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Reg. No.:	,		

Question Paper Code: 50418

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

Seventh Semester

Computer Science and Engineering

CS 8088 — WIRELESS ADHOC AND SENSOR NETWORKS

(Common to Computer and Communication Engineering/Information Technology)

(Regulations 2017)

Time: Three hours

Maximum: 100 marks

Answer ALL questions.

PART A — $(10 \times 2 = 20 \text{ marks})$

- 1. What is meant by hidden terminal problem? How can this problem affect a MAC protocol used in ad hoc networks?
- 2. Why can performance degrade if TCF is used as the transport layer protocol in ad hoc wireless networks?
- 3. List any four design goals that should be met while designing a transport layer protocol for ad hoc wireless networks.
- 4. Give the difference between soft QoS and hard QoS approaches.
- 5. How is unicast routing different from multicast routing?
- 6. Why should wireless sensor networks be fault-tolerant?
- 7. What is meant by data-centric interaction in wireless sensor networks?
- 8. When does congestion occur in a network?
- 9. What are the requirements for sensor network security?
- 10. List any four water marking techniques.

PART B - (5 × 13 = 65 marks)

11. (a) Explain the working of the MACAW routing protocol with appropriate diagrams. (13)

Or

(b) Explain the working of the Dynamic Source Routing (DSR) protocol. Discuss its advantages and disadvantages. (13)

12. (a) Compare TCP-F, TCP-ELFN and TCP-BuS in regard to different issues relevant to transport layer protocol design for ad hoc networks. (13)

Or

- (b) Explain the QoS extensions done to AODV routing protocol to provide QoS support. (13)
- 13. (a) Discuss about the specific requirements and the design considerations for MAC protocols in wireless sensor networks. (13)

Or

- (b) Explain the working of the Sparse Topology and Energy Management (STEM) protocol. (13)
- 14. (a) How is data disseminated in a wireless sensor network using the Sensor Protocol for Information via Negotiation (SPIN)? (13)

Or

- (b) Discuss the tasks that are commonly attributed to transport layer protocols and also the challenges that are particular to transport protocols for wireless sensor networks. (13)
- 15. (a) Write short notes on key distribution and management. (13)

Or

(b) Explain the working of the TESLA protocol.

(13)

PART C - $(1 \times 15 = 15 \text{ marks})$

16. (a) What are the issues and challenges in designing ad hoc networks? For any one issue, explain how researchers have handled and solved it over the years. (15)

Or

(b) Discuss the need for topology control in wireless sensor networks. Discuss and compare the different options available for topology control. (15)