**Seat No.: _____** **Enrolment No._____**

# GUJARAT TECHNOLOGICAL UNIVERSITY

## BE SEM-V Examination-Nov/Dec.-2011

**Subject code: 151701** **Date: 24/11/2011**

**Subject Name: Industrial Measurement**

**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 in detail with diagram, the resistance measurement of RTD using 2, 3 and 4 wire configurations. State advantages and disadvantages of RTD. **08**

**(b)** Write a short note on Air Purge/Bubbler type liquid level measurement with construction, working and diagram. **06**

**Q.2** **(a)** Explain Rotameter type flow meter with neat sketch. **07**

**(b)** Write a short note on Mc. Leod vacuum gauge. **07**

**OR**

**(b)** Explain in detail with diagram, Ionization vacuum gauge. **07**

**Q.3** **(a)** (i) Define Heat and Temperature. Convert 234°R into °K, °F and °C. **04**

(ii) Explain in brief, the ambient temperature compensation of filled system thermometers. **03**

**(b)** List out different types of displacer type level detectors. Explain Torque tube type displacer level detector in detail with diagram. **07**

**OR**

**Q.3** **(a)** Give the definitions of : **07**

(i) Vacuum
(ii) Atmospheric pressure
(iii) Gauge pressure.

Explain with diagram, Pirani vacuum gauges.

**(b)** Explain Microwave type level switches in detail. **07**

**Q.4** **(a)** Write a short note on Bimetallic temperature sensors. **07**

Define :

(i) Volumetric flow rate

**(b)** (ii) Mass flow rate **07**

Explain in brief, the types of orifice plate and position of tapes in orifice for flow measurement.

**OR**

**Q.4** **(a)** Write a short note on Pyroelectric cones. **06**

**(b)** State different types of manometers. **08**

Explain,(i) well type, (ii) inclined-leg type, (iii) inverted bell type manometer in detail.

**Q.5** **(a)** Write a short note on vibrating type level switches. **06**

\

**(b)** Explain, (i) the law of intermediate temperature and (ii) the law of intermediate metal. Write a short note on cold junction compensation for Thermocouple. **08**

**OR**

**Q.5** **(a)** List out the factors to be considered for flow meter selection. **06**

**(b)** Write a short note on Venturi tube for flow measurement. **08**

**********