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Department of Research & Development
Mid - Term Examinations - SEPTEMBER 2024

Odd Semester: Ph.D. Course Work	Date: 30 /09/2024
Course Code: CSE862	Time: 10:00am – 11:30am
Course Name: Advanced Wireless Sensor Networks	Max Marks: 50
Department: CSE	Weightage: 25%

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 5 marks.		4Qx5M=20M
1	Discuss the main characteristics of Wireless Sensor Networks that differentiate them from traditional networks.	5 Marks
2	Describe at least two real-world applications of Wireless Sensor Networks.	5 Marks
3	What are the challenges of implementing data aggregation in WSNs, and how do they impact energy usage?	5 Marks
4	Compare Zigbee with other low-power communication technologies in terms of energy efficiency.	5 Marks

Part B

Answer ALL Questions. Each question carries 15 marks.		2QX15M=30M
5	Discuss the design and functioning of energy-efficient hierarchical routing protocols in WSNs, focusing on LEACH and TEEN. Compare their mechanisms for reducing energy consumption and analyze their suitability for different WSN applications, including both event-driven and periodic data monitoring networks.	15 Marks
6	Describe the various components of a sensor node in detail, including the sensing unit, processing unit, communication unit, and power unit. How do these components work together in a WSN? Discuss the trade-offs involved in designing sensor node hardware, focusing on power consumption, size, and computational capacity.	15 Marks