T.E. (Computer)
DATA COMMUNICATION AND WIRELESS SENSOR NETWORK
(2012 Pattern) (End Semester) (310243) (Semester - I)

Time : 2½ Hours]   *[Max. Marks : 70*
Instructions to the candidates:
   1)   *Attempt Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7or Q8.Q.9 or Q.10.*
   2)   *Neat diagrams must be drawn wherever necessary.*
   3)   *Assume suitable data, if necessary.*
   4)   *Figures to the right indicate full marks.*

Q1) a) 'In Adaptive delta modulation quantization error increases as slope error reduces' State true or false with proper justification. **[7]**

   b) Give definitions. **[3]**

      i) Baud rate

      ii) Bit rate

      iii) SNR

OR

Q2) a) Explain Framing. Detail the methods of framing. (Fixed and variable size framing) **[5]**

   b) How does Virtual Private Network work? Write applications of VPN. **[5]**

Q3) a) What is Sliding window protocol? Explain 1 bit sliding window protocol. **[5]**

   b) Ten thousand reservation stations are available for use of single slotted ALOHA channel. The average station has 18 reservation request per hour. A slot has 125 micorseconds. What is approximate channel load? **[5]**

OR

Q4) a) Draw and explain the software and hardware components of Wireless node or sensor node. **[5]**

   b) Explain in details Sensor & robots? **[5]**

P.T.O.

Q5) a) Describe how does STEM protocol provide solution to idle listening problem? Explain STEM-B and STEM-T. **[8]**

b) Write a note on Schedule based protocols and Contention based protocols. **[8]**

OR

Q6) a) Explain S-MAC protocol for WSN in detail. **[8]**

b) LEACH, is a TDMA based MAC protocol integrated with clustering and routing - justify. Also explain with diagram the organization of LEACH rounds. **[8]**

Q7) a) Explain data dissemination and gathering and detail about flooding technique in wired and wireless adhoc networks. **[10]**

b) Explain in detail Attribute based routing with an example attribute value event record. **[8]**

OR

Q8) a) List out the routing challenges and design issues in WSN. **[8]**

b) What is the main objective behind designing SPIN routing protocol for WSN? Also discuss its various deficiencies. **[10]**

Q9) a) Explain the role of every sensor node in information driven sensor querying (IDSQ) method. **[8]**

b) Explain the Impact of anchor placement and discuss how a node with unknown position can directly communicate with anchors. **[8]**

OR

Q10) a) How the design of Sensor operating system (SOS) different from traditional operating system? List the issues in designing OS for WSN. **[7]**

b) Comparison of Tiny OS with other OS like MATE, MAGNET and MANTIS. **[6]**

c) 'IN future, WSNs are expected to be integrated into the "Internet of Things" justify the statement. **[3]**

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