PRN:		Course Code :	PPD301

Second Year **M. Tech** End Semester Examination Winter 2024

Sensors & Measurement 000941

Day and Date: Sat 30 Nov 2024 Max Marks: **100**

Time : 10:30AM To 01:30PM Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Discuss need of sensors in the modern world	08	L2	CO1
	b)	Explain various schematics for active and passive sensors	08	L2	CO1
		OR			
	b)	Describe static and dynamic characteristics of sensors for zero, I & II order sensors	08	L3	CO1
Q.2		**Attempt the following**			
	a)	Explain high current sensors & high voltage sensors	08	L3	CO2
	b)	Discuss wavelength measuring sensors & microwave frequency sensors	08	L5	CO1
		OR			
	b)	Describe micro-electromechanical system (MEMs) and MEM based sensors	08	L5	CO1
Q.3		**Attempt any two from the following**			
	a)	Explain hall effect magnetic sensors	08	L4	CO2
	b)	Draw and explain Resistance Temperature Detector (RTD) & thermistors	08	L3	CO3
	c)	Draw and explain thermocouples & semiconductors temperature sensors with their signal conditioning	08	L2	CO3
Q.4		**Attempt any two from the following**			
	a)	Explain photodiodes	08	L3	CO1
	b)	Discuss high impedance charge output sensors	08	L3	CO2
	c)	Describe signal conditioning of high impedance sensors	08	L2	CO3
Q.5		**Attempt any Two of the following**			
	a)	Explain accuracy and precisions related to transducers & sensors	09	L4	CO3
	b)	State and explain types of errors	09	L3	CO3
	c)	Explain the followings related to measuring instruments Resolution, Reproducibility, Transfer function.	09	L4	
Q.6		**Attempt any Two of the following**			
	a)	Illustrate and explain Linear Variable Differential Transformer	09	L5	CO4
	b)	Draw and explain Piezo-electric sensor & Motion sensor	09	L5	CO4
	c)	Discuss strain gauges with its principle, applications and types	09	L3	CO3

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