JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION- JUNE -2016

B.Tech VIII Semester

COURSE CODE: 15B1WCI831   MAX. MARKS: 35

COURSE NAME: Wireless Sensor Networks: Protocols and Applications

COURSE CREDITS: 3   MAX. TIME: 2 HRS

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1. (a) How stretch factor affects the topology control algorithm? Compare and contrast topology control algorithms with their metrics.

(b) What is a good power level for a node to ensure "nice" properties of the resulting graph? Explain the Relative Neighborhood Graph (RNG). **[2.5x2=5]**

Q2. (a) How to find topology control algorithm for minimizing the maximum power used by any node?

(b) How many gateways exist between clusters? Are all active, or some standby? What is the maximal diameter of a cluster? If more than 2, then clusterheads are not necessarily a maximum independent set? Explain. **[2.5x2=5]**

Q3. (a) When does the routing protocol operate? How we can derive a mechanism that allows a packet sent from an arbitrary node to arrive at some arbitrary destination node?

(b) In a reactive protocol, how to forward a packet to destination? Explain Dynamic Source Routing (DSR) by example. **[2.5x2=5]**

Q4. How to express aggregation request? Write the metrics for data aggregation. Explain Sensor Protocol for Information via Negotiation (SPIN) by using suitable diagram. **[5]**

Q5. How could an intermediate node help in an end-to-end scheme? How to detect need for retransmissions? How to retransmit? How dependable delivery of large data blocks from multiple sensors to a single sink is done? **[5]**

Q6. Determining location or position is a vitally important function in WSN, but fraught with many errors and shortcomings. Explain the various schemes with their convergence and accuracy. **[5]**

Q7. Many different ideas exist for medium access control in MANET/WSN. Comparing their performance and suitability is difficult. Illustrate, which is the best MAC for which application?

[5]