Enrolment No/Seat No.: _____

R.N.G.PATEL INSTITUTE OF TECHNOLOGY -RNGPIT

(An Autonomous Institute U/s UGC Act 1956)

B.Voc. SEMESTER-I, SEMESTER END EXAMINATION – WINTER 2025

SUBJECT CODE: 1PT104 **DATE: 22-12-2025**

SUBJECT NAME: MECHANICAL METROLOGY-I

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.

			Marks	BL	CO
Q.1	**(a)**	What is the difference between Line standard and End standard?	**05**	**R**	**1**
	(b)	Differentiate between accuracy and precision.	**05**	**U**	**1**
Q.2	**(a)**	Explain the vernier caliper with construction, least count, and methods of measurement.	**05**	**U**	**2**
	(b)	Write sort note on slip gauges.	**05**	**U**	**2**
		OR			
Q.2	**(a)**	Explain vernier micrometer Screw with neat sketch. How least count of vernier micrometer can be calculated?	**05**	**U**	**2**
	(b)	Explain with neat sketch construction and working of Vernier height gauge.	**05**	**U**	**2**
Q.3	**(a)**	Explain the construction and working of Vernier bevel protector.	**05**	**U**	**2**
	(b)	Explain about the sine bar with a neat sketch, also write advantages and limitations of sine bar.	**05**	**U**	**2**
		OR			
Q.3	**(a)**	Explain construction and working of Auto-collimator.	**05**	**U**	**2**
	(b)	Write short note on angle gauge.	**05**	**U**	**2**

Q.4	**(a)**	Define comparator and explain the characteristics of good comparator.	**05**	**R**	**3**
	(b)	Explain with neat sketch the working of Johansson Mikrocator comparator.	**05**	**U**	**3**

OR

Q.4	**(a)**	Explain with neat sketch Sigma comparator.	**05**	**U**	**3**
	(b)	Explain with neat sketch Reed type mechanical comparator.	**05**	**U**	**3**
Q.5	**(a)**	Define the following terms: (1) Straightness (2) Flatness (3) Parallelism (4) Roundness (5) Runout.	**05**	**R**	**4**
	(b)	Explain Geometrical alignment tests for machine tools.	**05**	**U**	**4**

OR

Q.5	**(a)**	Explain Dynamic tests for machine tools.	**05**	**U**	**4**
	(b)	Explain in detail Geometrical tests on lathe.	**05**	**U**	**4**

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