Reg No.:_____ Name:_____

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

Course Code: AE204

Course Name: SENSORS AND TRANSDUCERS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions. Each question carries 15 marks

1	a)	Distinguish between sensors and transducers with suitable examples .	5
	b)	Distinguish between active and passive transducers with suitable examples.	5
	c)	What is the necessity of a secondary transducer in a measurement system. Illustrate with an example.	5
2	a)	Explain the basic principle of operation of resistance transducers. With an example explain loading in resistance transducers.	7
	b)	With schematic diagram explain the construction and working of LVDT.	8
3	a)	With schematic diagram explain a capacitive transducer for measurement of distance.	6
	b)	Give the classification of transducers based on transduction principle with suitable examples for each transduction.	5
	c)	Define the terms: - (i) linearity (ii) resolution	4

PART B

Answer any two full questions. Each question carries 15 marks

4	a)	How is a proving ring type load cell used for measurement of force?	5
	b)	Describe the working of pneumatic load cell.	5
	c)	Describe the working of a capacitive microphone with neat diagram.	5
5	a)	With schematic diagram explain capacitive type level measurement system.	6
	b)	Distinguish between continuous and discrete level measurement systems.	4
	c)	Explain the working of U- tube manometer.	5
6	a)	With a diagram , explain a dead weight calibrator.	7
	b)	Explain measurement of torque using any one method with diagram	8

PART C

Answer any two full questions. Each question carries 20 marks

7	a)	Explain the principle of operation of Hall effect transducers. Give any two applications.	10
	b)	Define magnetostrictive effect. Discuss the application of this transducer for measurement of force and acceleration.	10
8	a)	With schematic diagram explain venturi tube.	6
	b)	Explain an electromagnetic flow meter with diagram.	8
	c)	Explain the working of a Rotameter.	6
9	a)	Define piezo electric effect. Explain the working of a piezoelectric transducer for measurement of force.	10
	b)	With schematic diagram, explain hot wire anemometers.	10