

Enrollment No.....



Faculty of Engineering
End Sem Examination Dec-2023
ME3EI07 TQM & SQC

Programme: B.Tech.

Branch/Specialisation: ME

Duration: 3 Hrs.**Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1 i. What is the primary goal of quality management? **1**
 (a) Maximizing profits (b) Minimizing costs
 (c) Meeting customer expectations (d) Expanding market share
- ii. Which of the following is a key principle of Total Quality Management (TQM)? **1**
 (a) Cost reduction at any cost
 (b) Customer satisfaction as the ultimate goal
 (c) Quick product development regardless of quality
 (d) Ignoring employee feedback
- iii. What does the "continuous improvement" principle in Total Quality Management (TQM) emphasize? **1**
 (a) One-time fixes for problems
 (b) Regular training programs
 (c) Constantly seeking ways to enhance processes
 (d) Strict adherence to established procedures
- iv. Which of the following is a fundamental element of Total Quality Management (TQM)? **1**
 (a) Ignoring customer feedback
 (b) Centralized decision-making
 (c) Employee involvement and empowerment
 (d) Minimal focus on process efficiency
- v. Which statistical tool is commonly used in SQC processes to analyze variations and identify trends in a process over time? **1**
 (a) Pareto analysis (b) Scatter diagram
 (c) Control chart (d) Fishbone diagram

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- vi. What does Statistical Quality Control (SQC) primarily focus on in manufacturing processes? **1**
 (a) Maximizing production speed
 (b) Minimizing employee training costs
 (c) Monitoring and controlling product quality through statistical methods
 (d) Ignoring variations in production output
- vii. What is the primary purpose of a Fishbone diagram in quality improvement? **1**
 (a) Identifying potential root causes of a problem
 (b) Showcasing the hierarchical structure of an organization
 (c) Presenting statistical data in a graphical format
 (d) Evaluating customer satisfaction levels
- viii. Which quality improvement tool is particularly useful for prioritizing and addressing the most significant issues based on their frequency or impact? **1**
 (a) Pareto analysis (b) Scatter plot
 (c) Histogram (d) Control chart
- ix. What is the primary focus of the six-sigma quality management methodology? **1**
 (a) Minimizing waste in production processes
 (b) Achieving a defect rate of 3.4 defects per million opportunities
 (c) Emphasizing environmental sustainability
 (d) Ensuring compliance with legal regulations
- x. Which international standard is widely recognized for Quality Management Systems (QMS)? **1**
 (a) ISO 14001 (b) ISO 9001 (c) ISO 27001 (d) ISO 45001
- Q.2 i. What is quality? **2**
 ii. Differentiate between conformance and performance. **3**
 iii. Discuss quality cost and its components. **5**
 OR iv. What is goal post and Kaizens view of quality? **5**
- Q.3 i. What is role of TQM in quality aspect? **2**
 ii. Explain PDCA cycle and 14-point philosophy. **8**
 OR iii. Write the key principles of TQM. **8**
- Q.4 i. What is funnel marble experiment? **4**

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- ii. Explain of p, np and u charts. **6**
 OR iii. A machine drills hole in a pipe with a mean diameter of 0.532 cm and a standard deviation of 0.002 cm. Calculate the control limits for mean of samples 5. **6**
- Q.5 i. Explain KANO model. **4**
 ii. Explain six sigma concepts with methodology. **6**
 OR iii. What is benchmarking? Explain it's types. **6**
- Q.6 Attempt any two:
 i. Differentiate between single and double sampling plan. **5**
 ii. Describe ISO 9001-2000. **5**
 iii. Write quality audits and its types. **5**

Marking Scheme
TQM & SQC (T) - ME3EI07 (T)

Q.1	i)	C) Meeting customer expectations	1
	ii)	B) Customer satisfaction as the ultimate goal	1
	iii)	C) Constantly seeking ways to enhance processes	1
	iv)	C) Employee involvement and empowerment	1
	v)	C) Control Chart	1
	vi)	C) Monitoring and controlling product quality through statistical methods	1
	vii)	A) Identifying potential root causes of a problem	1
	viii)	A) Pareto Analysis	1
	ix)	B) Achieving a defect rate of 3.4 defects per million opportunities	1
	x)	B) ISO 9001	1
Q.2	i.	Definition (As per explanation)	2
	ii.	Difference (1 Mark*3)	3
	iii.	Quality cost 2 Marks	
		Components 3 Marks	
OR	iv.	Goal post- 2 Marks	5
		Kaizens view of quality- 3 Marks	
Q.3	i.	Role (As per explanation)	2
	ii.	PDCA cycle- 2 Marks	8
		and 14-point philosophy-6 6 Marks	
OR	iii.	Principas (8x1) (1 Mark*8)	8
Q.4	i.	Explain (As per explanation)	4
	ii.	3 charts x2= (2 Marks*3)	6
OR	iii.	UCL =0.5346, LCL =0.5292 (As per explanation)	6
Q.5	i.	KANO model. (As per explanation)	4
	ii.	six sigma concepts- 2 Marks	6
		Methodology- 4 Marks	
OR	iii.	Benchmarking- 3 Marks	6
		Types- 3 Marks	
Q.6	i.	Difference (1 Mark*5)	5

ii.	Explain	(As per explanation)	5
iii.	Quality audits-Types-	2 Marks	5
		3 Marks	
