

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VI EXAMINATION – WINTER 2025

Subject Code:3161913

Date:19-11-2025

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.

- Q.1** (a) Define: (i) Quality, (ii) Reliability, (iii) Maintainability. **03**
(b) How does FEMA help maintenance personnel ? **04**
(c) Explain how management and government helps in implementation of safety at any organization/industry. **07**
- Q.2** (a) Write a objectives of industrial legislation? **03**
(b) What is fault tree analysis and root cause analysis ? **04**
(c) Describe the procedure for ensuring safety in planning, building and operating plants. **07**
- OR**
- (c) List and explain the characteristics of successful product development. **07**
- Q.3** (a) What is wear debris analysis ? **03**
(b) What is Hazard and Operability (HAZOP) Study? **04**
(c) How industrial psychology is helpful in preventing accident in Industries? **07**
- OR**
- Q.3** (a) What are the causes of equipment breakdown? **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.4** (a) What is Spectroscopy? **03**
(b) Enlist the steps of accident and dangerous occurrence reporting. **04**
(c) Describe briefly about the safety training. **07**
- OR**
- Q.4** (a) Explain a minor and major accidents in industries. **03**
(b) Enlist the factors involved in effective planning of maintenance work. **04**
(c) Explain Leakage Monitoring and Vibration Monitoring. **07**
- Q.5** (a) Justify the statement “safety comes first” **03**
(b) Prepare the fault tree analysis (FTA) for “no light in the room” **04**
(c) Discuss with example predictive and preventive maintenance. **07**
- OR**
- Q.5** (a) How to eliminate hazards? **03**
(b) Explain how overall maintenance cost can be reduced. **04**
(c) What is Personal Protective Equipment (PPE)? Explain different PPEs used for industrial safety. **07**
