

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE –SEMESTER (NEW SYLLABUS) EXAMINATION- SUMMER 2019**

Subject Code: 2181920

Date: 13-05-2019

Subject Name: Quality Engineering (Department Elective III)

Time: 10:30 AM TO 01:00 PM

Total Marks: 70

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Which are the seven magnificent quality tools? **03**  
 (b) Define Quality. What are the functions of Quality Management? **04**  
 (c) What do you understand by Total Quality Management? Describe the contribution of Deming in the field of TQM. **07**
- Q.2** (a) What do you understand by ISO? State its levels. Mention its importance in the field of quality. **03**  
 (b) Define and explain quality circle. **04**  
 (c) You are working at a manufacturing concern as a Manager- Quality Control Department. Prepare following assignment:-  
 Activity/Task:- Preparation of “5S work sheet and One H” checklist for Kaizen **07**

**OR**

- (c) Give roadmap for implementation of TQM in a manufacturing company. **07**
- Q.3** (a) Give cause and effect diagram for following:- **03**  
 (i) High cost of textile industry  
 (ii) TQM in Technical Education  
 (b) Explain Types of waste and Explain regarding how you will eliminate/reduce following wastes:- **04**  
 (i) Waste of movement  
 (ii) Waste of overproduction.  
 (c) The quality related costs for a product AAA are given in Table 1. **07**

S.No.	Category	Cost in Rs.(Lakhs)
1	Defective stock	01
2	Inspection Process	20
3	Consumer adjustment	25
4	Down grading products	18
5	Incoming inspection	40
6	Repairs	09
7	Scrap (Waste)	10
8	Scrap (Reusable)	05
9	Plant quality control engineering	12
10	Corporate quality control engineering	20
11	Spot check inspection	40

Identify the Prevention cost, Appraisal cost and failure costs and gives your comments as a Manager QC.

**OR**

- Q.3** (a) Differentiate between Lean and Agile manufacturing. **03**  
 (b) What are muda, muri, and mura? Explain the various types of muda. **04**

	(c)	Define FMEA. Explain how it helps in ensuring quality of a product. Draw a typical format of FMEA and explain its elements in brief	<b>07</b>
<b>Q.4</b>	(a)	Describe concept of KAIZEN.	<b>03</b>
	(b)	How Taguchi method is useful in design of experimental?	<b>04</b>
	(c)	Describe preparation of Quality Function Deployment (QFD) house of quality matrix by giving suitable example.	<b>07</b>
<b>OR</b>			
<b>Q.4</b>	(a)	What is the difference between General Maintenance and Total Productive Maintenance?	<b>03</b>
	(b)	Explain world class manufacturing (WCM) concept.	<b>04</b>
	(c)	Explain PDCA cycle in details.	<b>07</b>
<b>Q.5</b>	(a)	Explain how you will implement Lean manufacturing technique in a manufacturing organization.	<b>03</b>
	(b)	Explain JIT with real field application.	<b>04</b>
	(c)	Explain how you implement Six Sigma DMAIC methodology in an engineering enterprise.	<b>07</b>
<b>OR</b>			
<b>Q.5</b>	(a)	Define and discuss about benchmarking	<b>03</b>
	(b)	Explain various quality dimensions in service sector.	<b>04</b>
	(c)	Explain the concept of Six Sigma with the help of a Normal Distribution curve.	<b>07</b>

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