

Biological Inspiration from Battery Technology

Biology · Practice Test · 10 Questions

1. What is the primary function of systole in the heart?

- A) Relaxation and filling
- B) Contraction and pumping
- C) Electrical signaling
- D) Valve closure

2. Which blood vessel carries oxygenated blood from the left ventricle to the body?

- A) Pulmonary artery
- B) Vena cava
- C) Aorta
- D) Capillary

3. What is the heart's natural pacemaker called?

- A) AV node
- B) Purkinje fibres
- C) Sinoatrial (SA) node
- D) Atrium

4. What is the purpose of the delay at the AV node?

- A) To speed up the heart rate
- B) To allow atria to finish emptying
- C) To prevent blood clots
- D) To stop the heart from beating

5. What kind of cells produce electricity in an electric eel?

- A) Neurons
- B) Electrocytes
- C) Muscle fibers
- D) Epithelial cells

6. Which organ in the electric eel is primarily used for electrolocation?

- A) Hunter's organ
- B) Main organ
- C) Sachs' organ
- D) Stomach

7. Which ion is responsible for creating a voltage across the electrocytes?

- A) Calcium (Ca^{2+})
- B) Potassium (K^{+})
- C) Sodium (Na^{+})
- D) Magnesium (Mg^{2+})

8. What protein helps control the ion machinery for high-voltage discharge in eels?

- A) Hemoglobin
- B) Calmodulin
- C) Insulin
- D) Keratin

9. What is the main difference between oxygenated and deoxygenated blood?

- A) Temperature
- B) Sugar content
- C) Oxygen/ CO_2 levels
- D) Size of cells

10. In which direction do Purkinje fibres conduct electrical impulses?

- A) From ventricles to atria
- B) From the apex upwards
- C) From the brain to the heart
- D) From the aorta to the lungs