

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:3161913****Date:06/06/2022****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

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|------------|--|-----------|
| Q.1 | (a) What are objectives of Maintenance department? | 03 |
| | (b) Differentiate the breakdown maintenance and preventive maintenance. | 04 |
| | (c) What do you mean by safety? How Safety Engineering helps in improving productivity of an organization? -Discuss. | 07 |
| Q.2 | (a) Define Quality, Productivity and Reliability. | 03 |
| | (b) Enlist the personal protective equipments with their functions. | 04 |
| | (c) Explain the Hazard and Operability Study (HAZOP). | 07 |
| | OR | |
| | (c) Explain the concept of 'Reliability centered maintenance' in detail. | 07 |
| Q.3 | (a) Draw any three symbol for fault tree analysis (FTA). | 03 |
| | (b) Prepare the fault tree analysis (FTA) for "no light in the room" | 04 |
| | (c) Enlist types of failures/defects. Discuss briefly (1) Equipment downstream analysis (2) Fault tree analysis (FTA). | 07 |
| | OR | |
| Q.3 | (a) Mention what are the challenges that maintenance and repair work usually face? | 03 |
| | (b) Explain how overall maintenance cost can be reduced. | 04 |
| | (c) Explain the defect due to wear of equipments and its preventions. | 07 |
| Q.4 | (a) Which factors are involved in effective planning of maintenance work. | 03 |
| | (b) Explain the planning procedure in industry. | 04 |
| | (c) Define planning and scheduling. Differentiate planning and scheduling work in industry with suitable example. | 07 |
| | OR | |
| Q.4 | (a) Justify the statement "safety comes first". | 03 |
| | (b) Explain roll of management in industrial safety. | 04 |
| | (c) Discuss briefly: (1) Safety Trials and (2) Industrial Hygiene (3) Alarm and Hazard Defense Plans. | 07 |
| Q.5 | (a) What are the causes of an accident? | 03 |
| | (b) Write note on 'Safety training and publicity'. | 04 |
| | (c) Explain the principle of wear debris analysis and explain Ferrography method of wear debris analysis. | 07 |

OR

- Q.5** (a) What is quality circle? Enlist the different elements of quality circle structure. **03**
- (b) What are the safety rules during maintenance? **04**
- (c) What do you mean by condition monitoring? List out various methods of condition monitoring and explain any one. **07**
