Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Sixth semester B.Tech examinations (S), September 2020

Course Code: AE304

Course Name: INDUSTRIAL INSTRUMENTATION

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

			Marks
1	a)	Explain the concept, along with circuit diagram, of using RTD for temperature measurement.	(8)
	b)	Using suitable diagram explain the working of fluidic temperature sensor.	(7)
2	a)	Explain the working of a Bourdon gauge. What is special about its cross section?	(7)
	b)	With the help of a neat sketch, explain how a McLeod gauge helps accurate measurement of pressure.	(8)
3	a)	Giving suitable graphs, illustrate the difference between PTC and NTC thermistors. Compare sensitivity of RTD with that of thermistor.	(8)
	b)	Briefly explain how well type manometer gives higher sensitivity than a U-tube manometer.	(7)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	Briefly explain how Ostwald viscometer is used for measuring kinematic viscosity.	(7)
	b)	Explain how Bernoulli's energy relation is employed in Pitot tube for flow measurement.	(8)
5	a)	Explain the principle and working of centrifugal gas densitometer.	(8)
	b)	Explain the construction and working of rotameter.	(7)
6	a)	Explain the principle of any one positive displacement flow meter.	(8)
	b)	Explain the construction and working of Saybolt viscometer.	(7)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Explain in detail the principle, construction and working of laser Doppler anemometer.	(10)
	b)	Explain the working of cross correlation flow meters.	(10)

8	a)	Explain the working of two types of ultrasonic flow meter.	(10)
	b)	Explain the application of rotating paddle switches in level measurement.	(5)
	c)	Giving a neat diagram explain the construction and working of resistance type level detectors.	(5)
9	a)	Explain the working of gamma ray based level measuring instrument.	(9)
	b)	Making use of a neat sketch explain the construction and working of capacitance type level gauge for non-conducting liquids.	(5)
	c)	Explain how differential pressure sensing is employed in a closed tank to measure level.	(6)