

**R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT**  
(An Autonomous Institute U/s UGC Act 1956)

**B.Voc. SEMESTER-II, SEMESTER END EXAMINATION – WINTER 2025**

**SUBJECT CODE: 1PT202**

**DATE: 09-01-2026**

**SUBJECT NAME: MAINTANANCE AND SAFETY ENGINEERING**

**TIME: 11:00 AM to 01:00 PM**

**TOTAL MARKS: 50**

**Instructions**

1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Attempt all questions in the question paper.
3. The figures to the right of each question indicate full marks. Make suitable assumptions with proper justification wherever required.
4. Simple, non-programmable scientific calculators are permitted.
5. BL - Cognitive Level (As per Revised Bloom's Taxonomy) (R-Remember, U-Understanding, A –Application, N –Analyze, E – Evaluate, C -Create), CO - Course Outcomes.

		<b>Marks</b>	<b>BL</b>	<b>CO</b>
<b>Q.1</b>	(a) List the primary & secondary functions of maintenance department.	<b>05</b>	<b>R</b>	<b>1</b>
	(b) Enlist different types of tools used for maintenance work.	<b>05</b>	<b>R</b>	<b>1</b>
<b>Q.2</b>	(a) List the various types of maintenance.	<b>05</b>	<b>R</b>	<b>2</b>
	(b) Write short note on total productive maintenance.	<b>05</b>	<b>U</b>	<b>2</b>
<b>OR</b>				
<b>Q.2</b>	(a) How does predictive maintenance differ from preventive maintenance?	<b>05</b>	<b>R</b>	<b>2</b>
	(b) Explain breakdown maintenance.	<b>05</b>	<b>U</b>	<b>2</b>
<b>Q.3</b>	(a) Explain term maintainability in detail.	<b>05</b>	<b>U</b>	<b>3</b>
	(b) Explain MTTR in detail.	<b>05</b>	<b>U</b>	<b>3</b>
<b>OR</b>				
<b>Q.3</b>	(a) Explain Bathtub curve with neat sketch.	<b>05</b>	<b>U</b>	<b>3</b>
	(b) Explain MTTF in detail.	<b>05</b>	<b>U</b>	<b>3</b>
<b>Q.4</b>	(a) Describe fault tracing and list the important activities performed in fault tracing.	<b>05</b>	<b>U</b>	<b>4</b>

(b) Prepare a decision tree to locate the fault for low air pressure in air compressor. 05 A 4

**OR**

**Q.4** (a) Draw a decision tree for a lathe chuck is not working. 05 A 4

(b) Prepare a decision tree to locate the fault for low steam pressure in a boiler. 05 A 4

**Q.5** (a) Write the salient features of factories act 1948. 05 R 5

(b) List and explain different types of electrical hazards. 05 U 5

**OR**

**Q.5** (a) List different types of safety equipment's. 05 R 5

(b) List and explain different types of mechanical hazards. 05 U 5

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