CBCS SCHEME

USN

15CS81

Eighth Semester B.E. Degree Examination, Jan./Feb. 2021
Internet of Things Technology

Time: 3 hrs.   Max. Marks: 80

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

Module-1

1 a. What are the responsible phases of IOT evolution? Explain them with a neat diagram. **(06 Marks)**

b. Name the criterion play role to convergence between IT and OT. Describe them. **(05 Marks)**

c. Define IOT and mention its challenges. **(05 Marks)**

OR

2 a. Illustrate the IOT Architectural drivers. **(07 Marks)**

b. Paraphrase the things and communication network layers of core IOT functional stack. **(05 Marks)**

c. Explain the terms:
(i) Analytics versus Control Applications
(ii) Data versus Network Analytics **(04 Marks)**

Module-2

3 a. Mention any six sensor types are measuring physical phenomenon and summarize each of them with suitable example. **(06 Marks)**

b. Identify the characteristics of smart objects and illustrate them. **(06 Marks)**

c. What are trends in smart object impacting IOT? Classify those. **(04 Marks)**

OR

4 a. Explain the physical layer, MAC layer, topology and security aspects of IEEE 802.15.4. **(08 Marks)**

b. Dramatize LoRaWAN Architecture. **(05 Marks)**

c. What NB-IOT deployment options and explain them. **(03 Marks)**

Module-3

5 a. List the key advantages of the IP Suite for the IOT. Explain any four of them. **(06 Marks)**

b. Define the term adoption and adaptation of the IP and describe the different last mile connectivity. **(06 Marks)**

c. What is RPL? Narrate the DIO and DAO messages movement through RPL overview. **(04 Marks)**

OR

6 a. Name the effort to standardize the varying formats of sensor output and explain its architecture with a neat sketch. **(08 Marks)**

b. Explain the raw socket scenario for legacy SCADA server. **(04 Marks)**

c. Compare the COAP and MQTT. **(04 Marks)**

Module-4

7 a. What are types of data analysis results? Narrate them with neat diagram. **(06 Marks)**

b. What is Kafka data flow? Explain Lambda architecture through precise figure. **(06 Marks)**

c. Define flexible net flow and narrate its overview. **(04 Marks)**

OR

8 a. Name the common challenges in OT security. Illustrate any four of them. **(06 Marks)**

b. Describe the Perdue model for control hierarchy. **(06 Marks)**

c. Summarize the OCTAVE and FAIR risk analysis structures. **(04 Marks)**

Module-5

9 a. What is the size of flash memory of Arduino Uno and describe the technical specification of ATmega328P chip. **(04 Marks)**

b. Explain the basic structure of Arduino program with respect to usage of constants, variables and control flow statements. **(06 Marks)**

c. Narrate the predefined function of Arduino for Digital Analog input output, time and random methods. **(06 Marks)**

OR

10 a. Which is the XBMC media centre distribution of Raspberry Pi? Describe the Raspberry Pi model B board and its GPIO. **(06 Marks)**

b. Name the programming dialect does not come with OS of Raspberry Pi and explain the OS setup procedure on Raspberry Pi. **(06 Marks)**

c. Write a python program to measure the room temperature through connecting temperature sensor to Raspberry Pi. **(04 Marks)**

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