B.E.(with Credits)-Regular-Semester 2012 - Instrumentation Engineering Sem IV IN403 - Sensors and Transducers-II

P. F Tin	Pages : ne : Thi	2 ree Hours		GUG/W/16/3921 Max. Marks : 80		
	Note	es: 1. 2. 3.	All questions carry marks as indicated. Due credit will be given to neatness and adequate dimensions. Illustrate your answers wherever necessary with the help of neat s	sketches.		
1.	a)	State di principl	fferent mechanical temperature sensors. Explain the construction & e of any one.	: working 8		
	b)	Explain	the principle of pyrometer. What are its types? Explain any one of	them. 8		
			OR			
2.	a)	A platin respecti determi	num resistance thermometer has a resistance of 140 Ω & 100 Ω at vely. If its resistance becomes 305 Ω , when it is in contact with a has ne the temperature of the gas. The temp. coeff. of platinum is 0.003	100°C & 0°C 8 10t gas, 39°C ⁻¹ .		
	b)	Explain	various types of thermistors with their advantages.	8		
3.	a)	Explain construction & working of LVDT as a secondary transducer for measurement of pressure.				
	b)	A pipe contains an oil of Sp. gr. 0.9. A differential manometer connected at the two points A & B shows a difference in mercury level as 15 cm. Find the difference of pressure at the two points.				
			OR			
4.	a)	Draw no in detail	eat diagram of McLeod gauge. Explain its working with mathemati l.	cal derivation 8		
	b)	What an	e the methods for vacuum measurement? Explain any one in detail	. 8		
5.	a)	Explain	construction & working of – ultrasonic flow meter.	8		
	b)	The dia discharg 5 m/s. I	meters of a pipe at the section 1 & 2 are 10 cm & 15 cm respective ge through the pipe if the velocity of water flowing through the pipe Determine also the velocity at section 2.	ly. Find the 8 e at section 1 is		
			OR			
6.	a)	Describ advanta	e principle & working of pitot tube for air velocity measurement. S ges & limitations.	state its 8		
	b)	Explain	laminar and turbulent flow in detail.	8		
7.	a)	Define	absolute & relative humidity. Explain any one method for humidity	measurement. 8		

OR

	OR	
b)	How optical fibre technology can be adopted for liquid level gauging? Describe a method with suitable diagram.	8
a)	Explain the air bubbler technique for level measurement with suitable diagram.	8
b)	Explain IC & bio – sensors.	8
a)	Explain the set up – used for – measurement of moisture in air.	8

10. a) Write note on:-

8.

9.

- i) Radar level measurement.
- ii) Thermal level measurement.
- b) Elaborate on some important aspects of solid level measurement techniques. Is there any suitable method for continuous sensing & control? Discuss.

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