



ROHINI COLLEGE OF ENGINEERING AND TECHNOLOGY

AUTONOMOUS INSTITUTION

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Department of Biomedical Engineering

VI Semester

CBM 370 - Wearable Devices

Unit- 3 (A) WIRELESS HEALTH SYSTEMS

2 Marks Questions and Answers

1. Outline the primary need for wireless monitoring in healthcare settings. K1

- ❖ Remote Patient Monitoring
- ❖ Real-time Data Transmission
- ❖ Reduced Hospital Visits and Costs
- ❖ Better Emergency Response

2. Define the term "Body Area Network" (BAN). K1

- ❖ A **Body Area Network (BAN)** is a wireless network of wearable or implanted sensors and devices that monitor and transmit physiological data from a person's body.
- ❖ It enables continuous health monitoring by collecting real-time data such as heart rate, blood pressure, temperature, and movement, which can be transmitted to healthcare providers for analysis and intervention.

3. Why is wireless monitoring important in healthcare? K2

Wireless monitoring is important in healthcare because it enables **real-time tracking** of patient health, **early detection** of medical conditions, and **remote patient monitoring**, reducing hospital visits and improving overall care. It enhances **mobility**, allowing patients to move freely while still being monitored, and supports **faster emergency response** by alerting healthcare providers to critical changes.

4. List two advantages of BAN in healthcare applications.

K1

- ❖ **Continuous Health Monitoring** – BAN enables real-time tracking of vital signs, allowing early detection of medical issues and timely intervention.
- ❖ **Enhanced Patient Mobility** – Patients can move freely without being confined to hospital beds while still being monitored wirelessly.

5. What is the primary advantage of using a BAN over traditional wired monitoring systems in healthcare?

K1

The primary advantage of using a **Body Area Network (BAN)** over traditional wired monitoring systems in healthcare is **enhanced mobility and comfort** for patients. BAN eliminates the need for bulky wires, allowing continuous health monitoring while enabling patients to move freely, improving their quality of life and reducing hospital stays.

6. What are the components of a Body Area Network?

K1

- ❖ Sensors
- ❖ Processor (Microcontroller/Node)
- ❖ Communication Module
- ❖ Power Source
- ❖ Gateway Device
- ❖ Cloud/Server & Data Storage
- ❖ User Interface

7. Mention two examples of devices used in a healthcare BAN.

K1

- ❖ **Wearable ECG Monitor** – Tracks heart activity and detects irregularities in real time.
- ❖ **Smart Glucose Monitor** – Continuously measures blood sugar levels for diabetes management.

8. Name any two challenges of implementing BAN in healthcare. K1

- ❖ **Data Security and Privacy Risks** – Protecting sensitive patient data from cyber threats and unauthorized access is a major challenge.
- ❖ **Limited Battery Life** – BAN devices rely on small batteries, requiring efficient power management for continuous operation.

9. How does wireless monitoring improve patient care? K2

Wireless monitoring improves patient care by:

- ❖ **Enabling Real-time Health Tracking** – Continuously monitors vital signs, allowing early detection of health issues.
- ❖ **Enhancing Patient Mobility** – Reduces hospital stays by allowing remote monitoring, improving comfort and quality of life.
- ❖ **Providing Faster Emergency Response** – Sends instant alerts to healthcare providers in case of critical health changes.
