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.

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