E **S2089**

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FOURTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018
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	Define the following terms in measurement i) Accuracy ii) Resolution iii) Precision	(5)
2	Write short notes on Electronic Energy Meters.	(5)
3	Write short notes on clamp-on meters.	(5)
4	What are RPM Sensors, what are their types?	(5)
5	What is the general principle of operation of AC potentiometer, what are its types?	(5)
6	What is Maxwell's bridge? Derive the equation of balance for the bridge.	(5)
7	Discuss the working of anload cell.	(5)
8	Discuss the working of a piezoelectric transducer in detail.	(5)

PART B
Answer any two questions, each carries 10 marks

9		Explain the construction and working principle of a single-phase dynamometer type wattmeter, what are the errors present in it?	(10)
10		Explain the construction and principle of operation of permanent magnet moving coil instrument.	(10)
11	a)	Write short notes on TOD meter	(5)
	b)	A dc meter having a coil of resistance 3 Ω gives full scale deflection when acurrent of 60milliampere is passed through it. Show that it can be adopted to do work: i)As an ammeter with a range of 0-6A, ii)As a voltmeter with arrange of 0-600V.	(5)

PART C
Answer any two questions, each carries 10 marks

12		A current transformer with a bar primary has 400 turns in the secondary. The resistance and reactance of secondary circuit are 1.4ohms and 1.0ohms respectively including the transformer winding with 6A flowing in secondary winding. The magnetizing mmf is 110A and Iron loss is 1.3W. Find the ratio and phase angle errors (Assume nominal ratio to be equal to turns ratio).	(10)
13		Discuss the determination of iron losses by using Lloyd fisher magnetic square method.	(10)
14	a)	Discuss the methods for measuring high AC voltages.	(5)
	b)	Explain how BH curve can be determined using Ballistic galvanometer?	(5)

PART D

Answer any two questions, each carries 10 marks

15   Draw a neat block diagram of a cathode ray oscilloscope, specify the function   (10)
of each block and explain its working principle.

16 a) The arm of a four-arm bridge ABCD supplied with sinusoidal voltage have the (5)
following values

Arm AB: a resistance of 250 Ω in parallel with a capacitance 2 μF

Arm BC: 425 Ω

Arm CD: 999 Ω

Arm DA: a resistance R_2 in series with a 2.5 μF capacitance

Find the value of R_2 and find the frequency at which the bridge will balance.

    b) Draw the block diagram of data acquisition system and explain its various (5)
elements

17 a) Explain the basic principle and working of LVDT. (6)

    b) Write short notes on thermistors. (4)

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