



R18 Regulation

Subject code:2E5CB

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, November 2025

ENGINEERING METROLOGY

(ME)

Maximum Marks: 70

Date:14.11.2025

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 types of CMM.	2M	5	L1
10	Define CMM.	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	Explain sine bar with example.	10M	1	L2
13	Explain 2-wire and 3-wire measurements with neat sketch.	10M	2	L2
OR				
14	Explain the phenomenon of optical interference.	10M	2	L2
15	Discuss the important applications of a tool maker's microscope.	10M	3	L2
OR				
16	Explain the measurement methodology involved in the use of optical flats.	10M	3	L2
17	Distinguish between progressive pitch error and periodic pitch error	10M	4	L2

	OR			
18	Discuss the major applications of CMMs.	10M	4	L2
19	Compare the pros and cons of the five different configurations of a CMM.	10M	5	L2
	OR			
20	How is Taylor's principle applicable to thread gauging?	10M	5	L2