

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER- VI EXAMINATION – SUMMER 2026****Subject Code:3161913****Date:26-05-2026****Subject Name:Industrial Safety and Maintenance Engineering****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.
4. Simple and non-programmable scientific calculators are allowed.

			Marks
Q.1	(a)	Define: (i) Quality, (ii) Reliability, (iii) Maintainability.	03
	(b)	What do you mean by quality? Explain the concept of quality circle	04
	(c)	Explain the various methods of recovery and strengthening of machine elements.	07
Q.2	(a)	Explain Assembly of Keyed Joints.	03
	(b)	Explain the effect of corrosion on the performance of machine	04
	(c)	Explain the concept of 'Reliability centered maintenance' in detail.	07
OR			
	(c)	Explain the Hazard and Operability Study (HAZOP)	07
Q.3	(a)	What are the causes of equipment breakdown?	03
	(b)	Define: Opportunistic Maintenance, Routine Maintenance, Preventive Maintenance, Predictive Maintenance.	04
	(c)	What is FMEA? How does FMEA help maintenance personnel?	07
OR			
Q.3	(a)	State types of failure. Explain defect analysis and failure analysis.	03
	(b)	Differentiate between planned maintenance and unplanned maintenance.	04
	(c)	What is fault tree analysis? Apply it for a car accident and suggest detail analysis.	07
Q.4	(a)	Define: (1) optimistic time & (2) pessimistic time in terms of maintenance.	03
	(b)	Write Advantages & Disadvantages of PERT.	04
	(c)	Classify various methods of safety training and explain any two in brief.	07
OR			
Q.4	(a)	Define: (1) planning & (2) Scheduling in terms of maintenance.	03
	(b)	Explain CPM with its advantages & limitations.	04
	(c)	Explain the procedure for preparation of onsite emergency plan.	07
Q.5	(a)	Differentiate between reportable type accident and non-reportable type accident.	03
	(b)	Explain the main objectives of good plant layout.	04

- (c) Explain the different type of safety training conducted in any organization **07**

OR

- Q.5** (a) What are the objectives of good plant layout? **03**
(b) What is job safety analysis (JSA), Write down its objectives. **04**
(c) How personal protective equipments are useful in safety purpose? Discuss. **07**
