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17CS81

Eighth Semester B.E. Degree Examination, July/August 2022
Internet of Things and Applications

Time: 3 hrs.

Max. Marks: 100

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

Module-1

1 a. What is IOT? Explain evolutionary phases of the Internet. (08 Marks)
   b. What are the different challenges of IOT? (07 Marks)
   c. Explain the drivers behind new network architecture. (05 Marks)

OR

2 a. With a neat diagram, explain one M2M architecture of IOT. (08 Marks)
   b. Explain Core IOT functional stack. (07 Marks)
   c. Compare and contrast IT and OT. (05 Marks)

Module-2

3 a. With a neat diagram, explain how actuators and sensors interact with Physical World. Classify actuators based on energy type. (10 Marks)
   b. Explain briefly the Wireless Sensor Network (WSN) and its Communication Protocols. (10 Marks)

OR

4 a. Briefly explain protocol stack utilization of IEEE 802.15.4. (10 Marks)
   b. Explain LoRaWAN standard and alliance MAC layer and security. (10 Marks)

Module-3

5 a. Explain 6LoWPAN protocol header compression and fragmentation in detail. (10 Marks)
   b. Explain 6Ti SCH architecture in detail. (10 Marks)

OR

6 a. Explain Tunneling legacy SCADA over IP networks and SCADA protocol translation with a neat diagram. (10 Marks)
   b. Explain MQTT framework and message format in detail. (10 Marks)

Module-4

7 a. Explain the elements of Hadoop with a neat diagram. (10 Marks)
   b. Explain the core functions of edge analytics, with necessary diagram. (10 Marks)

OR

8 a. Explain the different components of FNF. (08 Marks)
   b. Describe Distributed Analytics Systems. (07 Marks)
   c. Describe Network Analytics. (05 Marks)

Module-5

9 a. Explain the different pins/parts of Arduino UNO Board. (10 Marks)
   b. With a neat diagram, explain the Wireless Temperature Monitoring System with Raspberry P_i. (10 Marks)

OR

10 a. Write a Python program on Raspberry P_i to blink an LED. (10 Marks)
    b. Explain Smart City Security Architecture in detail. (10 Marks)

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