Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

VII SEMESTER B.TECH. (INFORMATION TECHNOLOGY/COMPUTER AND COMMUNICATION ENGINEERING)

END SEMESTER EXAMINATIONS, NOVEMBER 2018

SUBJECT: PROGRAM ELECTIVE IV- INTERNET OF THINGS [ICT 4019]

REVISED CREDIT SYSTEM
(27/11/2018)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

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

1A.	With the help of a neat diagram explain the ETSI-M2M high level architecture.	**5**
1B.	Explain challenges faced in the design and implementation at the node level and network level for smart objects.	**3**
1C.	Differentiate between Pervasive computing and Mobile computing.	**2**
2A.	What are SCADA systems? With the help of a neat diagram explain various components of a SCADA system.	**5**
2B.	Describe the Open Geospatial Consortium architecture for Sensor Web Enablement (OGC-SWE) standards.	**3**
2C.	Outline the applications of SCADA systems.	**2**
3A.	Describe Bluetooth architecture with a neat diagram. Explain different modes of operation of a Bluetooth device in a connection state.	**5**
3B.	Explain the role of MQTT protocol in IoT devices communication.	**3**
3C.	Elaborate the components of Advanced Message Queuing protocol (AMQP)? Name the different ways of sending messages in AMQP.	**2**
4A.	List and explain the various components of a smart vehicle. Explain how the Dedicated Short Range Communication (DSRC) help in smart vehicle communications. Mention why TCP/IP fails in smart vehicle communication.	**5**
4B.	Describe the components of an RFID system. Mention the challenges involved in RFID technology.	**3**
4C.	What is Near Field Communication (NFC)? What are the three modes of operation of an NFC device?	**2**

5A. What are the different types of traffic supported by the Wireless Body Area Network (WBAN)? With a neat diagram explain the Communication Architecture of WBANs. **5**

5B. What is Content Centric Networking (CCN)? How does it benefit in connected vehicle communications? **3**

5C. What are the benefits of using Zigbee protocol in establishing connectivity between IoT devices? **2**