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Question Paper Code : 80273

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Seventh Semester

Computer Science and Engineering

CS 6003 — AD HOC AND SENSOR NETWORKS

(Common to Information Technology)

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is handoff?
2. Define multicasting.
3. How single-channel sender-initiated contention based MAC protocols for ad hoc wireless networks work?
4. Outline how node scheduling is done in contention-based MAC protocols with scheduling mechanisms.
5. How table-driven routing protocols for ad hoc networks work?
6. List the major functions performed by TCP.
7. Outline the functions performed by a node in a wireless sensor network.
8. How CSMA based MAC protocol for wireless sensor network work?
9. What is data dissemination in a wireless sensor network?
10. Why wireless sensor networks need localization protocols?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Tabulate the differences between cellular networks and ad hoc wireless networks. (8)
- (ii) Explain with an example and diagrammatic illustration reflection, diffraction and scattering. (8)

Or

- (b) Outline the design challenges in mobile ad hoc networks and wireless sensor networks. (16)

12. (a) (i) Explain the hidden and exposed terminal problems with an example and diagrammatic illustration. (6)
- (ii) How media access protocol for wireless LANs (MACAW) based on multiple access collision avoidance protocol (MACA) works? How MACA avoids the problem of hidden terminals? How MACA avoids the problem of exposed terminals? Give example. (10)

Or

- (b) (i) How distributed packet reservation multiple access protocol works? Discuss with an example. (8)
- (ii) How MACA protocol with piggy-backed reservation works? Discuss with an example. (8)

13. (a) Illustrate the working of destination sequenced distance-vector routing protocol for wireless ad hoc networks with an example and diagrammatic illustrations. (16)

Or

- (b) Present a comparison of TCP solutions for wireless ad hoc networks. (16)

14. (a) What is a wireless sensor network? Explain with diagrammatic illustration wireless sensor network architecture. (16)

Or

- (b) How hybrid TDMA/FDMA medium access control protocol for wireless sensor networks work? Explain with an example. (16)

15. (a) (i) Outline the issues related to routing in wireless sensor networks. (8)
- (ii) What is range-based localization? Explain with an example how triangulation works. (8)

Or

- (b) What is quality of service (QoS)? Discuss QoS in wireless sensor networks. (16)