

Total No. of Questions :10]

SEAT No. :

P3531

[Total No. of Pages : 2

[5560]-183

T. E. (Computer Engineering)

DATA COMMUNICATION AND WIRELESS SENSOR NETWORKS

(2012 Pattern) (Semester - I) (End Sem.) (310243)

Time : 2 ½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, 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) Explain in detail the Pulse code modulation technique. List its Advantages and Disadvantages. [7]
b) Write a short note on Quantization noise. [3]

OR

- Q2)** a) Explain Framing. Detail the methods of framing. (fixed and variable size framing) [5]
b) Explain Packet switching technique with an example. [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 microseconds. 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 the architecture of Sensor node? [5]

- 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

P.T.O.

- 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]

