03PCMRT205052502

Reg No.:_

Name:

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITS B.Tech Degree S2 (R) Examination May 2025 (2024 Scheme)

Course Code: PCMRT205

Course Name: TRANSDUCERS & MEASUREMENTS

Max. Marks: 60

10

Duration: 2 hours 30 minutes

| | PART A | | |
|---|---|-------|-------|
| | (Answer all questions. Each question carries 3 marks) | CO | Marks |
| 1 | Differentiate between primary and secondary transducers with examples. | CO1 | (3) |
| 2 | List the advantage of electrical transducers. | CO1 | (3) |
| 3 | Explain the principle used in piezo electric transducers | CO2 | (3) |
| 4 | Distinguish between resistance thermometer and thermistors. | CO2 | (3) |
| 5 | How measuring instruments are classified based on nature of operation? | CO3 | (3) |
| 6 | Define reproducibility and drift | CO3 | (3) |
| 7 | Differentiate between AC bridges and DC bridges | CO5 | (3) |
| 8 | Explain the working principle of X-Y plotter | CO4 | (3) |
| | PART B (Answer any one full question from each module, each question carries 9 m | arks) | |
| | Module -1 | | |
| 9 | What do you mean by Pressure sensitive primary devices? Explain any one | CO1 | 9 |

What do you mean by Pressure sensitive primary devices? Explain any oneCO19of the pressure sensitive primary device with necessary diagrams

Explain the different electrical phenomena that are utilized in the operation CO1 9 of transducers. Give specific examples of transducers that employ each phenomena

Module -2

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| 11 | Describe the operating principle of an LVDT. Explain its characteristics | CO2 | 9 |
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| | curve and discuss its applications in displacement measurement. | | |
| | Differentiate between analog and digital transducers. With neat diagram | CO2 | 9 |
| 12 | explain the working of shaft encoder | | |
| | Module -3 | | |
| 13 | Draw the block diagram of generalized measurement system and explain | CO3 | 9 |
| | each block in detail | | |
| | Illustrate the following | CO3 | 9 |
| | i) True Value and Static error | | |
| 14 | ii) Scale range and Span | | |
| | iii) Accuracy and precision | | |
| | | | |
| | Module -4 | | |

| 15 | Explain the general equation for bridge balance. Derive the balance | CO5 | 9 |
|----|---|-----|---|
| | condition for a Wheatstone bridge and discuss its applications | | |
| | Explain the working principle of Digital Storage Oscilloscope. How | CO4 | 9 |
| 16 | measurement is done using Digital Storage Oscilloscope? | | |

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