Total No. of Questions : 10]

SEAT No. :

P2889

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[4958]-1082

T.E.(Computer Engineering)

DATA COMMUNICATION AND WIRELESS SENSOR NETWORKS

(2012 Course) (Semester-I) (310243)

Time :2 .5Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Question 1,2,3,4 (10 marks each). Solve either Question 1 or Question 2 and Question 3 or Question 4.***
2) ***Question 7 and 8(18 marks) Solve any one.***
3) ***Question 5,6,9,10(16 marks each). Solve either Question 5 or Question 6 and Question 9 or Question 10.***
4) ***Neat diagrams must be drawn wherever necessary.***
5) ***Assume suitable data if necessary.***
6) ***Figures to the right indicate full marks.***

Q1) a) Differentiate between Infrastructure based and Infrastructure less wireless topologies. **[5]**

b) Encode the following binary data stream into Bipolar, Manchester: 1100 1010111000111100001. **[5]**

Q2) a) What is RFID? Explain RFID based data communication? **[6]**

b) Explain significance of bluetooth and zigbee IEEE standard. **[4]**

Q3) a) Explain in detail Data link layer design issues from perspective of error and flow control. **[6]**

b) Write in detail working of CSMA/CD **[4]**

Q4) a) With neat diagram explain architecture of Sensor node **[6]**

b) Explain in detail how Virtual Private Network works and its applications? **[4]**

Q5) a) Differentiate with detail example Contention- based protocols, Schedule-based protocols. **[10]**

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b) State True or false with justification "SPIN uses attribute value pairs for data and queries" **[6]**

Q6) a) Explain in detail why classical IP based protocols cannot be applied for wireless sensor Networks. **[8]**

b) State True or false with justification "LEACH uses single hop routing within cluster which is not applicable to network in large region". **[8]**

Q7) a) Differentiate between proactive and reactive routing techniques with example. **[8]**

b) What is localization in Wireless Sensor Network? Explain different methods of localization? **[8]**

c) Explain PICONET in Wireless Sensor Network. **[2]**

Q8) a) Write in detail application of Wireless body Sensor network in health care domain. **[10]**

b) Justify the statement "data generated by an individual sensor may not appear to be significant, but the overall data generated across dense Wireless Sensor Network can produce a significant portion of the big data". **[8]**

Q9) a) Explain in detail Operating System design issues in Wireless Sensor Network with reference to Architecture, Function etc. **[8]**

b) Write in detail application of Wireless Sensor Network in military domain. **[8]**

Q10) a) Write in detail role of Wireless Sensor Network in "Internet of Things(IoT)". **[8]**

b) Explain the impact of anchor placement in Wireless Sensor Network. **[8]**