

Code No.: ME405PC

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CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II-B.TECH-II-Semester End Examinations (Regular) - August- 2023
INSTRUMENTATION AND CONTROL SYSTEMS
(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 and may have a, b, c as sub questions.

PART-A

(20 Marks)

1. a) Explain Briefly about the requirements of materials for construction of strain gauges? [2M]
- b) Explain the various sources of error in measuring instrument? [2M]
- c) Differentiate atmospheric pressure and absolute pressure. [2M]
- d) Distinguish between thermistor and RTD. [2M]
- e) Explain the limitations of non-contact type tachometers. [2M]
- f) Explain the need for calibration of measuring instruments? [2M]
- g) Define torque and power. [2M]
- h) List out various principles used for stress and strain measurement. [2M]
- i) List the basic elements of a feedback control system. [2M]
- j) List the requirements of a control system. [2M]

PART-B

(50 Marks)

2. Explain the construction and working of LVDT transducer with neat sketch. [10M]
 - OR**
 3. Compare mechanical and electrical transducers. Explain theory and construction of any one mechanical transducer. [10M]
 4. Explain the working of helix and spiral bimetallic thermometer. [10M]
 - OR**
 5. Define RTD. Explain the construction and working principle of RTD with neat diagram. [10M]
 6. Explain with neat sketch, the working of an inductive tachometer (Non- contact type) [10M]
 - OR**
 7. Explain the working principle of A.C. Tacho-generator with a neat sketch. [10M]
 8. Explain how sling psychrometer is used to determine the dry and wet bulb temperature. [10M]
 - OR**
 9. Discuss briefly with neat diagrams the following methods of liquid level Measurement: [5M]
 - a) Ultrasonic level measuring gauge [5M]
 - b) Capacitive type with Variable Dielectric constant
 10. Differentiate between open loop system and closed loop system. [10M]
 - OR**
 11. Explain the speed control system with examples. [10M]
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