USN ☐☐☐☐☐☐☐☐☐☐

18CS81

Eighth Semester B.E. Degree Examination, June/July 2023
Internet of Things

Time: 3 hrs.   Max. Marks: 100

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

Module-1

1 a. Define IOT. Explain in detail IOT and digitization.   (06 Marks)
   b. Explain in detail with any two example IOT impact.   (08 Marks)
   c. Explain the different evolutionary phases of the Internet.   (06 Marks)

OR

2 a. Explain different challenges of IOT.   (04 Marks)
   b. Explain in detail IOT World Forum (IOTWF) Standard Architecture.   (08 Marks)
   c. Explain expanded view of the simplified IOT Architecture.   (08 Marks)

Module-2

3 a. List and explain different types of sensors (any 8) with an example each.   (08 Marks)
   b. What are smart objects? With neat diagram, explain characteristics of smart object.
                                                                                               (08 Marks)
   c. What are Actuators? Explain comparison of sensors and actuators functionality with human.
                                                                                               (04 Marks)

OR

4 a. What is SANET? Explain some advantages and disadvantages that a wireless based solution
      offers.   (06 Marks)
   b. Briefly explain protocol stack utilization IEEE 802.15.4.   (08 Marks)
   c. List and explain in brief communication criteria.   (06 Marks)

Module-3

5 a. Explain key advantages of Internet Protocol for the IOT.   (08 Marks)
   b. Explain the need for optimization.   (08 Marks)
   c. With a neat diagram, explain comparison of an IOT protocol stack utilizing 6LOWPAN and
      IP protocol stack.   (04 Marks)

OR

6 a. Write notes on Supervisory Control and Data Acquisition (SCADA).   (06 Marks)
   b. Explain with neat diagram Constrained Application Protocol (COAP) message format.
                                                                                               (08 Marks)
   c. Explain in detail Message Queuing Telemetry Transport (MQTT) publish/subscribe frame.
                                                                                               (06 Marks)

Module-4

7 a. Compare: (i) Structured versus unstructured data   (ii) Data in motion versus data at rest
                                                                                               (06 Marks)
   b. With neat diagram, explain Hadoop distributed cluster and writing a file to HDFS. (08 Marks)
   c. Explain Lambda Architecture.   (06 Marks)

OR

8 a. Explain edge streaming analytics and functions of Edge Analytics Processing Unit.
   (10 Marks)
   b. Explain in detail formal risk analysis structures.
   (10 Marks)

Module-5

9 a. Write notes on: (i) Arduino UNO   (ii) Raspberry Pi   (12 Marks)
   b. With a neat diagram, explain wireless temperature monitoring system using Raspberry Pi.
   (08 Marks)

OR

10 a. Explain IOT strategy for smarter cities.   (10 Marks)
    b. With neat smart cities Layered Architecture diagram, explain Smart City IOT Architecture.
    (10 Marks)

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