

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
 TEST -2 EXAMINATION- 2016
 B.Tech VIII Semester

COURSE CODE: 15B1WCI831

MAX. MARKS: 25

COURSE NAME: Wireless Sensor Networks: Protocols and Applications

COURSE CREDITS: 3

MAX. TIME: 1Hr 30 Min

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

Q1)

(a) In WSN, received signal is distorted by channel, corrupted by noise and interference. What is the result on the received bits? [2.5]

(b) Received signal strength is a function of the distance d between sender and transmitter. How attenuation results in path loss in WSN? [2.5]

Q2)

(a) All WSN MAC protocols are designed with the goal to conserve energy, differentiate scheduled and unscheduled MAC protocols on the basis of energy conservation. [2.5]

(b) Is LEACH protocol suitable for dense network of nodes, reporting to a central sink, each node can reach sink directly? Explain setup and steady-state phase of LEACH. [2.5]

Q3)

(a) If sender infers that a packet has not been received correctly, sender can retransmit it. What is maximum number of retransmission attempts? If bounded, at best semi-reliable protocols results? Justify. [2.5]

(b) How can we do the careful choice of error control mechanisms? Differentiate between FEC & ARQ. [2.5]

Q4)

(a) Paradigm change from id-centric to data-centric networking in WSN. How non-id-centric addresses give additional expressiveness, enables new interaction patterns than only using standard addresses? [2.5]

(b) Time synchronization is important for both WSN applications and protocols. Where Post-facto synchronization is used? What are the performance metrics of synchronization algorithm? [2.5]

Q5)

(a) The position of the three anchor points are (2,1), (5,4) and (8,2) and the distance of the anchors with respect to the mobile is 3.2, 2 and 3 respectively. Find the position of the mobile. [2.5]

(b) How distance can be estimated? Differentiate among RSSI, ToA and TDoA. [2.5]