Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

SECOND SEMESTER M.TECH. (CONTROL SYSTEMS)

END SEMESTER EXAMINATIONS, APRIL/MAY 2017

SUBJECT: ADVANCED SENSOR TECHNOLOGY [ICE 5231]

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Use neat diagrams where ever needed.

1A.	Classify the sensors based on operative principle	**4**
1B.	Discuss the constraints in design of advanced sensors. Also explain techniques to overcome the same.	**6**
2A.	With the neat diagram explain PH measurement using optical sensors	**3**
2B.	Explain how an optical sensor is used to diagnose muscular moment in human beings	**4**
2C.	What are design consideration in a Mach-zander pressure sensor	**3**
3A.	Discuss the advantages of MEMS technologies	**3**
3B.	Compare Force balance and piezoelectric type of accelerometers	**3**
3C.	Describe a sensing technique for detection of physical dimensions of gear tooth	**4**
4A.	Discuss the humidity measuring technique. Distinguish between capacitive and resistive techniques.	**3**
4B.	Explain the working of calorimetric sensor. Discuss one application for the same	**3**
4C.	What is e-nose? Discuss the basic parameters which are sensed by e-nose	**4**
5A.	Distinguish between data, feature and decision fusion.	**5**
5B.	Explain the use of sensors for monitoring of intruders in border areas	**5**