



Regulation R18

Subject code: **2E5CB**

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech V Semester Supplementary Examinations, February 2024

ENGINEERING METROLOGY

(Mechanical Engineering)

Maximum Marks: 70

Date: 27.02.2024 Duration: 3 Hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x2M=20 Marks)		CO	Bloom Tx
1	Define metrology. Explain the significance of metrology	1	L1
2	List the objectives of metrology.	1	L1
3	Explain the working principle of a dial caliper.	2	L1
4	Write a note on the types of micrometers	2	L1
5	What are material standards? List their disadvantages.	3	L1
6	Write a note on wavelength standards.	3	L1
7	How are standards subdivided?	4	L1
8	Discuss the characteristics of line and end standards.	4	L1
9	Discuss the major applications of CMMs.	5	L1
10	What is the need for acceptance tests?	5	L1

Part-B

Answer All the following questions (10MX 5=50Marks)			
11	What are the possible sources of errors in measurements? Briefly explain them. [10]	1	L2
OR			
12	Define the following: (a) Range of measurement (b) Sensitivity (c) Consistency (d) Repeatability [10]	1	L2
13	Describe the procedure to transfer from line standard to end standard. [10]	2	L2
OR			
14	Give the classification of comparators. [10]	2	L2
15	Write a note on the various contact points used in a dial indicator. [10]	3	L2
OR			
16	Distinguish between progressive pitch error and periodic pitch error. [10]	3	L2
17	The chordal thickness of an involutes gear is being measured using a gear caliper. Determine the chordal height to which the gear tooth caliper should be set during measurement, if the number of teeth = 28, addendum circle diameter = 120 mm, pressure angle = 20°, and least count of the caliper is 0.02 mm. [10]	4	L3
OR			

