Reg. No. :						

Question Paper Code: 40456

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Seventh Semester

Electronics and Communication Engineering

EC 8702 – AD HOC AND WIRELESS SENSOR NETWORKS

(Regulations 2017)

Time: Three hours

Maximum: 100 marks

Answer ALL questions.

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

- 1. Outline the hidden vs. exposed terminal problem in ad hoc networks.
- 2. State any two applications of ad hoc networks.
- 3. Name the basic components of a sensor node.
- 4. State any two applications of wireless sensor networks.
- 5. What is data dissemination in a wireless sensor network?
- 6. Why wireless sensor networks need localization protocols?
- 7. What is security provisioning?
- 8. Define a black hole attack.
- 9. Present an outline of berkeley motes.
- 10. Name any two node-level simulators for wireless sensor networks.

PART B —
$$(5 \times 13 = 65 \text{ marks})$$

11. (a) What is a routing protocol? Outline the issues in designing a routing protocol for ad hoc wireless networks. (13)

Or

(b) Classify routing protocols for ad hoc wireless networks and present an outline of the same. (13)

12. (a) What is a wireless sensor network? Elaborate the wireless sensor network architecture with a diagram. (13)

Or

- (b) Present an elaborate note on the energy consumption rate for sensors in a wireless sensor network. (13)
- 13. (a) Outline the low energy adaptive clustering hierarchy (LEACH) protocol for wireless sensor networks. (13)

Or

- (b) What is energy efficient routing? Present an outline of energy efficient routing in wireless sensor networks. (13)
- 14. (a) Outline the issues and challenges in security provisioning for wireless sensor networks.

Or

- (b) Present an outline of SPINS, security protocol for sensor networks. (13)
- 15. (a) Outline the features of node-level simulators for wireless sensor networks. (13)

Or

(b) Outline the features of TinyOS and CONTIKI OS for wireless sensor networks. (13)

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

16. (a) Present an ad hoc network design that can be used in a geographic location affected by cyclone. State the functional requirements you are considering. (15)

Or

(b) Present a wireless sensor network design that can be used for surveillance and environment monitoring in a zoo. A zoo is a facility in which animals are confined within enclosures, displayed to the public, and in which they may also be bred. State the functional requirements you are considering. (15)

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