

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VIII EXAMINATION – SUMMER 2016****Subject Code:181905****Date:16/05/2016****Subject Name:Industrial Safety & Maintenance Engineering (Department Elective II)****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.

- Q.1** (a) How productivity of any organization is related with industrial safety. Discuss in details. **07**  
(b) Discuss the importance of safety training and safety education. **07**
- Q.2** (a) Prevention is better then cure. Discuss with proper illustrations. **07**  
(b) Discuss the industrial hazards with its causes and remedial. **07**
- OR**
- (b) Discuss the cost of accidents. **07**
- Q.3** (a) State the safety rules for mechanical work shop. **07**  
(b) Discuss the preventive maintenance and its importance. **07**
- OR**
- Q.3** (a) Importance Total productive maintenance. Discuss in details. **07**  
(b) Differentiate between condition based and risk based maintenance. **07**
- Q.4** (a) Describe the training tools, models and methods for maintenance personals. **07**  
(b) What is fault tree analysis? Discuss with illustration. **07**
- OR**
- Q.4** (a) What is maintenance budget? How maintenance budget is prepared? **07**  
(b) Describe merits and demerits of centralized and decentralized maintenance systems. **07**
- Q.5** (a) Explain the terms MTBS (mean time between shutdown), MTBF (mean time between failure), MTTF (mean time to failure), MTTR (mean time to repair) and failure rate. **07**  
(b) What is total productive maintenance (TPM).Discuss its advantages. **07**
- OR**
- Q.5** (a) What is 5-S concept and how is it used in maintenance. **07**  
(b) Define maintenance job planning. Discuss the steps of maintenance job planning. **07**

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