

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2023****Subject Code:3162010****Date:10-07-2023****Subject Name:Industrial Maintenance and Safety****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) Define: 1. Reliability 2. Availability 3. Maintainability | 03 |
| | (b) What are the components of maintenance cost? | 04 |
| | (c) Explain the possible losses (of cost) in industry if safety is not followed. | 07 |
| Q.2 | (a) What are the causes of industrial accidents? Explain any one in detail. | 03 |
| | (b) Enlist and explain different maintenance strategies. | 04 |
| | (c) State and explain Examples of Retrofitting. | 07 |
| | OR | |
| | (c) Explain Replacement planning and decision. | 07 |
| Q.3 | (a) How is the planning and scheduling of maintenance job done? | 03 |
| | (b) Why maintenance record keeping is necessary? | 04 |
| | (c) Explain Total Productive Maintenance in detail with its essential components. | 07 |
| | OR | |
| Q.3 | (a) What are the objectives of FMEA? | 03 |
| | (b) Explain source of fumes. | 04 |
| | (c) Explain individual replacement policy and group replacement policy with suitable examples. Also explain the procedure to compare individual and group replacement policy to evaluate which one is more economical. | 07 |
| Q.4 | (a) Explain breakdown maintenance planning. | 03 |
| | (b) Write a short note on Primary, Secondary and Tertiary industries with suitable examples. | 04 |
| | (c) Explain Care and maintenance of common elements used in material handling equipment like rope, chains, slings, hooks and clamps. | 07 |
| | OR | |
| Q.4 | (a) What is preventive maintenance down time (PMDT)? | 03 |
| | (b) What measures will you take for good house/workshop keeping? | 04 |
| | (c) Discuss mechanical and electrical hazards types, causes and preventive steps/procedure. | 07 |
| Q.5 | (a) Briefly describe about Hazard and Operability Study (HAZOP). | 03 |
| | (b) Explain the industrial hazards involved in machining process. | 04 |
| | (c) Explain any two sections of Factories Act, 1948. | 07 |
| | OR | |
| Q.5 | (a) State the benefits of Safety Training. | 03 |
| | (b) Explain how overall maintenance cost can be reduced. | 04 |
| | (c) Explain Fire prevention and firefighting equipment and methods. | 07 |
