

Pre-Assessment Answer Key

Instructions: Answer the following questions.

1. Define an electrocardiogram (ECG).

An ECG is a test that records the heart's electrical activity. It shows the rhythm and strength of heartbeats using a series of waves. Doctors use it to detect heart problems such as arrhythmias and heart attacks.

2. What is heart rate?

Heart rate is the number of times the heart beats in one minute, usually measured in beats per minute (bpm). A normal resting heart rate for adults range from 60 to 100 bpm. It helps indicate how well the heart is working.

3. What is oxygen level (SpO₂)?

Oxygen level refers to the percentage of oxygen carried by red blood cells. It is commonly measured using a pulse oximeter. A healthy oxygen level is typically between 95% and 100%. Low oxygen levels may suggest lung or heart problems.

4. What is arrhythmia?

Arrhythmia is a condition where the heart beats irregularly, whether too fast, too slow, or unevenly. Some arrhythmias are harmless, while others may require medical attention, especially if they affect blood flow or cause symptoms.

5. What is tachycardia?

Tachycardia is a type of arrhythmia where the heart beats too quickly—over 100 bpm at rest. It can be caused by stress, exercise, or health problems, and may lead to symptoms like dizziness or chest pain.

6. What is bradycardia?

Bradycardia is when the heart beats slower than normal—fewer than 60 bpm at rest. While it can be normal for athletes, in other cases it may lead to fatigue, dizziness, or fainting if the heart isn't pumping enough blood.

7. What do blood oxygen levels show?

Blood oxygen level shows how much oxygen is in your blood. It's measured as a percentage (SpO₂) using a pulse oximeter, often clipped to your finger. Normal levels are between 95% and 100%. Levels below 90% may mean the body isn't getting enough oxygen, which can be a sign of lung or heart problems.

8. What is Arduino?

Arduino is a microcontroller that is used to run different applications (e.g., sensors to measure humidity and temperature, washing machine cycles, electrocardiograms, run motors, robotic movements). It has 14 digital input/output pins, six analog inputs, a 16 MHz ceramic resonator (CSTCE16M0V53-R0), a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with an AC-to-DC adapter or battery to get started.