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18EC741

Seventh Semester B.E. Degree Examination, July/August 2022
IoT and Wireless Sensor Networks

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1	a.	Define the term IoT. Explain CISCO Seven leveled reference model for IoT.	**(08 Marks)**
	b.	With neat sketch, explain IETF suggested modified OSI model for IoT/M2M systems.	**(08 Marks)**
	c.	Explain how data enrichment can be achieved before data dissemination to the network.	**(04 Marks)**

OR

2	a.	Describe XMPP protocol with necessary diagram.	**(08 Marks)**
	b.	Define M2M communication. Explain the M2M architecture.	**(08 Marks)**
	c.	List the functionalities of MQTT brokers.	**(04 Marks)**

Module-2

3	a.	With neat sketch, explain 6lowPAN protocol and its features.	**(08 Marks)**
	b.	Explain how packets route over the internet using a set of four routers between source and destination.	**(06 Marks)**
	c.	Define cloud computing. Explain different services provided by cloud computing.	**(06 Marks)**

OR

4	a.	Explain IoT cloud-based data collection, storage and computing services using Nimbits.	**(08 Marks)**
	b.	Explain the features of HTTP protocol.	**(06 Marks)**
	c.	Explain cloud computing deployment models.	**(06 Marks)**

Module-3

5	a.	Explain security requirements and threat analysis.	**(10 Marks)**
	b.	Write and explain traffic light control programming using Arduino UNO.	**(10 Marks)**

OR

6	a.	What is IoT Security Tomography? Explain in detail the layered attacker model.	**(10 Marks)**
	b.	Explain five levels for software development for applications and services for IoT or M2M.	**(10 Marks)**

Module-4

7	a.	Explain the hardware components of a sensor node.	**(08 Marks)**
	b.	Explain the challenges for wireless sensor networks.	**(06 Marks)**
	c.	Explain different types of mobility in WSN.	**(06 Marks)**

OR

8   a.   Explain optimization goals and figures of merit in sensor network.   (08 Marks)
    b.   Explain Gateway concepts in sensor networks.   (08 Marks)
    c.   List the enabling technologies for WSN.   (04 Marks)

Module-5

9   a.   Explain LEACH protocol in sensor network.   (10 Marks)
    b.   With neat diagram, explain CSMA protocol.   (10 Marks)

OR

10 a.   Explain low-duty cycle and wakeup concepts in WSN.   (08 Marks)
    b.   Explain S-MAC protocol.   (08 Marks)
    c.   Briefly explain energy problems on the MAC layer.   (04 Marks)

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