Reg. No. :

Question Paper Code: U5403

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2024

Fifth Semester

Electronics and Communication Engineering

21UEC503- INTERNET OF THINGS AND APPLICATIONS

(Regulation 2021)

Duration: Three hours   Maximum: 100 Marks

Answer All Questions

PART A - (10 x 5 = 50 Marks)

1. Elaborate the list of Server in IoT.   CO1 -U

2. Explain how M2M is different from IoT with suitable example.   CO1- U

3. Explain How MQTT is Different From COAP   CO1- U

4. Describe the constraints of the REST Architecture   CO1- U

5. Describe how a solution is designed for a particular problem by making use   CO1- U
    applied architecture in M2M/IoT. Also, explain the use of partitioning the
    architectural work and solution work into two domains.

6   Discuss the processes followed by SOAP web services to exchange required   CO1- U
    messages between two operating systems and help in system integration

7   Design a weather monitoring IoT system using REST service.   CO2 -App

8   Analyze the need of IoT applications for supply chain mostly refer to   CO2- App
    accurate tracking of goods, better appearance of shipment operations, and
    transparent information exchange with the key stakeholders. In addition, the
    application of IoT has a great benefit in minimizing the need for manpower,
    which logically leads to optimized cost-effectiveness and enhanced
    automation.

9   Explain the implementation of IoT technology smart roads in smart cities.   CO1- U

10 Define Sensors and actuators and also explain how they interact with the   CO1- U
    physical world

PART – B (5 x 10= 50 Marks)

11. (a) Illustrate in detail about wired and wireless communication technologies for IoT.   CO1- U   (10)

Or

(b) (i) How does Internet of things affect our everyday lifes?   CO1- U   (5)

(ii) Explain how M2M is different from IoT with suitable example.   CO1- U   (5)

12. (a) An MNC has an employment service that follows a set of rules to obtain and enter candidate information into EMS. Suggest which constrained application protocol is suitable for this particular application, and briefly summarize your answer with a neat diagram.   CO3 -Ana   (10)

Or

(b) The growing number of elderly people demands an efficient healthcare system. Advanced Information and Communication Technologies (ICT) techniques support elderly monitoring services at a high cost. Propose an IoT based solution using MQTT protocol for the monitoring of elderly people. In your proposed solution, heterogeneous devices (belonging to elderly people under observation) must be able to:
A. Collects environmental and physical user data.
B. Share data with each other and C. Send social interaction data to respective physicians and caregivers.   CO3- Ana   (10)

13. (a) Outline and analyze how IoT can be advantageously applied in the sphere of agriculture and how the benefits can find their application in real life.   CO3- Ana   (10)

Or

(b) Analyze various IoT Business Model for Fleet management system with neat diagram.   CO3- Ana   (10)

14. (a) Classify the Sensors on the basis of diverse application areas   CO1 -U   (10)

Or

(b) Elaborate some of the open source IoT servers available in the market.   CO1- U   (10)

U5403

15. (a) Design an IoT set up for identifying vacant spaces and slot IDs using ultrasonic pulses and back reflections to the transceiver (emitter and sensors) at the coordinator. CO5 -Ana (10)

Or

(b) Several crops need different amount of water, soil moisture to grow. The customer wanted to optimize farms output, as well as wanted to use irrigation system effectively. Provide a solution to the above mentioned use case. CO5- Ana (10)

U5403