1. What is a key characteristic of Wireless Sensor Networks (WSNs)?

a. Large centralized devices

b. Extensive processing power

c. Distributed small autonomous sensors

d. High-speed wired communication

1. What do sensors in a WSN primarily use for communication?

a. Wired connections

b. Bluetooth technology

c. Wireless communication protocols

d. Optical fibers

1. Why is energy efficiency crucial in WSN design?

a. To increase data transmission speed

b. To enhance data security

c. Because sensor nodes often operate on limited battery power

d. To reduce data aggregation overhead

1. What is the purpose of data aggregation in WSNs?

a. To increase communication overhead

b. To conserve energy and optimize bandwidth

c. To add redundancy to the data

d. To amplify sensor readings

1. How are sensors typically deployed in WSNs?

a. In a centralized manner

b. Without any specific pattern

c. In a distributed manner across a geographical area or physical space

d. Randomly without any consideration

1. What role do self-organizing algorithms play in WSNs?

a. They optimize data transmission speed.

b. They manage the central base station.

c. They adapt to changes in the network topology.

d. They handle data processing at the edge.

1. In which scenario would data processing at the edge be advantageous?

a. When energy consumption is not a concern

b. When sensors are not equipped with processing capabilities

c. When data transmission is the primary goal

d. When reducing data transmission and saving energy are priorities

1. What is a common application of Wireless Sensor Networks (WSNs)?

a. Sending large files over the internet

b. Streaming high-definition videos

c. Environmental monitoring

d. Online gaming

1. What is one of the challenges mentioned in the text regarding WSNs?

a. Excessive energy resources

b. Unreliable communication in harsh environments

c. Lack of applications

d. Fast battery replacement

1. What is the primary benefit of WSNs in disaster management applications?

a. Real-time data collection and remote monitoring

b. Generating random data

c. Eliminating the need for human intervention

d. Increasing communication latency

Answers:

1. c. Distributed small autonomous sensors
2. c. Wireless communication protocols
3. c. Because sensor nodes often operate on limited battery power
4. b. To conserve energy and optimize bandwidth
5. c. In a distributed manner across a geographical area or physical space
6. c. They adapt to changes in the network topology.
7. d. When reducing data transmission and saving energy are priorities
8. c. Environmental monitoring
9. b. Unreliable communication in harsh environments
10. a. Real-time data collection and remote monitoring