Reg No.: _____ Name: _____

Jyothi Engineering College(Autonomous)

B. Tech Degree S2 (R) Examination, May 2026(2025 Scheme)

25MRT205 - TRANSDUCERS & MEASUREMENTS

Total Mark: 60 **Total Time: 2hrs 30 min**

CO MARK

PART A

(Answer All Questions. Each question carries 3 marks)

1. Define analog and digital transducers with one example each. CO1 (3)
2. Classify electrical transducers and explain any one classification with a suitable example. CO1 (3)
3. What is an LVDT? State its principle of operation. CO2 (3)
4. Define the Hall effect transducer and explain its working. CO2 (3)
5. Define hysteresis in measuring instruments and briefly explain its causes. CO3 (3)
6. Explain the concept of linearity in measuring instruments with a neat diagram. CO3 (3)
7. Briefly explain why a Kelvin bridge is preferred for measuring low resistances. CO4 (3)
8. List the sources and detectors used in AC bridges and briefly explain their function. CO4 (3)

PART B

(Answer any one full question from each module, each question carries 9 marks)

Module - 1

9. Explain the resistive and capacitive electrical phenomena used in transducers with suitable examples. CO1 (9)

OR

10. Explain sensors and transducers with reference to measurement systems and their applications using suitable examples. Distinguish between them. CO1 (9)

Module - 2

11. What is a shaft encoder? Explain the construction and working principle of a shaft encoder. CO2 (9)

OR

12. Explain the resistance–temperature characteristics of a thermistor. Discuss its advantages and limitations. CO2 (9)

Module - 3

13. Define error in measurement. Explain the classification of errors in measuring instruments. CO3 (9)

OR

14. Describe the elements of a measurement system. Explain them with the help of a suitable diagram of a Bourdon tube pressure gauge. CO3 (9)

Module - 4

15. Define Maxwell's bridge. Explain the construction and working of Maxwell's inductance bridge. CO4 (9)

OR

16. What is CRO? Explain the working principle of Cathode Ray Oscilloscope. How voltage and time period measurement is done using Cathode Ray Oscilloscope? CO4 (9)

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