility, ensure accurate measurement, and drive continuous improvement across all operations. A dedicated cross-functional team undertook process mapping using tools such as SIPOC (Suppliers-Inputs-Process-Outputs-Customers) and identified Critical-to-Quality (CTQ) characteristics. They also employed Statistical Process Control (SPC) techniques to monitor and manage variations in output quality. The team concentrated its efforts on a critical bottleneck area—the car body painting line. Adopting the DMAIC (Define, Measure, Analyze, Improve, Control) framework, the team first defined key defect types and mapped them against customer expectations. In the measurement phase, historical data on defect rates such as paint bubbles and uneven coats were gathered. The analysis phase involved identifying root causes through Ishikawa diagrams and prioritizing them using Pareto analysis. Improvement actions included enhancing the ventilation system and recalibrating robotic arms to ensure uniform application of paint. Finally, control mechanisms were instituted through periodic audits and the use of visual management dashboards to sustain process gains. The initiative proved highly successful, leading to a 42% reduction in painting defects, an 18% increase in throughput, and a significant decline in customer complaints.	CO6	L-6,L-3

Questions: Q. 5: (A). Explain how the DMAIC methodology was applied in the case of the Maruti Suzuki painting line. How did each phase contribute to process improvement? Q. 5: (B). What is the significance of identifying CTQ characteristics in process management? How can tools like SIPOC and Pareto analysis aid in this?		
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Kindly fill the total marks allocated to each CO's in the table below:

COs	Question No.	Marks Allocated
CO1	1(A),1(B),1(C)	6
CO2	1(D),1(E),1(F)	6
CO3	2(A)OR 2(B)	6
CO4	3(A)OR 3(B)	6
CO5	4(A)OR 4(B)	6
CO6	5(A) & 5(B)	10

(Please ensure the conformity of the CO wise marks allocation as per your TLEP.)

Blooms Taxonomy Levels given below for your ready reference:

L1= Remembering

L2= Understanding

L3= Apply

L4= Analyze

L5= Evaluate

L6= Create