21CS735

USN

Seventh Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
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.   In the context of Evolution of IoT, with neat diagram, illustrate the sequence of technological developments leading to the shaping of the modern day IoT. **(06 Marks)**
    b.   With diagram, explain enabling IoT and the complex Interdependence of technologies. **(08 Marks)**
    c.   Differentiate between the following :
         (i)   IoT versus M_2M.
         (ii)   IoT versus CPS.
         (iii) IoT versus WoT. **(06 Marks)**

OR

2   a.   With respect to the IoT networking components, define the following :
         (i)   IoT NODE.
         (ii)   IoT Router.
         (iii) IoT LAN
         (iv)   IoT Gateway
         (v)   IoT Proxy **(10 Marks)**
    b.   Discuss the following addressing strategies in IoT:
         (i)   Address Management Classes.
         (ii)   Adressing during node Mobility. **(10 Marks)**

Module-2

3   a.   Define sensors and with diagram, outline the simple sensing operation. **(04 Marks)**
    b.   Discuss Scalar and Vector sensors and draw the functional blocks of a typical sensor node in IoT. **(06 Marks)**
    c.   With neat diagram, explain the different sensing types commonly encountered in IoT. **(10 Marks)**

OR

4   a.   Define Actuator and with diagram, discuss the outline of a simple actuation mechanism. **(04 Marks)**
    b.   Explain the various actuators classes any 5 in IoT. **(10 Marks)**
    c.   Discuss actuator characteristics that define all actuators. **(06 Marks)**

Module-3

5   a.   List and discuss common data types used in IoT applications. **(06 Marks)**
    b.   Explain the various processing topologies in IoT with necessary diagrams. **(08 Marks)**
    c.   Illustrate the importance of processing in IoT. **(06 Marks)**

OR

6 a. With neat diagram, explain the processing offloading paradigm for the development of IoT-based solutions. **(10 Marks)**

b. Determine the importance of choosing the right processing topologies and associated considerations while designing IoT applications. **(10 Marks)**

Module-4

7 a. List common connectivity protocols in IoT. **(04 Marks)**

b. Explain the salient features and application scope of any 5 connectivity protocols. **(10 Marks)**

c. Differentiate between Wi-Fi and Bluetooth connectivity protocols in IoT. **(06 Marks)**

OR

8 a. With necessary diagrams, explain in detail any four connectivity protocols in IoT. **(10 Marks)**

b. Determine the requirements associated with any of IoT connectivity protocols in real-world solutions. **(10 Marks)**

Module-5

9 a. Describe in detail, the various Infrastructure protocols in IoT-based communication technologies. **(10 Marks)**

b. Explain the following discovery protocols :
   (i)   Physical Web
   (ii) mDNS
   (iii) Universal plug and play (UPnP). **(10 Marks)**

OR

10 a. With neat diagram, discuss the illustration of the various facets of the Interoperability in IoT. **(10 Marks)**

b. Discuss any four IoT Interoperability standards. **(10 Marks)**

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