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GUJARAT TECHNOLOGICAL UNIVERSITY ME SEMESTER II EXAMINATION – SUMMER 2017

Subject Code: 2721007 Data: 30/05/2017

Sub	Subject Code: 2/2100/ Subject Name: Low Temperature Measurement and Instrumentation Time:02:30 PM to 05:00 PM Total Marks: 70				
Insti	ruction 1. 2.	Attempt all questions. Make suitable assumptions wherever necessary.			
Q.1	3. (a)	Figures to the right indicate full marks. Define: Sensitivity, Hysteresis, Precision, Accuracy, Dead Zone, Threshold, Sensitivity	07		
	` ′	Explain static and dynamic characteristics of instruments.	07		
Q.2	(a)	List down the types of Errors that can occur during measurement. Discuss in detail about Systematic errors in measurement.	07		
	(b)	Short note on calibration of Transducers.	07		
	` ,	OR			
	(b)	Discuss in detail with neat sketch about Temperature sensors.	07		
Q.3	(a) (b)	Short note on calibration of Liquid level measuring instruments. Discuss in detail about vapour pressure thermometer. Discuss equation of sensitivity for this thermometer.	07 07		
		OR			
Q.3	(a)	Discuss in detail with neat sketch about density measurement technique using radiation.	07		
	(b)	Discuss in detail about Piezo electric Transducer for Pressure measurement and mention it's advantages and disadvantages.	07		
Q.4	(a) (b)	Discuss in detail with neat sketch about vacuum measurement techniques. Explain the 3He Melting curve thermometer with neat sketch and clearly stating it's merits and demerits.	07 07		
		OR			
Q.4	(a) (b)	Write short note on variable area flow meters. Discuss in detail with neat sketch about Turbine flow meters.	07 07		
Q.5	(a)	Discuss in detail with neat sketch about Ultrasonic Non-destructive testing methods.	07		
	(b)	What do you mean by Non-destructive testing? Discuss the concept in brief. Classify all the types of Non-destructive testing in brief.	07		
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Q.5	(a) (b)	Write short note fiber optic sensors. How Electric poise is measured? Discuss the technique in brief	07 07		