

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI(NEW) EXAMINATION – WINTER 2022****Subject Code:3161913****Date:15-12-2022****Subject Name:Industrial Safety and Maintenance Engineering****Time:02:30 PM TO 05:00 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) Discuss causes of accidents in industrial plant.	04
	(c) State types of hazards and explain any three in detail with possible causes and remedial actions.	07
Q.2	(a) State the types and reasons of wear in machines.	03
	(b) What is corrosion? How it could be prevented?	04
	(c) Explain different types of industrial accidents. Enlist the steps for accident prevention.	07
	OR	
	(c) Describe briefly about the safety training.	07
Q.3	(a) State types of failure. Explain defect analysis and failure analysis.	03
	(b) Define: Opportunistic Maintenance, Routine Maintenance, Preventive Maintenance, Predictive Maintenance.	04
	(c) What is fault tree analysis? Apply it for a car accident and suggest detail analysis.	07
	OR	
Q.3	(a) What are the causes of equipment breakdown?	03
	(b) Differentiate between planned maintenance and unplanned maintenance.	04
	(c) What is FMEA? How does FMEA help maintenance personnel.	07
Q.4	(a) What is condition base maintenance system?	03
	(b) Explain short term and long term maintenance plans.	04
	(c) Explain Leakage Monitoring and Vibration Monitoring.	07
	OR	
Q.4	(a) What is Spectroscopy?	03
	(b) Enlist the factors involved in effective planning of maintenance work.	04
	(c) Explain Visual and Temperature Monitoring in detail.	07
Q.5	(a) What is Hazard and Operability (HAZOP) Study?	03
	(b) Enlist steps of Job Safety Analysis (JSA).	04
	(c) Describe the procedure for ensuring safety in planning, building and operating plants	07
	OR	
Q.5	(a) Define: Inherent Safety Measures, Passive Safety Measures, Active Safety Measures.	03
	(b) Enlist the steps of accident and dangerous occurrence reporting.	04
	(c) What is Personal Protective Equipment (PPE)? Explain different PPEs used for industrial safety.	07
