

Total No. of Questions : 10]

SEAT No. :

P3309

[Total No. of Pages : 3

[5353]-183

**T.E. (Computer Engineering) (Semester - I)**  
**DATA COMMUNICATION & WIRELESS SENSOR NETWORKS**  
**(2012 Pattern)**

*Time : 2.30Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Attempt Q1 OR Q2, Q3 OR Q4 10 Marks each.*
- 2) *Attempt Q5 OR Q6 16 Marks each.*
- 3) *Attempt Q7 OR Q8 18 Marks each.*
- 4) *Attempt Q9 OR Q10 16 Marks each.*
- 5) *Neat diagrams must be drawn wherever necessary.*
- 6) *Assume Suitable data if necessary.*
- 7) *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. **[6]**

b) How does Virtual Private Network work? Write applications of VPN. **[4]**

OR

**Q2)** a) Draw and Explain B8ZS, AMI line coding techniques in detail. **[6]**

b) Explain necessity of flow and error control protocols in Wireless Sensor Network. **[4]**

**Q3)** a) Three thousand six hundred reservation stations are available for use of single slotted ALOHA channel. The average station have 10 reservation request per hour. A slot has 125  $\mu$ s. What is approximate channel load? **[6]**

b) "CSMA CD minimizes the recovery time post collision while CSMA CA reduces possibility of a collision" State true or false with justification. **[4]**

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OR

- Q4)** a) Identify the difference between Ad hoc and cellular network. [6]  
b) Write in detail applications of Wireless body Sensor Network in health domain. [4]

- Q5)** a) Design suitable criteria that decides selection of schedule or contention based protocols in MAC layer. [8]  
b) Explain with neat diagram Sensor Medium Access Control Protocol in Wireless Sensor Network. [8]

OR

- Q6)** a) Discuss in detail design issues related to address and name management in Wireless Sensor Network [8]  
b) Describe the necessity of low duty cycle protocols and wakeup concept in Wireless Sensor Network [8]

- Q7)** a) Explain the concept of “Information via Negotiation” in SPIN. [8]  
b) Explain in detail data centric or attribute based routing protocol with example. [5]  
c) Describe role of network layer in data dissemination and gathering. [5]

OR

- Q8)** a) “Low Energy Adaptive Clustering Hierarchy protocol improves lifetime of the Wireless Sensor Network” State True or False with Justification. [8]  
b) With neat diagram explain working of Power Efficient Gathering in Sensor Information System protocol in Wireless Sensor Network. [5]  
c) Compare proactive and reactive routing protocol design issues in Wireless Sensor Network [5]

- Q9)** a) “Tiny OS is application specific operating system for Wireless Sensor Network” Justify the statement with respect to architecture, design, issues, functions. [8]  
b) Design role of Wireless Sensor Network in Internet of Things. [8]

OR

- Q10)** a) “Designing algorithms for Localization and positioning of Wireless Sensor Network in remote, disastrous region is challenging” Justify with example. [8]
- b) Discuss necessity of big data solutions for Wireless Sensor Network [4]
- c) Explain significance of anchor placement in Wireless Sensor Network [4]

