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**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*

- 9 Explain the construction and principle of operation of Permanent Magnet Moving Coil Instrument? Derive its 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*

- 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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