17EC752

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Seventh Semester B.E. Degree Examination, June/July 2023
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.	Explain any two IOT conceptual framework.	(06 Marks)
	b.	With a neat diagram, explain the M2M architecture.	(06 Marks)
	c.	Define IOT and explain an IOT reference model suggested by CISCO.	(08 Marks)

OR

2	a.	Explain constrained application protocol (COAP) for IOT/M2M.	(08 Marks)
	b.	Explain MQTT protocol for IOT.	(08 Marks)
	c.	Write and explain four layer architectural framework developed at CISCO for a city.	(04 Marks)

Module-2

3	a.	With a neat diagram, show how the four layers generate data stack for the network for physical layers during internet communication.	(08 Marks)
	b.	Explain with the neat sketch UDP datagram format for transmission or header fields.	(06 Marks)
	c.	Explain internet protocol version 4.	(06 Marks)

OR

4	a.	Explain the cloud computing features, advantages and concerns.	(08 Marks)
	b.	With a neat sketch explain the different cloud computing service models.	(06 Marks)
	c.	Explain in detail different types of cloud.	(06 Marks)

Module-3

5	a.	Explain the programming embedded device using Arduino IDE platform.	(08 Marks)
	b.	Write a program code for the Arduino controlled traffic light at the road junction with LED's ON state remains for 30s period, and a delay of 10s each between successive states of LED.	(12 Marks)

OR

6	a.	What is an IoT reference architecture with respect to the function group component. Illustrate a threat analysis tool for analysis during a stride.	(10 Marks)
	b.	Explain a layered attacker model with possible attacks and suggest the solutions for mitigating the attacks on the layers.	(10 Marks)

Module-4

7	a.	Explain characteristics requirement of wireless sensor network.	(08 Marks)
	b.	Explain the sensor node Hardware components.	(08 Marks)
	c.	Explain the three types of mobility in wireless sensor networks.	(04 Marks)

OR

8	a.	Explain the design principles for WSN.	(10 Marks)
	b.	Explain Gateway concepts.	(10 Marks)

Module-5

9	a.	Explain low duty cycle and wake-up concepts in wireless sensor networks.	(06 Marks)
	b.	Explain in detail S-MAC protocol.	(08 Marks)
	c.	With a neat diagram, explain CSMA protocol.	(08 Marks)

OR

10	a.	With relevant diagram explain LEACH protocol.	(08 Marks)
	b.	Explain in detail address management in WSN.	(06 Marks)
	c	Explain energy efficient unicast routing.	(08 Marks)

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