

Code No.: ME504PC

R20

H.T.No.

8

R

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS

III-B.TECH-I-Semester End Examinations (Supply) – December 2025

METROLOGY & MACHINE TOOLS

(MECH)

[Time: 3 Hours]

[Max. Marks: 70]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks.

PART-A

(20 Marks)

1. a) Define rake angle. [2M]
- b) Differentiate between continuous chip and discontinuous chip. [2M]
- c) What is twist drill? [2M]
- d) How a slotter can be specified. [2M]
- e) Write the types of milling cutters. [2M]
- f) Give two comparisons between lapping and honing. [2M]
- g) What is Tailors principle of gauge design. [2M]
- h) What is the difference between GO gauge and NO-GO gauge. [2M]
- i) What is major and minor diameters in screw threads. [2M]
- j) Identify various methods used for measuring the gear tooth thickness. [2M]

PART-B

(50 Marks)

2. What is lathe? Explain the construction and working principle of a lathe machine with a neat sketch. [10M]

OR

3. Explain briefly the tool element and tool angles in case of single point cutting tool with a neat sketch. [10M]

- 4 a. What is a planner? Contrast its working principal with a neat sketch. [5M]
- b. What are the operations performed on a drilling machine? Explain. [5M]

OR

- 5 a. Choose the detailed advantages and applications of boring machines. [5M]
- b. Discuss the working principle of a radial drilling machine with a neat sketch. [5M]

6. Illustrate the construction and working principle of a knee and column type milling machine with a neat sketch. [10M]

OR

- 7 a. What is dressing and truing, in reference to grinding wheel? Explain them with neat sketch. [8M]
- b. Classify the various types of grinding machines. [2M]

8. What is auto-collimator? Explain the principle and construction of an auto-collimator with the help of neat sketches. [10M]

OR

- 9 a. Differentiate between Tolerance and allowance. [5M]
- b. Discuss briefly the working and operation of bevel protractor. List out its merits and demerits. [5M]

10. Explain the alignment test on lathe machine with the help of neat sketch. [10M]

OR

11 a. Discuss the working of Parkinson gear tester with a neat sketch. [5M]

b. Contrast the applications of CMM in detail. [5M]
