K – 52362

Register No. | | | | | | | | |

BE Degree Examination May 2023

Sixth Semester

Computer Science and Engineering

20CST62 – INTERNET OF THINGS AND CLOUD

(Regulations 2020)

Time: Three hours | Maximum: 100 marks

Answer all Questions

Part – A (10 × 2 = 20 marks)

1. Define IoT. [CO1,K1]
2. Compare IoT and M2M. [CO1,K2]
3. How do Bluetooth beacons work? [CO2,K2]
4. Why service discovery is very important in IoT? [CO2,K2]
5. What is thingspeak and how it works? [CO3,K2]
6. Write a python code to blink led 10 times on button click. [CO3,K3]
7. Why is hybrid cloud flexible? [CO4,K2]
8. Specify the benefits of AWS IoT analytics. [CO4,K2]
9. What is the purpose of device shadow? [CO5,K1]
10. Name any four cloud service provider. [CO5,K1]

Part – B (5 × 16 = 80 marks)

11. a. Consider an IoT based smart irrigation monitoring and control system that monitors and controls the supply of water from a remote location. For this IoT, apply the following design methodologies (16) [CO1,K3]

    1) Purpose and requirement specification

    2) Process specification

    3) Domain mode specification

    4) IoT level specification

(OR)

b. An IoT based ICU patient monitoring system that collects patients information with the help of sensons. The system needs to monitor various parameters like blood pressure, heart, pulse rate and temperature of the patient. The monitored parameters are sent to the cloud using internet so that the doctors and patients can view the details from anywhere else. For this scenario, suggest a suitable IoT level and provide the justification of chosen level. (16) [CO1,K3]

12. a. i) Explain briefly about layered architecture of IoT. (10) [CO2,K2]

ii) Sketch the categorization of IoT protocols. (6) [CO2,K2]

(OR)

b. i) Illustrate the network architecture of 6LOWAN with neat sketch. (8) [CO2,K2]

ii) Explain the protocols that are prominently used in IoT service discovery. (8) [CO2,K2]

13. a. Suppose you want to automate the traffic light system at junction where there is a huge traffic. Develop a python program that simulates the traffic controller system using Raspberry Pi and upload the status to thingspeak cloud. (16) [CO3,K3]

(OR)

b. Interface a light sensor with Raspberry Pi that detects the light intensity of a room. If the intensity goes below a threshold, the intensity has to be uploaded to the thingspeak cloud. Develop a python program for this. (16) [CO3,K3]

14. a. i) Investigate the architectural style for implementing cloud federation. (6) [CO4,K2]

ii) Illustrate the various architectural components of the smarter traffic system and explain each component in detail. (10) [CO4,K2]

(OR)

b. Discuss in detail about cloud inspired IoT solutions available for smarter environments. (16) [CO4,K2]

15. a. Explain the steps involved in creation of the following (16) [CO5,K2]

1) AWS IoT - Policy

2) AWS IoT - Thing Object.

(OR)

b. Briefly explain the interfaces available for devices and apps to access AWS IoT. (16) [CO5,K2]

Bloom's Taxonomy Level	Remembering (K1)	Understanding (K2)	Applying (K3)	Analysing (K4)	Evaluating (K5)	Creating (K6)
Percentage	3	60	37	-	-	-