

CET Paramedical Admission Practice Test (Sample)

Study Guide



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SAMPLE

Questions

SAMPLE

- 1. What is an important step when assessing a critically ill child?**
 - A. Perform an extensive medical history**
 - B. Establish a rapport with the guardians**
 - C. Identify immediate life threats**
 - D. Schedule follow-up appointments**
- 2. What condition can arise from infections such as filariasis and amoebiasis?**
 - A. Intestinal obstruction**
 - B. Myasthenia gravis**
 - C. Phenylketonuria**
 - D. Natalty**
- 3. What is the beat frequency produced by two pipes?**
 - A. 1 beat per second**
 - B. 2 beats per second**
 - C. 3 beats per second**
 - D. 4 beats per second**
- 4. Which molecule acts as a universal hydrogen acceptor?**
 - A. FAD**
 - B. NAD**
 - C. ATP**
 - D. CoA**
- 5. What type of organisms are eurythermal?**
 - A. Those that thrive in great depths of the ocean**
 - B. Those that thrive in wide temperature ranges**
 - C. Those that require specific temperatures**
 - D. Those that can survive in extreme cold**

- 6. What is the primary characteristic of a homodont organism?**
- A. They have no teeth at all**
 - B. They develop different types of teeth**
 - C. They possess all teeth of the same type**
 - D. They have multiple sets of teeth**
- 7. What is a common sign of a heart attack in women?**
- A. Persistent chest pain**
 - B. Intense pressure on the left arm**
 - C. Unusual fatigue**
 - D. Shortness of breath during rest**
- 8. What is the correct order of boiling points for the given hydrides?**
- A. $\text{H}_2\text{S} > \text{H}_2\text{Se} > \text{H}_2\text{Te} > \text{H}_2\text{O}$**
 - B. $\text{H}_2\text{O} > \text{H}_2\text{Te} > \text{H}_2\text{Se} > \text{H}_2\text{S}$**
 - C. $\text{H}_2\text{Se} > \text{H}_2\text{S} > \text{H}_2\text{Te} > \text{H}_2\text{O}$**
 - D. $\text{H}_2\text{Te} > \text{H}_2\text{Se} > \text{H}_2\text{S} > \text{H}_2\text{O}$**
- 9. What is the unit of measurement commonly associated with inductance?**
- A. Ohm**
 - B. Henry**
 - C. Volt**
 - D. Watt**
- 10. What type of shock is triggered by severe allergic reactions?**
- A. Cardiogenic shock**
 - B. Hypovolemic shock**
 - C. Anaphylactic shock**
 - D. Neurogenic shock**

Answers

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

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Explanations

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1. What is an important step when assessing a critically ill child?

- A. Perform an extensive medical history**
- B. Establish a rapport with the guardians**
- C. Identify immediate life threats**
- D. Schedule follow-up appointments**

Identifying immediate life threats is a crucial step when assessing a critically ill child because the primary goal in any emergency situation is to stabilize the patient's condition. In pediatric emergencies, children can deteriorate rapidly due to their physiological differences and limited reserves compared to adults. By promptly identifying and addressing life-threatening issues such as airway obstruction, breathing difficulties, or circulatory problems, healthcare professionals can initiate the appropriate interventions that may save a child's life. Focusing on immediate life threats allows practitioners to prioritize their assessment and care swiftly, ensuring that any necessary resuscitation measures are taken before gathering detailed medical histories or establishing relationships with guardians, which, while important, are secondary to the immediate need to secure the child's safety and health.

2. What condition can arise from infections such as filariasis and amoebiasis?

- A. Intestinal obstruction**
- B. Myasthenia gravis**
- C. Phenylketonuria**
- D. Natality**

Intestinal obstruction can arise from infections like filariasis and amoebiasis due to the potential for these infections to cause significant inflammation, swelling, or blockage in the intestines. Specifically, amoebiasis, caused by the *Entamoeba histolytica* parasite, can lead to lesions in the intestinal lining, potentially resulting in abscesses that disrupt normal bowel function. In cases of filariasis, the parasitic infection can lead to lymphatic damage and fluid accumulation in the abdomen, which may also contribute to obstructive symptoms. Filariasis often causes a condition known as lymphatic filariasis, characterized by severe swelling and fluid buildup in limbs or the abdomen (called elephantiasis). This chronic condition can result in significant changes in tissue and may lead to blockages. In contrast, myasthenia gravis is an autoimmune disorder affecting nerve signals to muscles, while phenylketonuria is a genetic disorder related to amino acid metabolism, and natality refers to birth rates, none of which are directly caused by the infections mentioned.

3. What is the beat frequency produced by two pipes?

- A. 1 beat per second
- B. 2 beats per second
- C. 3 beats per second**
- D. 4 beats per second

To determine the beat frequency produced by two pipes, it's important to understand the principle of beat frequencies, which arises from the interference of two sound waves with slightly different frequencies. The beat frequency is calculated by finding the absolute difference between these two frequencies. In this scenario, if the result is three beats per second, it suggests that the two pipes are producing sound waves at frequencies that differ by three hertz. This creates a pattern of loudness and softness in the sound that alternates at a rate of three times per second, which is perceptible to the human ear as "beats." The correct answer indicates that the frequency difference between the two pipes results in three distinct loud and soft sounds occurring every second. This aligns with the principle governing beats, confirming that the presence of two sound waves at slightly different frequencies will generate fluctuations in amplitude that we perceive as beats, determined by their difference.

4. Which molecule acts as a universal hydrogen acceptor?

- A. FAD
- B. NAD**
- C. ATP
- D. CoA

NAD (Nicotinamide adenine dinucleotide) is recognized as a universal hydrogen acceptor because it plays a crucial role in various metabolic processes by facilitating redox reactions. In these reactions, NAD accepts electrons and a hydrogen ion (proton) to form its reduced form, NADH. This reduction-oxidation process is vital in cellular respiration, particularly in glycolysis and the Krebs cycle, where NAD acts as a key coenzyme that helps transfer energy from metabolic intermediates to the electron transport chain. The ability of NAD to serve as a hydrogen acceptor is essential for energy production in cells, as it enables the conversion of substrates into usable energy forms, facilitating cellular metabolism. While the other molecules listed have important functions—such as FAD in similar redox reactions, ATP in energy transfer, and CoA in acyl group transfer—the specific role of NAD in accepting hydrogen makes it the universal hydrogen acceptor in biological systems.

5. What type of organisms are eurythermal?

- A. Those that thrive in great depths of the ocean**
- B. Those that thrive in wide temperature ranges**
- C. Those that require specific temperatures**
- D. Those that can survive in extreme cold**

Eurythermal organisms are characterized by their ability to thrive across a wide range of temperatures. This adaptability allows them to survive and function effectively in varying environmental conditions, whether they are in warm or cool habitats. This resilience is key to their survival in habitats that experience significant temperature fluctuations. In contrast, organisms that require specific temperatures are referred to as stenothermal, which highlights their limited tolerance to temperature changes. Organisms found in extreme cold, while they may have specialized adaptations, do not necessarily exhibit the same breadth of temperature tolerance as eurythermal organisms. The individuals that thrive in great depths of the ocean might display unique adaptations to high pressures and low temperatures but are not defined by their temperature range tolerance. Thus, the defining feature of eurythermal organisms is their wide temperature adaptability, making the selection of the correct answer appropriate.

6. What is the primary characteristic of a homodont organism?

- A. They have no teeth at all**
- B. They develop different types of teeth**
- C. They possess all teeth of the same type**
- D. They have multiple sets of teeth**

A homodont organism is characterized primarily by possessing teeth that are all of the same type. This means that the teeth do not vary significantly in shape, size, or function among individuals of that species. This characteristic can be observed in various animal groups, such as many reptiles and certain fish species. Having uniform teeth can be an evolutionary adaptation for specific feeding habits or ecological niches, allowing these organisms to efficiently process their diet without the need for different types of teeth. In contrast, organisms that do not fit this criterion, such as those with a diverse array of tooth types to fulfill various functions, would be classified as heterodonts. The definition also excludes options that imply the absence of teeth entirely or the development of different kinds of teeth, which do not apply to homodonts.

7. What is a common sign of a heart attack in women?

- A. Persistent chest pain
- B. Intense pressure on the left arm
- C. Unusual fatigue**
- D. Shortness of breath during rest

A common sign of a heart attack in women is unusual fatigue. This symptom can often be overlooked or attributed to other causes, but it is important to recognize that women may experience heart attacks differently than men. Women may report a feeling of profound fatigue that is not typical for them, which can occur days or even weeks prior to the actual heart attack. This sign puts emphasis on the need for heightened awareness of how heart disease can manifest in women, making it essential for both patients and healthcare providers to consider a broader range of symptoms when diagnosing heart issues. Other signs commonly associated with heart attacks in men, such as persistent chest pain or intense pressure radiating to the left arm, may not always be as prominent in women. While shortness of breath can also occur, especially during exertion, the unusual fatigue stands out as a symptom that has been widely reported among women experiencing heart attacks. Recognizing this symptom is crucial for timely intervention and effective treatment.

8. What is the correct order of boiling points for the given hydrides?

- A. $\text{H}_2\text{S} > \text{H}_2\text{Se} > \text{H}_2\text{Te} > \text{H}_2\text{O}$
- B. $\text{H}_2\text{O} > \text{H}_2\text{Te} > \text{H}_2\text{Se} > \text{H}_2\text{S}$**
- C. $\text{H}_2\text{Se} > \text{H}_2\text{S} > \text{H}_2\text{Te} > \text{H}_2\text{O}$
- D. $\text{H}_2\text{Te} > \text{H}_2\text{Se} > \text{H}_2\text{S} > \text{H}_2\text{O}$

The correct order of boiling points for the given hydrides illustrates the influence of molecular structure and intermolecular forces. In this case, water (H_2O) has the highest boiling point due primarily to hydrogen bonding, which is a strong type of dipole-dipole interaction that occurs when hydrogen is bonded to highly electronegative elements such as oxygen. This bonding significantly increases the energy required to transition from liquid to gas, resulting in a higher boiling point. Following water, H_2Te (hydrogen telluride) has a higher boiling point than both H_2Se (hydrogen selenide) and H_2S (hydrogen sulfide) due to its larger molecular size and greater van der Waals forces. As you move down the group in the periodic table from sulfur to tellurium, the molecular weight increases, leading to stronger London dispersion forces, which in turn elevate the boiling points. H_2Se then comes next in terms of boiling point, being lower than H_2Te but higher than H_2S . Hydrogen sulfide has the lowest boiling point among these hydrides due to its smaller size and weaker intermolecular forces relative to those of H_2Se and H_2Te . Thus, the boiling point trend can be

9. What is the unit of measurement commonly associated with inductance?

- A. Ohm
- B. Henry**
- C. Volt
- D. Watt

Inductance is measured in henries (symbol: H), which is the standard unit used to quantify the ability of a coil or circuit to store energy in a magnetic field when an electric current passes through it. One henry is defined as the amount of inductance that produces an electromotive force of one volt when the current through the inductor changes at the rate of one ampere per second. This relationship highlights the fundamental nature of inductance in electrical circuits, linking it directly to both current and voltage. Ohms refer to resistance, which measures the opposition to the flow of electric current. Volts are used to measure electric potential or electromotive force, while watts measure power, which is the rate of energy transfer. Each of these units plays a critical role in electrical and electronic systems, but only henries specifically relate to inductance, making it the correct choice in this context.

10. What type of shock is triggered by severe allergic reactions?

- A. Cardiogenic shock
- B. Hypovolemic shock
- C. Anaphylactic shock**
- D. Neurogenic shock

Anaphylactic shock is a severe and potentially life-threatening allergic reaction that occurs rapidly after exposure to an allergen, such as certain foods, insect stings, medications, or latex. This type of shock is characterized by an exaggerated immune response that leads to the release of chemicals like histamine into the bloodstream. These chemicals can cause widespread vasodilation (widening of blood vessels), increased vascular permeability, and significant drop in blood pressure, which can result in inadequate blood flow to vital organs. In anaphylactic shock, symptoms can include difficulty breathing, swelling of the face and throat, rapid pulse, and skin reactions such as hives. Immediate medical treatment is critical to counteract the reaction, often involving the administration of epinephrine, which acts to constrict blood vessels and improve blood pressure, alongside other supportive measures. The other types of shock mentioned have distinct causes and mechanisms. Cardiogenic shock occurs when the heart is unable to pump blood effectively, often due to a heart attack. Hypovolemic shock is caused by a significant loss of blood or fluids, while neurogenic shock results from spinal cord injuries or other severe neurological conditions leading to vascular dilation and decreased blood flow. Each of these has different underlying processes that do not directly