Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

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

END SEMESTER EXAMINATIONS, NOV 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.	What are the requirements for sensor interface?	**3**
1B.	Explain the process of sensor signal enhancement .	**3**
1C.	With the neat block diagram explain sensor electronics.	**4**
2A.	List the advantages of frequency domain, sensor data transfer as compared to time domain.	**4**
2B.	Describe the format of MODBUS cyclic redundancy check (CRC).	**3**
2C.	Compare the architecture of fourth and third generation smart sensors.	**3**
3A.	With the help of functional block, explain transducer channel.	**3**
3B.	Discuss functionalities of IEEE 1451.1 smart sensor standard.	**4**
3C.	Represent the system flow chart for IEEE 1451.4 (TED's) operation.	**3**
4A.	What is the layered framework within NCAP and WTIM?	**2**
4B.	Explain the V-model for ADAS.	**5**
4C.	With the neat block diagram, discuss the working of capillary flow meter.	**3**
5A.	List the needs for sensor intelligence?	**4**
5B.	Considering an example of 'crash detection system'. Explain the phases in designing the smart sensor system.	**6**