Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

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

END SEMESTER EXAMINATIONS, DEC- 2017

SUBJECT: SMART SENSOR [ICE 4012]

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

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

1A.	List the semi-conductive sensing technologies.	**3**
1B.	Compare the different sensor compensation schemes.	**3**
1C.	Discuss the performance of sensor noise model.	**4**
2A.	What are the challenges in smart sensor design	**3**
2B.	Explain the architecture of CAN	**4**
2C.	With the neat block diagram explain various blocks of fifth generation smart sensors	**3**
3A.	Draw the state diagram for TIM operations	**3**
3B.	Outline the format of TED's identifier	**2**
3C.	Describe the functional specification of 'transducer interface for sensor and actuators' (IEEE 1451.3).	**5**
4A.	Explain the process of making service request in transducer channel.	**3**
4B.	List the sub-systems of intelligent transport system.	**4**
4C.	Discuss the process of temperature measurement in micro-fluid's.	**3**
5A.	What is auto-ranging? How is it carried out in smart sensors	**4**
5B.	For a case of tumor identification, design a smart sensor system	**6**