CBCS SCHEME

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18EC741

Seventh Semester B.E. Degree Examination, Dec.2024/Jan.2025
IoT and Wireless Sensor Networks

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. Describe about the IoT conceptual framework. **(06 Marks)**
b. Describe the IoT reference model suggested by CISCO for a general IoT system. **(08 Marks)**
c. Explain COAP web communication protocol in detail. **(06 Marks)**

OR

2 a. What is M2M communication? Differentiate M2M and IoT. **(06 Marks)**
b. Explain the IoT architectural view with the help of Oracle's IoT architecture. **(08 Marks)**
c. Explain the usage of XMPP protocol for IoT with working. **(06 Marks)**

Module-2

3 a. Explain IP addressing and features of IPV4 and IPV6 protocols. **(06 Marks)**
b. Describe the virtualization concept in usage of cloud services. **(06 Marks)**
c. List the merits and concerns when using the cloud services in IoT applications. **(08 Marks)**

OR

4 a. With neat diagram, explain 6LoWPAN adaptation layer protocol for IEEE 802.15.4 network device. **(08 Marks)**
b. Explain data stack received or transmitted at or to network layer in IPV4. **(06 Marks)**
c. Describe the usage and functionalities of Nimbits cloud for IoT applications. **(06 Marks)**

Module-3

5 a. Explains how are pins programmed for digital IO and UART serial IO's at Arduino platform. **(10 Marks)**
b. List the steps in threat analysis when using Microsoft Threat Analysis Tool 2014. **(10 Marks)**

OR

6 a. Explain the programming of Arduino of following:
i) Read data from sensor
ii) Usage of Timer. **(10 Marks)**
b. Define security tomography. Explain layered attacker model with a diagram showing possible attacks at the layers. **(10 Marks)**

Module-4

7 a. Explain about the energy consumption of hardware components of sensor nodes. **(10 Marks)**
b. Explain the required characteristics and mechanism to realize the wide range of applications. **(10 Marks)**

OR

8 a. Explain the basic design principles required to design a networking protocols of WSN. **(10 Marks)**
b. Explain the different optimization design parameters involved in the WSN. **(10 Marks)**

Module-5

9 a. Explain LEACH schedule based protocols. **(10 Marks)**
b. Define geo casting. Explain in detail about geo casting. **(10 Marks)**

OR

10 a. Explain the CSMA contention based protocol in detail. **(10 Marks)**
b. Explain in detail how unicast routing protocols uses the energy efficiency. **(10 Marks)**

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