Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

FOURTH SEMESTER B.TECH. (INSTRUMENTATION AND CONTROL ENGG.)

END SEMESTER EXAMINATIONS, JUNE 2017

SUBJECT: SENSOR TECHNOLOGY [ICE 3284]

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

1A.	Describe the construction of a typical pressure-sensitive potentiometric position sensor.	**4**
1B.	Define and Differentiate between Sensitivity and Fidelity of a sensor.	**4**
1C.	Give a brief note on Doppler effect.	**2**
2A.	Explain the construction and working of a typical LVDT used in position measurement. Also, list the pros and cons of using LVDT (*Any four each*).	**5**
2B.	Explain with a neat diagram the construction and working of a rotameter. Also mention the limitation(s) of using rotameter for flow measurement.	**5**
3A.	State and explain the following: (a) Peltier effect. (b) Ferroelectric effect.	**6**
3B.	State the use of Law of homogeneous metal and also, Law of intermediate metals for thermocouple-based temperature measurement.	**4**
4A.	Explain the various types of MEMS based pressure sensing techniques.	**5**
4B.	With relevant diagrams, explain the working of a typical capacitance based-frequency based, absolute micro-pressure sensor.	**5**
5A.	With relevant figures, explain Category-II Wireless Sensor Networks (C2WSNs).	**6**
5B.	Discuss on the construction of a typical capacitive accelerometer.	**4**