CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐

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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