

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
ME- SEMESTER II- EXAMINATION – SUMMER 2015

Subject Code: 2721007

Date: 01/06/2015

Subject Name: Law Temperature Measurement and Instrumentation

Time: 2:30 PM – 5:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a) Explain static and dynamic characteristics of instruments? Discuss in detail. 07
(b) State the difference between 07
(i) Accuracy and Precision
(ii) Span and Range
(iii) Dead zone and Dead time

- Q.2 (a) List down the various methods of cryogenic fluid flow measurement. Explain in detail about Ultrasonic Flow meter. 07
(b) Explain the working principle of orifice and venturi flow meter and state the applications of the same. 07

OR

- (b) List down the types of Errors that can occur during measurement. Discuss in detail about Systematic errors in measurement. 07

- Q.3 (a) Explain the ^3He Melting curve thermometer with neat sketch. Also state merits and demerits of the same 07
(b) Discuss in detail about Vapour Pressure thermometers. Also Discuss the equation of sensitivity for this thermometer. 07

OR

- Q.3 (a) Classify the different types of transducers and explain the working of LVDT with neat sketch stating clearly merits and demerits. 07
(b) Discuss in detail with neat sketch about density measurement technique using radiation. 07

- Q.4 (a) List down the techniques for vacuum measurements. Discuss in detail about McLeod gauge for vacuum measurements. 07
(b) List down the Types of Strain gauges: Explain in detail about Bonded wire strain gauge. 07

OR

- Q.4 (a) Short note on fibre optics sensors. 07
(b) Enlist various techniques for sound measurement. Explain how the sound is measured with microphones. 07

Q.5 (a) What do you mean by Non-destructive testing? Discuss the concept in brief. **07**
Classify all the types of Non-destructive testing in brief.

(b) Define the following: 1. Noise and Signal 2. Phase Noise and Amplitude Noise **07**
3. Reproducibility

OR

Q.5 (a) Discuss in detail with neat sketch about the concept thermometry for low **07**
temperature. Classify all the technique in brief.

(b) Discuss in detail about Radiography technique for Non-destructive Testing. **07**

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