R20 Regulation *Subject code: 3P6CC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, November 2025

MACHINE TOOLS AND METROLOGY

(ME)

Maximum Marks: 70 Date: 11.11.2025 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	What are the types of headstocks?	2M	1	L1
2	Differentiate between capstan and turret lathe.	2M	1	L1
3	What is a semi-automatic lathe?	2M	2	L1
4	How the planer differs from a shaper?	2M	2	L1
5	What do you mean by the term 'loading' in grinding wheel?	2M	3	L1
6	What are fits.	2M	3	L1
7	Differentiate between precision and accuracy.	2M	4	L1
8	Give classification of measuring instruments.	2M	4	L1
9	Define system error and correction.	2M	5	L1
10	What are measurement standards?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Describe the turning process in lathes and explain the working of a multi spindle lathes and its applications	10M	1	L2
	OR			
12	Differentiate between Capstan and Turret lathe and What are the different attachments used in lathe machine? Explain any two attachments?	10M	1	L2
13	Explain the working of radial drilling machine with a sketch.	10M	2	L2
	OR			
14	Explain the working of planning machine with a sketch.	10M	2	L2
15	Describe briefly the method of estimation of the required for producing all the teeth of a spur gear in a gear hobbing machine.	10M	3	L2
	OR			
16	Which are the different types of planer machines? Explain any TWO with its special uses.	10M	3	L2
17	Briefly discuss the three basic types of commands in programming of CMMs.	10M	4	L2

	OR			
18	a) Explain the Taylor's principle applied in limits. b) Explain the principle of optical flat and auto collimator.	5M 5M	4	L2
19	Explain in detail with neat sketches horizontal type of boring machines.	10M	5	L2
	OR			
20	Describe the measuring methods by using sine bar.	10M	5	L2