1. What is the primary function of a sensor in an IoT system?
a) To process data
b) To actuate
c) To sense and collect data
d) To communicate wirelessly

Answer: c) To sense and collect data
Explanation: Sensors in IoT systems detect and gather information from the physical environment, such as temperature, humidity, or motion, and convert it into a measurable form for further processing.

2. What does Participatory Sensing primarily involve?
a) Centralized data collection
b) Sensor calibration
c) Crowd-sourced data gathering
d) Machine learning algorithms

Answer: c) Crowd-sourced data gathering
Explanation: Participatory sensing engages the general public to contribute data using their personal devices, enabling large-scale data collection across various locations.

3. Which of the following is a common application of Industrial IoT (IIoT)?
a) Home automation
b) Personal fitness tracking
c) Smart agriculture
d) Factory automation

Answer: d) Factory automation
Explanation: IIoT involves the use of IoT technologies in industrial settings, such as manufacturing plants, to enhance efficiency, productivity, and safety through automation and data exchange.

4. What is the main purpose of an actuator in IoT systems?
a) To sense environmental data
b) To process data
c) To communicate wirelessly
d) To perform physical actions based on data

Answer: d) To perform physical actions based on data
Explanation: Actuators translate digital signals from IoT systems into physical actions, such as opening a valve or turning on a motor, based on the processed data from sensors.

5. Which protocol is commonly used for communication between sensors and IoT devices?
a) HTTP
b) MQTT
c) TCP/IP
d) SMTP

Answer: b) MQTT
Explanation: MQTT (Message Queuing Telemetry Transport) is a lightweight messaging protocol commonly used in IoT applications for efficient communication between sensors and devices, especially in low-bandwidth or unreliable networks.

6. What technology is often utilized for asset tracking in supply chain management?

a) GPS
b) NFC
c) RFID
d) Bluetooth

Answer: c) RFID
Explanation: Radio Frequency Identification (RFID) technology is commonly used for tracking and identifying assets in supply chain management, allowing for real-time monitoring of inventory and logistics.

7. Which type of network is typically employed for connecting distributed sensors in IoT applications?
a) Local Area Network (LAN)
b) Personal Area Network (PAN)
c) Wireless Sensor Network (WSN)
d) Metropolitan Area Network (MAN)

Answer: c) Wireless Sensor Network (WSN)
Explanation: WSNs consist of distributed sensors wirelessly interconnected to monitor physical or environmental conditions, making them suitable for IoT applications where wired connections are impractical or costly.

8. What is a key advantage of using RFID technology for inventory management?
a) High data transfer rate
b) Long battery life
c) Contactless operation
d) Wide coverage area

Answer: c) Contactless operation
Explanation: RFID technology enables contactless identification and tracking of items, improving efficiency and reducing human error in inventory management processes.

9. Which frequency band is commonly used for communication in Wireless Sensor Networks (WSNs)?
a) 2.4 GHz
b) 5 GHz
c) 900 MHz
d) 60 GHz

Answer: c) 900 MHz
Explanation: The 900 MHz frequency band is commonly utilized in WSNs due to its ability to penetrate obstacles and cover long distances, making it suitable for low-power, wide-area sensor deployments.

10. What is the primary advantage of using Wireless Sensor Network (WSN) technology in environmental monitoring?
a) High data transfer rate
b) Low cost
c) Limited coverage area
d) Dependence on wired infrastructure

Answer: b) Low cost
Explanation: WSN technology offers cost-effective solutions for environmental monitoring by eliminating the need for extensive wired infrastructure and allowing for scalable deployment of sensor nodes over large areas.