

Jones and Bartlett EMT Course Practice Test (Sample)

Study Guide



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SAMPLE

Questions

SAMPLE

- 1. What is the commonly known name for the thyroid cartilage, which is more prominent in men?**
 - A. Voice box**
 - B. Adam's apple**
 - C. Epiglottis**
 - D. Cricoid cartilage**
- 2. What type of metabolism can only proceed in the presence of oxygen?**
 - A. Aerobic metabolism**
 - B. Anaerobic metabolism**
 - C. Cellular respiration**
 - D. Fermentation**
- 3. What is the primary function of the pancreas in the human body?**
 - A. Production of bile**
 - B. Filtration of blood**
 - C. Source of digestive enzymes and insulin**
 - D. Storage of nutrients**
- 4. What part of the brain is responsible for coordinating fine body movements?**
 - A. Cerebrum**
 - B. Cerebellum**
 - C. Brainstem**
 - D. Thalamus**
- 5. What term describes the back surface of the body in the standard anatomic position?**
 - A. Anterior**
 - B. Medial**
 - C. Posterior**
 - D. Lateral**

- 6. What are substances designed to speed up the rate of specific biochemical reactions called?**
- A. Hormones**
 - B. Receptors**
 - C. Enzymes**
 - D. Neurotransmitters**
- 7. What do we call the last three or four vertebrae of the spine, also known as the tailbone?**
- A. Coccyx**
 - B. Sacrum**
 - C. Thoracic vertebrae**
 - D. Lumbar vertebrae**
- 8. What is the major artery of the thigh, which is a continuation of the external iliac artery?**
- A. Popliteal artery**
 - B. Femoral artery**
 - C. Radial artery**
 - D. Brachial artery**
- 9. Which structures are the smallest branches of arteries leading to capillaries?**
- A. Venules**
 - B. Arterioles**
 - C. Capillary beds**
 - D. Veins**
- 10. What device is commonly used to measure blood pressure?**
- A. Pulsometer**
 - B. Sphygmomanometer**
 - C. Tonometer**
 - D. Cardiometer**

Answers

SAMPLE

1. B
2. A
3. C
4. B
5. C
6. C
7. A
8. B
9. B
10. B

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Explanations

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1. What is the commonly known name for the thyroid cartilage, which is more prominent in men?

- A. Voice box**
- B. Adam's apple**
- C. Epiglottis**
- D. Cricoid cartilage**

The commonly known name for the thyroid cartilage is the Adam's apple. This structure is more prominent in men due to the influence of testosterone during puberty, which causes the thyroid cartilage to grow larger and more prominent compared to that in women. The thyroid cartilage forms a protective shield around the larynx (voice box) and is the largest cartilage in the laryngeal framework. Its prominence is typically assessed visually and palpably in males, making it a recognizable feature. In contrast, the other terms refer to different anatomical structures. The voice box is a broad term that encompasses the entire laryngeal structure, which includes the thyroid cartilage as well as other components. The epiglottis is a flap-like structure that covers the trachea during swallowing to prevent food from entering the airway. The cricoid cartilage is located below the thyroid cartilage and is part of the laryngeal anatomy but does not have the prominent projection associated with the Adam's apple.

2. What type of metabolism can only proceed in the presence of oxygen?

- A. Aerobic metabolism**
- B. Anaerobic metabolism**
- C. Cellular respiration**
- D. Fermentation**

Aerobic metabolism refers to the biochemical processes that require oxygen to generate energy. This type of metabolism occurs in almost all higher forms of life as it efficiently produces adenosine triphosphate (ATP)—the energy currency of the cell—by breaking down glucose or other substrates in the presence of oxygen. During aerobic metabolism, oxygen acts as the final electron acceptor in the electron transport chain, allowing for the complete oxidation of substrates, which maximizes ATP production. In contrast, anaerobic metabolism, cellular respiration, and fermentation can occur in the absence of oxygen or with less dependency on it. Anaerobic metabolism does not use oxygen and generates energy through alternate pathways, yielding less ATP. Cellular respiration is a broader term that encompasses both aerobic and anaerobic processes but does not solely denote the presence of oxygen. Fermentation also operates without oxygen and is less efficient than aerobic metabolism, producing only a limited amount of ATP. Therefore, the defining characteristic of aerobic metabolism is its exclusive reliance on oxygen for energy production.

3. What is the primary function of the pancreas in the human body?

A. Production of bile

B. Filtration of blood

C. Source of digestive enzymes and insulin

D. Storage of nutrients

The pancreas serves a crucial role in the human body primarily through its dual function as both an endocrine and exocrine gland. As an exocrine gland, it produces digestive enzymes, such as amylase, proteases, and lipase, which are essential for breaking down carbohydrates, proteins, and fats in the small intestine. This enzymatic action is vital for proper digestion and nutrient absorption. In its capacity as an endocrine gland, the pancreas produces hormones, most notably insulin and glucagon. Insulin helps regulate blood sugar levels by facilitating the uptake of glucose into the body's cells, while glucagon works to raise blood sugar levels when they are too low. This balance between insulin and glucagon is crucial for maintaining metabolic homeostasis. Understanding this primary function of the pancreas helps illustrate its importance in both digestion and metabolic regulation, making it a vital organ in the human body.

4. What part of the brain is responsible for coordinating fine body movements?

A. Cerebrum

B. Cerebellum

C. Brainstem

D. Thalamus

The cerebellum is the part of the brain primarily responsible for coordinating fine body movements. It plays a crucial role in maintaining balance and posture, as well as ensuring smooth and precise execution of voluntary movements. The cerebellum integrates sensory input from various parts of the body and fine-tunes movements to ensure they are carried out smoothly. This function is particularly important for activities that require skill and coordination, such as writing, playing instruments, or sports. The cerebrum, though involved in higher functions such as cognition and voluntary movement, does not specifically coordinate fine movements; it oversees more complex functions and motor control. The brainstem is responsible for basic life functions, such as breathing and heartbeat regulation, rather than fine motor skills. The thalamus acts as a relay station for sensory and motor signals to the cerebral cortex but does not coordinate movements itself.

5. What term describes the back surface of the body in the standard anatomic position?

- A. Anterior**
- B. Medial**
- C. Posterior**
- D. Lateral**

In standard anatomical position, the body is oriented with the face and palms forward, which allows for clear and consistent terminology to describe locations and surfaces. The term that refers to the back surface of the body in this position is "posterior." This indicates the side of the body that is opposite to the front or "anterior" side. Understanding this term is essential for precise communication in medical contexts. For example, when assessing a patient, distinguishing between anterior and posterior is crucial for locating injuries or conditions. The other terms, while related to body positioning, describe different orientations. "Anterior" refers to the front surface, "medial" indicates a position closer to the midline of the body, and "lateral" refers to the side or a position farther from the midline. Recognizing these distinctions helps in both anatomy and clinical practice to ensure clarity and accuracy in assessment and communication.

6. What are substances designed to speed up the rate of specific biochemical reactions called?

- A. Hormones**
- B. Receptors**
- C. Enzymes**
- D. Neurotransmitters**

Substances that are designed to accelerate the rate of specific biochemical reactions are known as enzymes. Enzymes are proteins that act as catalysts in various biochemical processes, facilitating reactions that are essential for life. They lower the activation energy needed for a reaction to occur, significantly speeding up metabolic pathways. Each enzyme is specific to a particular substrate and reaction, which is crucial for maintaining the efficiency and regulation of cellular functions. Hormones, on the other hand, are signaling molecules that regulate physiological activities but do not directly catalyze biochemical reactions. Receptors are proteins that receive and transmit signals, typically from hormones or neurotransmitters, but do not facilitate reactions themselves. Neurotransmitters are chemicals that transmit signals across synapses in the nervous system, influencing various functions but not acting as catalysts in biochemical reactions. Hence, enzymes are specifically designed for this role, making the selection of that answer accurate.

7. What do we call the last three or four vertebrae of the spine, also known as the tailbone?

A. Coccyx

B. Sacrum

C. Thoracic vertebrae

D. Lumbar vertebrae

The term for the last three or four vertebrae of the spine, commonly referred to as the tailbone, is coccyx. The coccyx is a small, triangular bone situated at the very end of the vertebral column. It is formed by the fusion of several vertebrae and serves as an important attachment site for various muscles, tendons, and ligaments. The coccyx plays a role in supporting the weight of the body when sitting and helps provide balance and stability. It is distinct from other parts of the spine such as the sacrum, which consists of five fused vertebrae located just above the coccyx and is part of the pelvis. The thoracic vertebrae and lumbar vertebrae refer to sections of the spine located higher up, with thoracic being associated with the rib cage and lumbar consisting of larger vertebrae in the lower back region. Understanding the nomenclature and function of these different sections is essential for a deeper comprehension of human anatomy.

8. What is the major artery of the thigh, which is a continuation of the external iliac artery?

A. Popliteal artery

B. Femoral artery

C. Radial artery

D. Brachial artery

The femoral artery is the major artery of the thigh and serves as a direct continuation of the external iliac artery. This artery is crucial in supplying oxygenated blood to the lower limb, particularly the muscles and tissues of the thigh. As it travels down the thigh, it gives off various branches that supply the surrounding structures, including the profunda femoris (deep artery of the thigh). Additionally, the femoral artery plays a significant role in procedures such as catheterization, where access is often gained via the femoral artery for diagnostics or interventions. Its location and large caliber make it essential in both the circulatory system and in certain medical practices. In contrast, options like the popliteal artery, radial artery, and brachial artery serve different regions of the body. The popliteal artery is located behind the knee and is a continuation of the femoral artery, while the radial artery primarily serves the forearm and the hand, and the brachial artery supplies the upper arm. These arteries, while important, do not fulfill the role of the major artery in the thigh as the femoral artery does.

9. Which structures are the smallest branches of arteries leading to capillaries?

A. Venules

B. Arterioles

C. Capillary beds

D. Veins

Arterioles are the smallest branches of arteries that lead directly to capillaries. They play a crucial role in regulating blood flow and pressure as they are capable of constricting and dilating, which influences the distribution of blood to various tissues throughout the body. The walls of arterioles are thinner than those of larger arteries, allowing for significant control over vascular resistance and blood flow. This anatomical arrangement is essential for the proper functioning of the circulatory system, as arterioles serve as a major point of regulation before blood enters the capillaries, where the exchange of oxygen, nutrients, and waste occurs. Other structures mentioned, like venules and veins, are involved in the return of blood to the heart, while capillary beds refer to the networks of capillaries themselves, not the branches that lead into them.

10. What device is commonly used to measure blood pressure?

A. Pulsometer

B. Sphygmomanometer

C. Tonometer

D. Cardiometer

The sphygmomanometer is the device commonly used to measure blood pressure. It consists of an inflatable cuff that is wrapped around the upper arm and a measuring instrument, which can be either a mercury column or an aneroid gauge, that indicates the pressure. When the cuff is inflated, it temporarily stops blood flow in the artery. As the cuff is slowly deflated, the first sound heard through a stethoscope represents the systolic blood pressure, while the last sound indicates the diastolic pressure. This method provides a direct assessment of the force of blood against the walls of arteries, which is essential for diagnosing conditions like hypertension. While other devices mentioned may be used in different contexts (such as the tonometer for measuring intraocular pressure in the eyes), they are not standard tools for assessing blood pressure. A cardiometer primarily assesses heart performance through electrical measurements, and a pulsometer generally quantifies pulse rates, not blood pressure. Thus, the sphygmomanometer is the established standard in clinical practice for measuring blood pressure.