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**Question Paper Code: U5403**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2023

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. Specify the criteria to choose a sensor for smart environment monitoring. CO1 -U
2. Give a short brief on Open Source IoT middleware solution which allows users to integrate any device with the available resources. CO1- U
3. Suggest an IoT components used in Smart street light application. CO2 -App
4. How does the Internet of Things (IoT) affect our everyday lives? CO1- U
5. List the Characteristics range, data transfer, three operational modes and communication modes of Near Field Communication. CO1- U
6. Discuss the processes followed by SOAP web services to exchange required messages between two operating systems and help in system integration CO1- U
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 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. CO2- App
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 physical world CO1- U

PART – B (5 x 10= 50 Marks)

11. (a) With the help of neat diagrams, describe the levels of IoT with an example on each CO1- U (10)
- Or
- (b) (i) How does Internet of things affect our everyday lives? CO1- U (5)  
(ii) Explain how M2M is different from IoT with suitable example. CO1- U (5)
12. (a) Assume that ATM gateway sends request for the banking service response and receives the account information from a BankMsgService. How does a SOAP request or response communicate between two applications, viz. one at Gateway ATM\_G and other at Bank Msg Service using two web objects, viz. one at www.ATMG.com and other www.Bankservice.com CO3 -Ana (10)
- Or
- (b) How to Design a REST API; Provide a side-by-side comparison of REST versus RESTful? How would you configure a RESTful URL parameter for the following scenarios? CO3- Ana (10)
- To support a search for a book based on its ID
  - To display weather information and share the related data.
  - To expose the flight times and prices.
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)
15. (a) Illustrate the state of supply chain management process of the E-Retail company before IoT implementation and describe what were the challenges faced by the company during IoT implementation in supply chain management process? CO4 -Ana (10)
- Or
- (b) Develop a cloud service model for Waste Container Management. CO4- Ana (10)