

CMR ENGINEERING COLLEGE: : HYDERABAD**UGC AUTONOMOUS****IV–B.TECH–I–Semester End Examinations (Supply) – April - 2025****MEASURING INSTRUMENTS****(Common for CSD, CSM, IT)****[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 and may have a, b, c as sub questions.

PART-A**(20 Marks)**

1. a) What are the methods of measurements? [2M]
- b) Illustrate the difference between precision and accuracy. [2M]
- c) Compare RTD and Thermistor. [2M]
- d) What are the applications of capacitive sensor? [2M]
- e) What are the uses of optical flat? [2M]
- f) Why do we choose micrometer over vernier calipers for small dimensions measurement? [2M]
- g) List the low-pressure measuring devices. [2M]
- h) What are the uses of force measuring devices? [2M]
- i) What is the unit of viscosity? [2M]
- j) How density is measured? [2M]

PART-B**(50 Marks)**

- 2.a) Discuss the different types of standards of measurement. [5M]
- b) Explain about the sources of errors in measurement techniques. [5M]

OR

3. State and explain the Gaussian error distribution law. How is it applied in interpreting the experimental results? [10M]
4. State the conditions which must exist for balance in a Wheatstone bridge arrangement of resistors. [10M]

OR

5. Write in brief about the thermocouple temperature measuring device with neat sketch. [10M]
6. Describe comparators with neat sketches and list advantages and disadvantages. [10M]

OR

7. What is a Stroboscope? Explain the principle with a neat sketch. [10M]
8. Explain about the Elastic force meters with neat sketches. [10M]

OR

9. Explain with a neat sketch the constructional features and basic working principle of Mcleod gauge used for the measurement of low pressures. [10M]
10. Why a rotameter is called variable area flow meter? Sketch and explain its working. [10M]

OR

11. Explain about the strain gauge load cell method for measuring density. [10M]
