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**Question Paper Code:U5403**

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

Fifth Semester

Electronics and Communication Engineering

21UEC503 – INTERNET OF THINGS AND APPLICATIONS

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10 x 2 = 20 Marks)

1. Describe about the HTTP request method supported by REST when they are Used. CO1U
2. Differentiate COAP and MQTT CO1 U
3. Design a weather monitoring IoT system using Web Socket. CO1 U
4. How the IoT technology is used in smart roads in smart cities. CO1 U
5. Suggest an IoT components used in Smart street light application. CO2 Ana
6. Design a weather monitoring IoT system using REST service. CO2 Ana
7. How does the Internet of Things (IoT) affect our everyday lives? CO1 U
8. Differentiate COAP and MQTT CO1 U
9. List the Characteristics range, data transfer, three operational modes and communication modes of NFC CO1 U
10. Describe about the implementation of IoT technology in Smart Parking. CO1 U

PART – B (5 x 16 = 80 Marks)

11. (a) With the help of neat diagrams, describe the levels of IoT with an example each CO1 U (16)

Or

- (b) Discuss the layers of IoT architecture when project work is done with various cutting edge technologies and broad application area CO1 U (16)

12. (a) 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.
- Or
- (b) Determine whether protocol plays an important role in social media and summarize your answer with a suitable example
- CO2 App (16)
13. (a) John Doe wants to use the employee portal to sign up with ITC Infotech. Analyze the REST fulservices procedure in the employee portal with suitable actions.
- Or
- (b) Assume smart home automation is installed with carbon monoxide sensor (node A) in windows, water leak detector in pipes (node B), thermostat in rooms (node C), Motion Sensor (node D) in first floor, Smart garage door (node E) in ground floor. The subscriber (node F) requests access to the sensor data. Analyze the process between publisher and subscriber using MQTT protocol and illustrate it.
- CO3 Ana (16)
14. (a) Develop a Smart Car parking Application using IoT.
- Or
- (b) Develop an IoT Application for Air pollution Control to remotely monitor the indoor CO/CO2 with gas detectors.
- CO5 App (16)
15. (a) Provide a brief explanation of CISCO's presentation of a Reference model with seven levels.
- Or
- (b) Discuss the various challenges in IoT Design using different levels with neat diagram.
- CO1 U (16)