Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

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

END SEMESTER DEGREE EXAMINATION NOVEMBER - 2018

SUBJECT: SMART SENSORS [ICE 4012]

TIME: 3 HOURS **MAX. MARKS: 50**

Instructions to candidates

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

1A	Define sensor model. List any four techniques used for sensor modelling.	4
1B	With the block diagram of third generation smart sensor, discuss its salient features in comparison to second generation smart sensors.	4
1C	Represent the signal level of 27H in MODBUS communication.	2
2A	Design the Zigbee network tree with 7 number of children, 6 number of child routers and depth of router is 2.	5
2B	Represent the layers in CAN, indicating the functionality of each layer.	5
3A	Describe the working of IEEE 1451.0 reference model for a smart transduce interface for sensors and actuators.	3
3B	Differentiate between task assignment and data advertisement protocol (TADAP) and sensor query and data dissemination protocol (SQDDP).	3
3C	Explain the system flow chart of IEEE 1451.4 .	4
4A	Taking an application of smart sensor system describe its functionality referring to 1451.	5
4B	What are the features of longitudinal control of ITS.	2
4C	Highlight the salient features of ITS framework.	3
5A	Itemise the aspects of smart grid.	2
5B	Illustrate the incorporation of Dy Liacco principles in smart grid.	3
5C	Explain the process control information hierarchy.	5

****