

CMR ENGINEERING COLLEGE: : HYDERABAD

UGC AUTONOMOUS

III-B.TECH-I-Semester End Examinations (Supply) – December 2024

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) List the types of milling cutters. [2M]
- f) Outline any 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 are 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 tool with a neat sketch. [10M]
- 4.a) What is a planner? Explain its working principle with a neat sketch. [5M]
 - b) What are the operations performed on a drilling machine? Briefly explain them. [5M]
- OR**
- 5.a) What are the 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 with the help of neat sketches, the principle and construction of an auto-collimator. [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]
