

# **ECE6615: SENSOR NETWORKS**

**Spring 2012**

**MIDTERM EXAM: MARCH 15, 2012**

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- \* **PUT A CODEWORD NEXT TO YOUR NAME!!! (e.g., AUSTIN; JAMES BOND; CASANOVA)**
- \* **OPEN BOOK EXAM (EVERYTHING ALLOWED EXCEPT LAPTOPS AND CELL PHONES)**
- \* **DURATION 75 MINUTES**
- \* **ANSWER THE QUESTIONS RIGHT TO THE POINT;**
- \* **EACH QUESTION HAS 10 POINTS**
- \* **AVOID LONG EXPLANATIONS; COUPLE SENTENCES WILL BE ENOUGH AS LONG AS THEY ARE CORRECT!! GIVE SHORT ANSWERS!!!**

## **QUESTION 1.**

**Why did the standards committees (IEEE 802.15.4 and ZIGBEE) decide to standardize very simple architectures and protocols?**

## **QUESTION 2.**

- a) **How would you reduce the energy consumption of transmitters and receivers for communication? Give 2 solutions.**
- b) **How would you reduce energy consumption in the IDLE STATE?**

## **QUESTION 3.**

- a) **Will you use ESRT for applications where only snapshot data are transmitted? Why?**
- b) **Can ESRT achieve 100% reliability? Why?**

## **QUESTION 4.**

**Will you use Directed Diffusion for SENSOR NETWORKS where the sensors maybe mobile? Why?**

## **QUESTION 5.**

**What is your criticism (give 2) of PTKF (partial knowledge forwarding) algorithm?**

## **QUESTION 6.**

**Which MAC would you utilize if there are both real-time and best effort traffic in the network? Why?**

**QUESTION 7.**

**What are the 2 challenges/problems for LEACH algorithm to be implemented in the most efficient way?**

**QUESTION 8.**

- a) Why was Message Passing Feature introduced in the Sleep MAC?**
- b) What does Adaptive Listening Feature achieve?**

**QUESTION 9.**

- a) What is the reason for CLEAR CHANNEL ASSIGNMENT?**
- b) What is the gain of Low Power Listening?**

**QUESTION 10.**

**What is your criticism of CCMAC ? (Give 2 reasons)**