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P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belagavi)
Eighth Semester, B.E. - Electronics and Communication Engineering
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.	Explain all the characteristic requirements in WSN.	10
b.	Discuss the differences between wireless sensor networks and mobile ad-hoc networks.	10
2 a.	Explain the following advantages of sensor networks :	10
	i) Energy advantages ii) Detection advantages	
b.	Discuss the following key definitions of sensor networks :	10
	i) Data centric ii) Uncertainity iii) Information utility	
	iv) System performance goal v) Evaluation metric	

UNIT - II

3 a.	Explain the overview of a main sensor node hardware component, with the help of a neat block diagram.	8
b.	Describe the choice of transmission medium in WSN.	2
c.	Discuss the important characteristics, in selecting the appropriate transreceivers.	10
4 a.	Explain the differences between sequential programming model and process based programming model.	8
b.	Discuss the three types of mobility models in WSN.	6
c.	Explain the process of connecting two WSNs with a tunnel over the internet.	6

UNIT - III

5 a.	Discuss some of the most crucial points influencing PHY design in wireless sensor networks.	4
b.	Explain all three classes of MAC protocol.	6
c.	Illustrate the RTS/CTS handshake procedure in IEEE 802.11.	10
6 a.	Discuss the requirements and design constraints for wireless MAC protocols.	6
b.	Explain the uniqueness requirements for network names and addresses.	4
c.	Write a note on multipath unicast routing.	10

UNIT - IV

7 a.	Explain a few metrics to judge the efficiency and quality of a topology control algorithm.	8
b.	Write a short note on Low Energy Adaptive Clustering Hierarchy (LEACH).	4
c.	Define clustering. Explain the process of cluster and cluster head formation.	8

8 a. Explain time-synchronization in WSN. 6

  b. Discuss about the operation of a Task-Driven sensing operation. 6

  c. Explain cluster leader based protocol. 8

UNIT - V

9 a. Explain all three categories of sensor node hardware groups. 6

  b. Discuss the component interface in nesc to support and reflect the design of Tinyos $V_{1.0.}$ 6

  c. Explain the challenges faced during a sensor node programming. 8

10 a. Write short note Barkeley motes. 8

  b. Explain the node level simulator components. 6

  c. Discuss the ns-2 simulator. 6

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