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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Second Semester, M.Tech - Computer Engineering (MCEN)

Semester End Examination; May / June - 2018

Wireless Sensor Networks

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1 a. With a neat diagram, explain typical sensing node of WSN. 10

b. List the applications of Category-I WSN. Explain any two. 10

2 a. With a neat diagram, illustrate Category-II WSN. 10

b. Describe the hardware and software components of WSN. 10

UNIT - II

3 a. With a neat diagram, explain migration paths to 3G wireless networks. 10

b. Explain TDMA based MAC protocols for WSN. 10

4 a. Write a note on : i) Demand Assignment protocol ii) Random Assignment protocol. 10

b. Illustrate SPIN basic protocol operations. 10

UNIT - III

5 a. Describe the factors that must be considered in designing transport protocols for WSN. 10

b. With a neat diagram, explain general middleware architecture for WSN. 10

6 a. Derive a simple model to understand the impact of congestion control on energy efficiency for both End-to-End and Hop-by-Hop approach. 10

b. Write a note on : i) Middleware service for monitors ii) Impala
iii) D Fuse iv) Device database software 10

UNIT - IV

7 a. What are the ways of estimating distances in WSN nodes? Explain each. 10

b. How do you minimize mean square error in Trilateratorn? Explain. 10

8 a. What is Trilateratorn? Explain by representing as a matrix equation. 10

b. How to estimate range to a node for which no direct radio communication exists? Explain. 10

UNIT - V

9 a. What is a good power level for a node to ensure “Nice” properties of the resulting graph? Explain. 10

b. Write a note on : i) Relative neighbourhood graph ii) Gabriel graph. 10

10 a. Explain LEACH Protocol. 10

b. Write a note on Delaunay triangulation. 10

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