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Question Paper Code: U6801

B.E./B.Tech. DEGREE EXAMINATION, APRIL / MAY 2025

Sixth Semester

Information technology

21UIT601- INTERNET OF THINGS

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What are the key components of IoT. CO1- U
2. How can IoT devices contribute to reducing energy consumption in manufacturing plants? CO2-App
3. How would you apply energy harvesting techniques in an IoT-based system to ensure power conservation for remote devices that require continuous operation, such as environmental sensors or smart meters, without frequent battery replacements?. CO2-App
4. Define Network functions Virtualization (NFV). CO1- U
5. Explain the three common Characteristics of Routing Protocol. CO1- U
6. How would you apply the Physical Web using Bluetooth Low Energy (BLE) beacons in a smart museum to allow visitors to access information about exhibits directly on their smartphones? CO2-App
7. What are sensors and actuators. CO1- U
8. Draw the diagram of IoT reference Architecture. CO1- U
9. Draw the system architecture for the Microsoft Azure IoT hub. CO1- U
10. Discuss the cognitive clouds process. CO1- U

PART – B (5 x 16= 80 Marks)

11. (a) Apply the concept of homeland security and sensor cloud technology in IoT by identifying a potential security challenge faced by government agencies or organizations. How can sensor cloud solutions help address this challenge? CO2-App (16)

Or

- (b) How can IoT device integration be applied to enhance healthcare monitoring in a hospital setting? CO2-App (16)
12. (a) By Applying LPWAN (Low Power Wide Area Network) technology identify and explore various mobile IoT use cases CO2-App (16)
- Or
- (b) How can the energy harvesting process be applied to improve power conservation in an IoT-based wireless sensor network (WSN)? CO2-App (16)
13. (a) Explain in detail about Architecture for IoT Using Mobile Device. CO1- U (16)
- Or
- (b) Explain in detail about Architecture for IoT communication is to support IEEE 802.15.4 low-power wireless networks in the 2.4-GHz band. CO1-U (16)
14. (a) How would you apply a network of networks approach in managing smart cities with multiple sensor-actuator systems for traffic, lighting, and pollution control? CO2-App (16)
- Or
- (b) Imagine you are building a smart city project that requires integrating sensors for traffic control, pollution monitoring, and public lighting. How would you use an IoT AEP to streamline the development and deployment of this system? CO2-App (16)
15. (a) Explain in detail about ThingWorx AEP CO1-U (16)
- Or
- (b) Explain in detail about vitria IoT analytics platform architecture. CO1-U (16)