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Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FOURTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), MAY 2019
Course Code: EE208
Course Name: MEASUREMENTS AND INSTRUMENTATION (EE)

Max. Marks: 100   Duration: 3 Hours

PART A
Answer all questions, each carries 5 marks
                                                          Marks

1   The weight of 5g is used as control weight in a gravity controlled instrument. Find its distance from the spindle, if the deflecting torque for a deflection of 60^0 is 1.13×10^{-3}.   (5)

2   Explain the measurement of insulation resistance by loss of charge method.   (5)

3   How high voltage is tested using the method of sphere gaps?   (5)

4   Explain the measurement of flux in a ring specimen.   (5)

5   How frequency is measured using a Wien's bridge?   (5)

6   Draw the diagram of a Cathode Ray Tube.   (5)

7   Explain the flow measurement using ultrasonic transducer.   (5)

8   Explain the working of piezoelectric transducer.   (5)

PART B
Answer any two questions, each carries 10 marks

9   Explain the working of attraction type and repulsion type of moving iron instrument with the help of neat diagrams   (10)

10   a) Explain any two errors that occur in electrodynamometer type wattmeter and its compensation.   (5)

      b) Explain the working of electronic energy meter.   (5)

11   a) Write short note on deflecting, damping and controlling torque   (5)

      b) Write short note on 3 phase induction type energy meter   (5)

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) How high voltage is measured using electrostatic voltmeter?   (5)

      b) Explain the measurement of rotational speed by optical sensors.   (5)

14   What is a Lloyd- Fisher square? Explain the measurement of iron losses in a magnetic material employing Lloyd-Fisher square using wattmeter method.   (10)

PART D
Answer any two questions, each carries 10 marks

15 a) Derive the equations for balance in the case of Maxwell's inductance –capacitance   (5)
        bridge.
    b) Explain the working of a dc potentiometer with figure.   (5)

16   Explain how CRO can be used to measure frequency and phase angle   (10)

17 a) Explain the measurement of any non-electrical quantity employing load cell.   (5)

    b) How strain is measured using a strain gauge?   (5)

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