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Third Semester M.Tech. Degree Examination, Dec.2014/Jan.2015
Wireless Sensor Networks

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

1.
 - a. Mention the unique constraints and challenges in wireless sensor networks. (04 Marks)
 - b. Explain unique advantages of sensor network over traditional centralized approaches. (06 Marks)
 - c. Briefly explain the applications of sensor networks. (10 Marks)
2.
 - a. With respect to wireless sensor network define followings : i) Sensor node ii) network topology iii) collaborative processing iv) localization and tracking v) data – centric. (10 Marks)
 - b. Explain CSIPC collaborative signal and information processing issues using a tracking scenario. (07 Marks)
 - c. Briefly explain two reasons while tracking multiple objects over geo-graphical region is more challenging. (03 Marks)
3.
 - a. Explain below mentioned types of sensors for tracking :
 - i) Acoustic amplitude sensor
 - ii) Direction of arrival (DOA) sensors. (10 Marks)
 - b. Mention the several characteristics of MAC (medium access control) in wireless sensor network. Explain S-MAC protocol. (07 Marks)
 - c. Mention IEEE 802.15.4 standard zigbee features. (03 Marks)
4.
 - a. Briefly explain how to minimize energy consumption during broadcast. (07 Marks)
 - b. With neat diagram, explain the directed diffusion protocols. (07 Marks)
 - c. Explain clocks and communication delays. (06 Marks)
5.
 - a. With algorithm and flow chart, explain IDSQ (Information driven sensor querying) algorithm for each sensors in the cluster leader based protocol. (10 Marks)
 - b. With example, explain the sensing global phenomena. (06 Marks)
 - c. With neat diagram, explain collaborative processing in distributed group management. (04 Marks)
6.
 - a. Explain different types of challenges available in sensor network data bases. (06 Marks)
 - b. Explain how to save energy during sensing of aggregate queries in –network. (10 Marks)
 - c. Mention the three goals to accomplish precise way of fractional cascading. (04 Marks)
7.
 - a. With neat block diagram, explain MICA mote architecture. (05 Marks)
 - b. Explain PIECES (Programming and interaction environment for collaborative embedded system) framework. (05 Marks)
 - c. Briefly explain several future research direction that address the grand challenges for sensor network research. (10 Marks)
8. Write short notes on :
 - a. Collaborative processing
 - b. Data aging
 - c. Tiny OS
 - d. ns – 2 and its sensor network extensions. (20 Marks)