Paper Code: IC-602	**Roll No.**									

B.Tech.
(SEM VI) EVEN SEMESTER EXAMINATION, 2015-16
INDUSTRIAL INSTRUMENTATION

[Time: 3 hrs.] **[Max. Marks: 100]**

Note- Attempt All Questions. All Questions carry equal marks.

Q.1-Attempt any TWO parts of the following: **[10x2=20]**

(a) What do you understand by the industrial standards? Explain in details with respect to industry.
(b) Explain the actuators, probe analyzers, comparators and other devices that are used in an industry.
(c) Write short note on the following weight measurement:
  i. Strain gauge
  ii. Hydraulic and pneumatic method

Q.2-Attempt any TWO parts of the following: **[10x2=20]**

(a) Explain semiconductor resistance sensors (Thermistors). For a certain thermistor, β=3140 K and the resistance at 27ºC is known to be 1050Ω. The thermistor is used for temperature measurement and the resistance measured is as 2330Ω. Find the measured temperature.
(b) What are Radiation Pyrometers? How to they work?
(c) What is thermocouple? What are different types of materials used to form different characteristics?

Q.3-Attempt any TWO parts of the following: **[10x2=20]**

(a) Explain with a neat diagram, the different elastic elements used for pressure measurement along with their working.
(b) Describe all the technique for low pressure measurement with their working.
(c) Classify the various device used for moderate pressure measurement. Explain the different type of manometer used for pressure measurement.

Q.4-Attempt any TWO parts of the following: **[10x2=20]**

(a) Using Bernoulli's theorem; obtain the expression for the volume flow rate through a horizontal pipe installed with orifice meter. Also different types of orifice.
(b) Using neat sketches explain :
  i. Variable area meter
  ii. Pitot tube
(c) Write short note on the following level measurement:
  i. Float type gauge
  ii. Capacitive method

Q.5-Attempt any TWO parts of the following: **[10x2=20]**

(a) Define absolute and kinetic viscosity. Also explain the construction and working of industrial viscometer.
(b) Explain the thermal drying method. What are the advantages and disadvantages of thermal drying?
(c) Write short note on the following moisture measurement:
  i. Distillation method
  ii. Electrical method