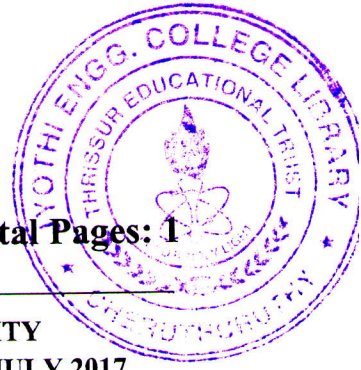


Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_



**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY  
FOURTH SEMESTER B.TECH DEGREE EXAMINATION, JULY 2017**

**Course Code: EE208**

**Course Name: MEASUREMENTS AND INSTRUMENTATION (EE)**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions. Each carries 5 marks.*

- |   |  |     |
|---|--|-----|
| 1 | What are the different dynamic characteristics of measuring instruments.   | (5) |
| 2 | Explain the measurement of insulation resistance by loss of charge method. | (5) |
| 3 | Write short notes on phasor measurement unit.                              | (5) |
| 4 | Explain the measurement of flux in a ring specimen.                        | (5) |
| 5 | Explain the working of a Vernier potentiometer with figure.                | (5) |
| 6 | Explain the applications of CRO.   | (5) |
| 7 | Explain about the analog data acquisition system.                          | (5) |
| 8 | Explain the flow measurement using ultrasonic transducer.                  | (5) |

**PART B**

*Answer any two questions. Each carries 10 marks.*

- |    |   |      |
|----|---|------|
| 9  | With neat sketch, describe the constructional details of PMMC type instruments.             | (10) |
| 10 | a) Explain the general requirements for ammeter shunts.                                     | (5)  |
|    | b) Explain any two errors that occur in electrodynamic type wattmeter and its compensation. | (5)  |
| 11 | Explain the construction, theory and working of induction type energy meter.                | (10) |

**PART C**

*Answer any two questions. Each carries 10 marks.*

- |    |  |      |
|----|--|------|
| 12 | Draw the phasor diagram of a current transformer. Derive the expressions for ratio and phase angle errors. | (10) |
| 13 | a) Explain the effect of the following on various errors of current transformer                            | (5)  |
|    | i) Power factor of secondary winding burden  |      |
|    | ii) Change of primary winding current.   |      |
|    | b) Explain the measurement of rotational speed using proximity sensors.                                    | (5)  |
| 14 | a) Explain any one method for the determination of hysteresis loop.  | (6)  |
|    | b) Write short note on iron loss in a magnetic material.   | (4)  |

**PART D**

*Answer any two questions. Each carries 10 marks.*

- |    |  |      |
|----|--|------|
| 15 | Explain in detail the block diagram of a general purpose CRO.                  | (10) |
| 16 | a) Explain how frequency can be measured using Wien's bridge.                  | (5)  |
|    | b) Explain the measurement of any non-electrical quantity employing load cell. | (5)  |
| 17 | a) Explain the working principle of strain gauge.                              | (5)  |
|    | b) Explain the measurement of velocity using transducers.                      | (5)  |

\*\*\*\*