



R18 Regulation

Subject code: 2E5CB

**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**

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

**B.Tech V Semester Supplementary Examinations, May 2025**

**ENGINEERING METROLOGY**

(ME)

Maximum Marks: 70

Date: 27.06.2025

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)		Marks	CO	BTL
1	Define metrology. Explain the significance of metrology	2M	1	L1
2	List the objectives of metrology.	2M	1	L1
3	Explain the working principle of a dial caliper.	2M	2	L1
4	Write a note on the types of micrometers.	2M	2	L1
5	Why slip gauges are called 'Johansson gauges'?	2M	3	L1
6	Define profile tolerance.	2M	3	L1
7	Discuss the major applications of pneumatic gauges	2M	4	L1
8	What are the limitations of pneumatic metrology?	2M	4	L1
9	What are the primary reasons for surface irregularities?	2M	5	L1
10	What is the radial run-out of a gear? How is it measured?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	What are the possible sources of errors in measurements? Briefly explain them.	10M	1	L2
OR				
12	Define the following: (a) Range of measurement (b) Sensitivity (c) Consistency (d) Repeatability	10M	1	L2
13	Describe the procedure to transfer from line standard to end standard.	10M	2	L2
OR				
14	Distinguish between progressive pitch error and periodic pitch error.	10M	2	L2
15	What are the advantages and limitations of laser interferometer?	10M	3	L2
OR				
16	Explain the measurement methodology involved in the use of optical flats.	10M	3	L2
17	Determine the effective diameter of a metric screw using the three-wire method. The following data is available: diameter of the best size wire = 0.740 mm, distance over the wires = 25.58 mm, and pitch = 1.25 mm.	10M	4	L2
OR				

18	What is the need for using the truncated thread form in a NOT GO screw gauge?	10M	4	L2
19	Explain briefly about CMM with neat sketch.	10M	5	L2
	OR			
20	How is Taylor's principle applicable to thread gauging?	10M	5	L2