

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI EXAMINATION – SUMMER 2025

Subject Code:3162509

Date:26-05-2025

Subject Name: Plant Maintenance and Safety 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) Define defect analysis and fault analysis and how they differ. | 03 |
| | (b) Explain how equipment downtime analysis is done? | 04 |
| | (c) How the defects are generated and how they are reported and recorded. | 07 |
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| Q.2 | (a) Define planned and un-planned maintenance with example. | 03 |
| | (b) Write difference between preventive and predictive maintenance. | 04 |
| | (c) How the selection of maintenance systems is done? Explain with an example. | 07 |
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| OR | | |
| | (c) How the condition monitoring techniques are selected and write the benefits of condition monitoring. | 07 |
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| Q.3 | (a) Define Primary and secondary monitoring. | 03 |
| | (b) Explain how leakage monitoring is done. | 04 |
| | (c) List and explain job scheduling techniques. | 07 |
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| OR | | |
| Q.3 | (a) Define on-line and off-line monitoring system. | 03 |
| | (b) Explain how Ferrography and spectrography is done. | 04 |
| | (c) Draw and explain systemized flow diagram of total maintenance. | 07 |
| Q.4 | (a) Write the objectives of computerization. | 03 |
| | (b) Explain productivity circles. | 04 |
| | (c) Explain 5-Zero concepts with example. | 07 |
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| OR | | |
| Q.4 | (a) What if TPM and why it is necessary? | 03 |
| | (b) Compare TPM and TQQM. | 04 |
| | (c) Explain general concept of safety management and how the modern safety concept is evolved? | 07 |
| Q.5 | (a) Explain Incident Recall Technique with example. | 03 |
| | (b) Explain types of safety audit. | 04 |
| | (c) Explain creative maintenance and value engineering in maintenance with an example. | 07 |
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| OR | | |
| Q.5 | (a) List components of safety audits. | 03 |
| | (b) Explain accident indices, frequency rate and severity index. | 04 |
| | (c) Explain permanent total disabilities, permanent partial disabilities and temporary total disabilities with an example. | 07 |
