Total No. of Questions :10]

SEAT No. :

P3531

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[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]**

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