

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIRST SEMESTER M.TECH DEGREE EXAMINATION (Regular), DECEMBER 2022**ROBOTICS AND AUTOMATION****(2021 Scheme)****Course Code: 21RA104-A****Course Name: Measurements and Sensors for Automation****Max. Marks: 60****Duration: 3 Hours****PART A*****(Answer all questions. Each question carries 3 marks)***

1. Define SI units of engineering parameters.
2. Explain the significance of calibration in industry.
3. Differentiate linear and nonlinear potentiometric transducers.
4. Define thermistor.
5. Identify the basic principle behind magnetic sensor.
6. Explain the working of hall effect transducer.
7. Define film sensors.
8. List the use of filters in sensor signal conditioning.

PART B***(Answer one full question from each module, each question carries 6 marks)*****MODULE I**

9. Brief the performance characteristics of an instrument and quote any six characteristics. (6)

OR

10. Identify the classification of measuring instruments. Explain each with suitable examples. (6)

MODULE II

11. Explain a) speed of response b) fidelity c) measuring lag. (6)

OR

12. Explain any two types of calibration procedures used in industry. (6)

MODULE III

13. a) Differentiate active and passive transducers. (3)
b) Define angular displacement transducer. (3)

OR

14. Define a) Ultrasonic transducer b) Proximity sensor. (6)

MODULE IV

15. a) Explain tachogenerator. (3)
b) Illustrate nuclear thermometer with neat diagram. (3)

OR

16. Interpret the working principle behind variable head flow meters. (6)

MODULE V

17. Outline the buoyancy method of level measurement. List its advantages. (6)

OR

18. Explain the working principle of scintillation detector with neat figure. (6)

MODULE VI

19. Illustrate the function of servo operated manometer. (6)

OR

20. Summarize the main components of sensor signal conditioning? Explain each one with neat block diagram. (6)
