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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CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐   **18CS822**

Eighth Semester B.E. Degree Examination, June/July 2023
Storage Area Networks

Time: 3 hrs.   Max. Marks: 100

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

Module-1

1 a. Define data center. List and explain the key elements of data center. Explain the characteristics of data center elements with diagram. **(10 Marks)**
   b. Explain with neat diagram the evolution of storage architecture. **(06 Marks)**
   c. With diagram explain about compute virtualization. **(04 Marks)**

OR

2 a. Explain disk drive components with diagram. **(10 Marks)**
   b. Discuss disk service time and disk I/O controller utilization. **(10 Marks)**

Module-2

3 a. List the different RAID levels where parity technique has been adopted. Explain any three. **(10 Marks)**
   b. Different between software and hardware RAID. **(04 Marks)**
   c. With diagram explain different RAID techniques. **(06 Marks)**

OR

4 a. Explain types of Intelligent storage systems. **(10 Marks)**
   b. Explain with neat diagram the components of fibre channel storage area networks. **(10 Marks)**

Module-3

5 a. Discuss different iSCSI topologies with neat diagram. **(06 Marks)**
   b. Briefly explain about iSCSI protocol stack. **(04 Marks)**
   c. Explain the components of NAS with neat sketch. Briefly explain the benefits of NAS. **(10 Marks)**

OR

6 a. Explain NAS implementations in detail. **(06 Marks)**
   b. Discuss about NAS file sharing protocols. **(04 Marks)**
   c. With diagram explain about FCIP protocol stack and FCIP topology. **(10 Marks)**

Module-4

7 a. Describe failure analysis in business continuity. Mention important BC technology solutions. **(10 Marks)**
   b. With a neat diagram, explain the steps involved in backup and restore operation. **(10 Marks)**

OR

8 a. What is business continuity? Explain the BC terminology in detail. **(10 Marks)**
   b. Discuss different backup topologies. **(10 Marks)**

Module-5

9 a. Explain FC SAN security architecture and IPSAN security implementations with diagram.

(10 Marks)

   b. Explain the following :
       i)   Uses of local replica
       ii) LVM based replication
       iii) Full volume mirroring

(10 Marks)

OR

10 a. Explain storage security domains.   (10 Marks)

   b. What is remote replication? Explain storage array based remote replication.   (10 Marks)

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