

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

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

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FOURTH SEMESTER B.TECH DEGREE EXAMINATION(S), DECEMBER 2019**

**Course Code: EE208**

**Course Name: MEASUREMENTS AND INSTRUMENTATION**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions, each carries 5 marks*

Marks

- |   |   |     |
|---|---|-----|
| 1 | What are the different methods of obtaining the controlling torque in an indicating instrument? | (5) |
| 2 | What is meant by creeping? What are the causes of creeping and how it can be eliminated?        | (5) |
| 3 | Define the following terms of an instrument transformer? (i) Burden (ii) Nominal ratio          | (5) |
| 4 | Explain how BH curve can be determined using Ballistic galvanometer?                            | (5) |
| 5 | Explain the working of a Vernier potentiometer?.  | (5) |
| 6 | What is Maxwell's bridge? Derive the equation of balance for the bridge?.                       | (5) |
| 7 | What are primary and secondary transducers?   | (5) |
| 8 | Discuss the working of a load cell?   | (5) |

**PART B**

*Answer any two questions, each carries 10 marks*

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|----|--|------|
| 9  | Explain the construction and principle of operation of Permanent Magnet Moving Coil Instrument? Derive it's torque equation?   | (10) |
| 10 | Explain the construction and working principle of an induction type energy meter. Show that number of revolutions of the disc in induction type energy meter is proportional to energy consumed? | (10) |
| 11 | a) Explain the general requirements for ammeter shunts.  | (5)  |
|    | b) Explain any two errors that occur in electrodynamicometer type wattmeter and its compensation?  | (5)  |

**PART C**

*Answer any two questions, each carries 10 marks*

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|----|---|------|
| 12 | Derive the expression for Ratio and Phase angle error in a Current Transformer? | (10) |
| 13 | What do you mean by Lloyd -Fisher square? How it can be used for                | (10) |

determination of iron losses in a specimen. Explain.

- 14 Explain the working principle of electrostatic voltmeters. How they can be employed for measurement of High AC voltages? (10)

**PART D**

*Answer any two questions, each carries 10 marks*

- 15 a) Explain the basic principle and working of LVDT? (6)  
b) Write short notes on RTD? (4)
- 16 Draw a neat block diagram of a Cathode Ray Oscilloscope and specify the function of each block. Also Explain its working principle (10)
- 17 Explain basic potentiometer principle. Also explain the calibration of ammeter, voltmeter and wattmeter using potentiometer. (10)

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