

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – III • EXAMINATION – WINTER • 2013****Subject code: 731001****Date: 26-11-2013****Subject Name: Low Temperature measurement and Instrumentation****Time: 10.30 am – 01.00 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 in detail about significance of measurement and instrumentation. **07**
(b) What do you mean by static and dynamic characteristics of instruments? **07**
Discuss in detail.

- Q.2** (a) Short note on calibration of Transducers. **07**
(b) Classify the transducers in detail. **07**
State the Physical Laws.

OR

- (b) Discuss in detail with neat sketch about Temperature sensors. **07**
- Q.3** (a) Short note on calibration of Liquid level measuring instruments. **07**
(b) Discuss in detail with neat sketch about cryogenic liquid level measuring technique. **07**

OR

- Q.3** (a) Discuss in detail with neat sketch about density measurement technique using radiation. **07**
(b) List down the various methods of cryogenic fluid flow measurement. **07**
Also Discuss in brief about Laminar flow and turbulent flow.
- Q.4** (a) Short note on variable area flow meters. **07**
(b) Discuss in detail with neat sketch about Turbine flow meters. **07**

OR

- Q.4** (a) Discuss in detail with neat sketch about vacuum measurement techniques. **07**
(b) Discuss in detail with neat sketch about the concept thermometry for low temperature. **07**
Classify all the technique in brief.

- Q.5** (a) Short note on fibre optics sensors **07**
(b) How Electric noise is measured? **07**
Discuss the technique in brief.

OR

- 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. **07**
Classify all the types of Non-destructive testing in brief.
