R18 Regulation

Subject code: 2E7FL

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech VII Semester Regular/Supplementary Examinations, November 2022

WIRELESS SENSOR NETWORKS

(Professional Elective)

(Information and Technology)

Maximum Marks: 70 Date:09.12.2022 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 Compare traditional network and wireless sensor network.
2 What is Piezoelectric effect?
3 Identify the usage of Modulation.
4 List out the characteristics of MAC protocols in sensor network.
5 What is the difference between a proactive routing protocol and a reactive routing protocol?
6 Why is dynamic power management needed in a WSN?
7 List out any two challenges for time synchronization.
8 Define the term range-based localization.
9 List out the characteristics of WSN.
10 What are the security models provided by IEEE 802.15.4?

Part-B

Answer All the following questions. (5X10M=50Marks)

11 A. Compare single hop and multi hop communication in sensor networks. 4M
B. Discuss about most important design constraints of a WSN. 6M

OR

12 A. Briefly describe any two real time applications of WSN. 5M
B. Discuss about the architecture of a wireless sensor node. 5M

13 A. Discuss about Source encoding. 5M
B. Give short notes on Channel encoding. 5M

OR

14 A. Compare contention free MAC protocols and contention-based MAC protocols. 6M
B. Describe the concept of Hybrid MAC protocols in WSN. 4M

15 A. Discuss about routing metrics in WSN. 5M
B. What are the concepts behind distance vector routing and link state routing and how do they compare to each other with respect to overheads for maintaining routing tables? 5M

OR

16 A. What is data-centric routing? Illustrate any one data centric routing protocol used in WSN. 5M

B. Discuss about dynamic power management in WSN. 5M

17 A. Differentiate external and internal time synchronization with example. 5M

B. Discuss about time synchronization protocol. 5M

OR

18 A. Discuss about GPS based Localization 5M

B. Give short notes on Event driven localization. 5M

19 Explain security attacks in each layer of sensor networks. 10M

OR

20 A. Discuss security protocols for sensor networks. 5M

B. Discuss about IEEE 802.15.4 and ZigBee Security. 5M