CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐ 18CS81

Eighth Semester B.E. Degree Examination, June/July 2024
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 and discuss the genesis of IoT in detail. (06 Marks)
   b. List out the difference between IT and OT networks and their various challenges. (06 Marks)
   c. What are the different challenges of IOT? Explain. (08 Marks)

OR

2 a. Explain with diagram the one M2M IoT standardized architecture. (08 Marks)
   b. Explain IoT Data Management and Compute Stack. (08 Marks)
   c. List and explain the defining characteristics of fog computing. (04 Marks)

Module-2

3 a. List out the most useful classification scheme for the pragmatic application of sensors in a IoT network. (08 Marks)
   b. Define sensors and actuators. Explain how they interact with the physical world. (08 Marks)
   c. Define smart objects. Explain its characteristics. (04 Marks)

OR

4 a. What are constrained devices and constrained node networks? Classify them. (08 Marks)
   b. Explain Zigbee protocol stack using IEEE 802.15.4. (08 Marks)
   c. Briefly describe about communication criteria. (04 Marks)

Module-3

5 a. What are the key advantages of the IP suite for IoT? (08 Marks)
   b. Explain in detail the 6LOWPAN. (08 Marks)
   c. Explain the different schedule management and packet forwarding models of TiSCH. (04 Marks)

OR

6 a. Explain in detail COAP message format. (08 Marks)
   b. Explain Message Queuing Telemetry Transport (MQTT). (06 Marks)
   c. Explain the raw socket tunneling of SCADA using different scenarios. (06 Marks)

Module-4

7 a. What are the ways IoT data is categorized? Explain in detail. (08 Marks)
   b. Explain in detail supervised learning and unsupervised learning. (06 Marks)
   c. Explain in detail the core functions of edge analytics with necessary diagrams. (06 Marks)

OR

8 a. Explain the different steps and phases of OCTAVE Allegro methodology. (08 Marks)
   b. Explain Lambda Architecture in details. (06 Marks)
   c. Explain any two Big data Analytics tools and technologies. (06 Marks)

1 of 2

Module-5

9 a. What is Arduino? What are the advantages of Arduino? (08 Marks)
   b. How to install arduino software for the windows PCs? (06 Marks)
   c. Explain the different pins/parts of Arduino Uno Board. (06 Marks)

OR

10 a. Explain the different layers of IoT smart layered architecture. (08 Marks)
   b. Explain smart parking architecture with advantages and disadvantages. (06 Marks)
   c. With a neat diagram, explain wireless temperature monitoring system using Raspberry Pi. (06 Marks)

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Eighth Semester B.E. Degree Examination, June/July 2024
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. Discuss the various factors that have contributed to the growth of digital data. (06 Marks)
    b. Illustrate with a figure, the evolution of storage architecture. (08 Marks)
    c. Explain the key characteristics of a data center. (06 Marks)

OR

2   a. Explain with a figure, the process of mapping user files to the disk storage subsystem with an LVM. (08 Marks)
    b. Discuss the most popular interface protocols used for host to storage communication. (08 Marks)
    c. Explain with a figure, the platter. (04 Marks)

Module-2

3   a. Discuss the limitations of software RAID. (04 Marks)
    b. Discuss the various RAID techniques. (10 Marks)
    c. Explain with a figure, the RAID0 configuration. (06 Marks)

OR

4   a. Discuss the various components of an intelligent storage system. (08 Marks)
    b. Discuss the various components of Fibre Channel (FC) SAN. (08 Marks)
    c. Explain with a figure, the active-passive configuration. (04 Marks)

Module-3

5   a. Explain with a figure, the FCIP protocol stack. (06 Marks)
    b. Discuss the various benefits offered by the Network Attached Storage (NAS). (08 Marks)
    c. Explain the process of handling I/Os in a network attached storage environment. (06 Marks)

OR

6   a. Explain with a figure, the iSCSI command sequencing. (06 Marks)
    b. Explain the various factors affecting Network Attached Storage (NAS) performance. (06 Marks)
    c. Explain with a figure, the various components of Network Attached Storage (NAS). (08 Marks)

Module-4

7   a. What is information availability? Discuss the causes of information availability. (06 Marks)
    b. Explain the various stages involved in the Business Continuity (BC) planning life cycle. (08 Marks)
    c. List the various tasks involved in business impact analysis. (06 Marks)

OR

8 a. Explain with a figure, the backup and restore operation. **(10 Marks)**

   b. Explain with a figure, the two different types of backup topologies. **(10 Marks)**

Module-5

9 a. Explain the various terms which are used to represent entities and operations in a replication environment. **(06 Marks)**

   b. Explain with a figure, the storage array based local replication. **(06 Marks)**

   c. Illustrate with a figure, the synchronous and asynchronous replication. **(08 Marks)**

OR

10 a. Illustrate with a figure, the synchronous and asynchronous array based remote replication. **(08 Marks)**

    b. Discuss the four security goals which are achieved through information security framework. **(06 Marks)**

    c. Explain with a figure, the storage security domains. **(06 Marks)**

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