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**Question Paper Code: U4304**

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

Professional Elective

Electronics and Communication Engineering

21ECV304- IoT ECO System

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Differentiate between analog and digital sensors. CO1-U
2. What are soft actuators? How it is different from other actuators? CO1-U
3. How is collaborative processing different from remote processing? CO1-U
4. What are the critical factors to be considered during the design of IoT devices? CO1-U
5. Compare the various WSN Operating Systems. CO1-U
6. How the channel is accessed in IEEE 802.15.4? CO1-U
7. Write a Comment on the Phrase "On-road Sensors", Also mention the Application of it. CO1-U
8. Explain the key attributes of Wearable sensors CO1-U
9. What are the steps to run HELLO WORLD program in tracer? CO1-U
10. Mention the properties of ceiling fan in packet tracer CO1-U

PART – B (5 x 16= 80 Marks)

11. (a) Explain the functional blocks of a typical sensor node in IoT CO1-U (16)  
Or  
(b) Explain the Components required for the establishment of any IoT Network CO1-U (16)

12. (a) Apply the Sensor fundamentals to analyze on site and off site processing topologies and justify the suitable processing typology to deploy in healthcare sensing CO3-App (16)
- Or
- (b) Analyze the various decision making approaches chosen for offloading data in IoT. Justify the suitable technique. CO3-App (16)
13. (a) Apply the basic sensor characteristics to design a WSN architecture for smart city application in IoT CO3-App (16)
- Or
- (b) Identify the various Protocols stack layer to be used in WSN for developing a Daily Life Applications. CO3-App (16)
14. (a) Design a useful wearable sensor system for persons with leg and hand disabilities CO5-App (16)
- Or
- (b) Predicting health status of chronic disease patients (through the monitoring of vital signs status and patient activities) is one of the basic objectives in IoT-based healthcare system. For efficient prediction, several sensors are required to monitor patients' activities. However, this method is costly, inconvenient, and even cannot correctly predict the health status of a patient. Propose an SIoT-based solution that offers efficient services to chronic disease people who need constant care and helps in predicting patient health status efficiently and correctly. CO5-App (16)
15. (a) Create a smart room to connect smart things and sensors that directly connected with MCUs(With Gateways) CO5-App (16)
- Or
- (b) Design a scenario in tracer environment to control fan speed through laptop or mobile devices and detected temperature should be displayed in mobile phone or laptop CO5-App (16)