CS 598tar Midterm Exam:

Please work on the following questions independently. The exam is “open book”. In other words, you may (and are encouraged to) use your notes, class slides, reading list, and Internet resources. Please print this sheet and return no later than Tuesday, Oct 27th in class.

Q1: What is the earliest paper (in terms of publication date) on your reading list that suggested use of social networks as sensor networks? Quote a sentence from that paper to support your argument. (2 points)

Q2: Participatory sensing and opportunistic sensing are two different sensing paradigms involving humans and mobile sensors. Briefly describe the main difference between the two. (2 points)

Q3: You are trying to build an application that monitors the amount of time different individuals spend in a car. Which of the paper on your reading list is most relevant in terms of offering a solution to the problem? (2 points)
Q4. Your startup matches businesses and customers in a context-aware fashion by offering shoppers incentives to visit nearby stores. In particular, you would like to increase the click-through rate on coupons of the sort “buy two get one free” (among the shoppers you distribute the coupon to). Which paper(s) on your reading list would be most relevant in terms of exploring solutions to this problem? (2 points)

Q5: Which paper on your reading list developed a wearable device for monitoring human contacts? (2 points)

Q6: Inspired by papers on your reading list (in no more than two sentences) suggest an approach for detecting the set of people involved in the same conversation (including remote participants on a telecom)? (2 points)

Q7: Name three papers on your reading list that follow the “surrogate sensing” writing recipe? (3 points)
Q8: Your friend is trying to implement a phone app that allows a user to point the camera at a physical object (e.g., at a museum or archeological site) and click to see various stored information superimposed on the object on the screen. They are planning to implement a vision-based object recognition approach to identify the object, then retrieve information by the identified object ID. According to papers you read so far, would their vision-based object recognition perform well in real time? Support your answer with a citation from the reading list. (2 points)

Q9: In no more than four single-sentence bullets describe an approach for determining important city landmarks using metadata of Instagram image data sets? (3 points)

Q10. Describe three examples of supply-following loads in residential spaces? (3 points)

Q11: Which paper on your reading list described an approach for hierarchical clustering of data objects in a way that is independent of the data object type? (2 points)
Q12: Name two papers on your reading list that present services for reducing drivers’ vehicular fuel consumption (2 points)

Q13: Name three key research challenges in the unfolding area of the Internet of Things. Cite your source. (3 points)

Total: 30 points.