

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

B. Voc. SEMESTER-I, SEMESTER END EXAMINATION - WINTER 2024

Subject Code: 1PT104

Date: 20-12-2024

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 - Bloom's Taxonomy Levels (R-Remember, U-Understanding, A-Application, N-Analyze, E-Evaluate, C-Create), CO - Course Outcomes.

		Marks	BL	CO
Q.1	Objective-Type Questions	[05]		
(a)	The degree of closeness of the measured value of a certain quantity with its true value is known as	1	U	1
	(i) Accuracy			
	(ii) Precision			
	(iii) Standard			
	(iv) Sensitivity			
(b)	What is the least count of vernier bevel protractor?	1	U	2
	(i) 10'			
	(ii) 5''			
	(iii) 5'			
	(iv) 10''			
(c)	What is the advantage of mechanical comparator over others?	1	U	3
	(i) Less moving parts			
	(ii) No need of external supply			
	(iii) No error due to parallax			
	(iv) Large range of instrument			
(d)	What material are slip gauges commonly made from?	1	U	2
	(i) Plastic			
	(ii) Steel			
	(iii) Aluminium			
	(iv) Brass			
(e)	Up to which angle sine bars can measure the angles?	1	U	2
	(i) 45 degree			
	(ii) 60 degree			
	(iii) 90 degree			
	(iv) 120 degree			

Q.2 Attempt Any Three	[15]		
(a) Describe errors and sources of errors.	5	U	1
(b) Explain need of inspection in metrology.	5	U	1
(c) Explain Construction of micro-meter screw with neat sketch, and explain its least count.	5	U	2
(d) Explain the working of Vernier depth gauge with neat sketch.	5	U	2
Q.3 Attempt Any Three	[15]		
(a) Describe spirit level with neat sketch.	5	U	2
(b) State various types of clinometer. Explain Vernier clinometer with neat sketch.	5	R	2
(c) Explain the construction and working of Sine Centre.	5	U	2
(d) State the working principal and construction of Vernier Caliper.	5	U	2
Q.4 Attempt Any Three	[15]		
(a) Explain the characteristics of good comparator.	5	U	3
(b) Give classification of comparators and explain Dial indicator with sketch.	5	R,U	3
(c) Explain how measuring instruments differ from comparator.	5	U	3
(d) Enlist types of Coordinate Measuring Machines and explain it in brief with neat sketch.	5	R,U	4
