SANT GADGE BABA AMARAVATI UNIVERSITY, AMARAVATI.
SUMMER EXAMINATION-2020
H.V.P.M.'s College of Engineering and Technology, Amravati.
Department of Electronics and Telecommunication
Bachelor of Engineering Semester III.

Subject : Instrumentation and Sensors : 3ET4

Instructions:-

i) Solve any two questions.

ii) **ii) All questions carry equal marks.**

Que 1	a)	Explain with block diagram, the elements of generalized instrumentation system.	2 credit pts
	b)	Explain liquid level measurement using resistive method.	2 credit pts
	c)	Draw & explain filament optical pyrometer.	2 credit pts
	d)	Explain Pirani Gauge for low pressure measurement.	2 credit pts
	e)	Describe the semi conductor strain gauge and straight advantages and limitation of semi conductor strain gauge	1 credit pts
	f)	What is Ph? Explain construction and working of Ph cell.	1 credit pts
Que 2	a)	Explain the following terms :- i) Static Sensitivity ii) Range iii) Resolution iv) Linearity.	2 credit pts
	b)	Explain the waves of measuring linear displacement using capacitance method.	2 credit pts
	c)	What is thermocouple? Explain laws of thermocouple.	2 credit pts
	d)	Describe the method of measurement of differential pressure using and inductive transducer.	2 credit pts
	e)	How microphones used as a sensor for measurement of sound	1 credit pts
	f)	Draw and explain digital data acquisition system.	1 credit pts
Que 3	a)	What are the different types of errors? And how to overcome then?	2 credit pts
	b)	Explain the inductive method used for measurement of liquid level.	2 credit pts
	c)	Explain IC type temp sensor for measurement of temperature range-10◦C to +100◦C.	2 credit pts
	d)	What is bourdon tube? Explain electrical type of pressure measurement using bourdon tube as a primary sensor	2 credit pts
	e)	Explain angular velocity measurement by stroboscope method.	1 credit pts
	f)	What is shaft encoder? Explain the construction and operation of shaft encoder	1 credit pts

Que 4	a)	What are the different types of errors that occur during measurement? Explain each.	2 credit pts
	b)	Explain ultrasonic method and nuclear method for measurement of liquid level.	2 credit pts
	c)	Explain temperature using thermisitor. Compare thermistior with thermocouple for temperature measurement application.	2 credit pts
	d)	Draw and explain ultrasonic transducer for flow rate measurement? list its advantages	2 credit pts
	e)	What is Smart Sensor? Explain with the help of block diagram.	1 credit pts
	f)	Explain in brief with a diagram the operation of optical encoder.	1 credit pts