

Certified Flight Registered Nurse (CFRN) Practice Exam (Sample)

Study Guide



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SAMPLE

Questions

SAMPLE

- 1. What does the term "sterile cockpit" refer to in aviation?**
 - A. Method of decontaminating the aircraft**
 - B. Communication technique during critical phases of flight**
 - C. Pilot's absolute control over radio communications**
 - D. Completely locked and separate cockpit**
- 2. Increased ventilation during pregnancy causes which state in the body?**
 - A. Respiratory alkalosis**
 - B. Respiratory acidosis**
 - C. Metabolic acidosis**
 - D. Metabolic alkalosis**
- 3. What are the signs and symptoms of pregnancy-induced hypertension (PIH)?**
 - A. BP greater than 140/90 mm Hg and proteinuria**
 - B. BP greater than 160/100 mm Hg and hematuria**
 - C. BP greater than 170/105 mm Hg and increased deep tendon reflexes**
 - D. BP greater than 180/100 mm Hg and visual changes**
- 4. Although succinylcholine (Anectine) is the drug of choice in rapid sequence intubation (RSI), it is contraindicated in patients with burn injuries greater than _____ hours old.**
 - A. 24**
 - B. 48**
 - C. 72**
 - D. 96**
- 5. How does the oxygen content of the fetus compare to that of the pregnant mother?**
 - A. Lower**
 - B. Higher**
 - C. The same**
 - D. Indeterminate**

- 6. After intubating a patient, noticing air sounds over the epigastrium indicates what action should be taken?**
- A. Deflate the cuff and pull back the tube 2 to 3 cm.**
 - B. Deflate the cuff and advance the tube 1 to 2 cm.**
 - C. Continue to ventilate for another minute and then reassess.**
 - D. Deflate the cuff, remove the tube, and repeat the steps for oral intubation.**
- 7. What hormone is primarily responsible for lowering blood glucose levels?**
- A. Glucagon**
 - B. Insulin**
 - C. Cortisol**
 - D. Adrenaline**
- 8. Which adjunct feature should be utilized in conjunction with Synchronized Intermittent Mandatory Ventilation (SIMV)?**
- A. Volume**
 - B. Pressure Support**
 - C. Pressure Control**
 - D. No other features needed**
- 9. Which statement is TRUE regarding Bilevel Positive Airway Pressure (BiPAP) ventilation?**
- A. It maintains a constant airway pressure throughout the breathing cycle.**
 - B. It is not considered traditional "life support."**
 - C. It delivers preset pressure during nonspontaneous breathing.**
 - D. It decreases the functional residual capacity (FRC).**
- 10. Which two hormones are primarily responsible for regulating blood glucose levels?**
- A. Glucagon and glycogen**
 - B. Glucagon and insulin**
 - C. Insulin and glycogen**
 - D. Glucose and insulin**

Answers

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

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Explanations

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1. What does the term "sterile cockpit" refer to in aviation?

- A. Method of decontaminating the aircraft**
- B. Communication technique during critical phases of flight**
- C. Pilot's absolute control over radio communications**
- D. Completely locked and separate cockpit**

The term "sterile cockpit" refers to a communication technique during critical phases of flight, particularly during takeoff and landing when operational safety is paramount. This practice is designed to minimize distractions and ensure that pilots can concentrate on the critical tasks required to operate the aircraft safely. By limiting non-essential conversations and communications during these phases, the sterile cockpit concept helps to reduce the likelihood of errors that could lead to accidents. In aviation, maintaining a sterile cockpit enhances situational awareness, allowing crew members to focus on their duties without unnecessary distractions. This is crucial because most accidents occur during the takeoff and landing phases, where attention to detail is vital. The sterile cockpit rule is reinforced by regulations and is a standard practice in commercial aviation to ensure safety.

2. Increased ventilation during pregnancy causes which state in the body?

- A. Respiratory alkalosis**
- B. Respiratory acidosis**
- C. Metabolic acidosis**
- D. Metabolic alkalosis**

Increased ventilation during pregnancy leads to respiratory alkalosis due to hyperventilation. As the mother's body adapts to meet the increased oxygen demands of both herself and the developing fetus, the rate and depth of breathing increase. This enhancement in ventilation causes an excessive expulsion of carbon dioxide (CO₂) from the lungs. When CO₂ is removed from the bloodstream at an accelerated rate, the level of carbonic acid in the blood decreases, leading to a rise in blood pH and thereby inducing a state of alkalosis—specifically, respiratory alkalosis. This physiological change is a normal adjustment in pregnancy that helps to optimize oxygen delivery to the growing fetus while accommodating for shifts in metabolic demands. Other states like respiratory acidosis or metabolic acidosis would imply a buildup of CO₂ or an increase in acid production or retention, which do not occur during the typical respiratory changes seen in pregnancy. Metabolic alkalosis, on the other hand, generally relates to conditions involving increased bicarbonate levels or excessive loss of acid, not simply from increased ventilation alone.

3. What are the signs and symptoms of pregnancy-induced hypertension (PIH)?

- A. BP greater than 140/90 mm Hg and proteinuria**
- B. BP greater than 160/100 mm Hg and hematuria**
- C. BP greater than 170/105 mm Hg and increased deep tendon reflexes**
- D. BP greater than 180/100 mm Hg and visual changes**

The sign that indicates pregnancy-induced hypertension (PIH) is a blood pressure reading greater than 140/90 mm Hg accompanied by proteinuria. This condition is characterized by hypertension that develops after 20 weeks of pregnancy and is often associated with the presence of protein in the urine, which reflects kidney involvement. The combination of high blood pressure and proteinuria is critical for diagnosing preeclampsia, a severe form of PIH that can lead to serious complications for both mother and fetus. In the context of managing pregnant patients, recognizing this condition early is essential for implementing appropriate monitoring and interventions to prevent progress towards more serious conditions, such as eclampsia. Tracking blood pressure and urine protein is a standard practice in prenatal care to ensure maternal and fetal safety.

4. Although succinylcholine (Anectine) is the drug of choice in rapid sequence intubation (RSI), it is contraindicated in patients with burn injuries greater than _____ hours old.

- A. 24**
- B. 48**
- C. 72**
- D. 96**

Succinylcholine is a depolarizing neuromuscular blocker commonly used in rapid sequence intubation due to its quick onset and short duration of action. However, its use is contraindicated in patients with burn injuries that are older than 48 hours. The risk associated with using succinylcholine in these patients stems from the potential for increased potassium levels in the blood. After a burn injury, especially when greater than 48 hours old, there is a risk of upregulation of acetylcholine receptors at the neuromuscular junction. This upregulation can lead to significant hyperkalemia (elevated potassium levels) when succinylcholine is administered, potentially causing severe cardiac complications. Thus, caution is required when considering the use of succinylcholine in patients with significant burn injuries as time progresses beyond 48 hours, which is why this specific timeframe is crucial to nursing and medical protocols related to intubation and emergency care. In summary, due to the physiological changes that occur after burn injuries, succinylcholine should not be used in patients with burn injuries greater than 48 hours old to prevent potential life-threatening hyperkalemia and its consequences.

5. How does the oxygen content of the fetus compare to that of the pregnant mother?

- A. Lower**
- B. Higher**
- C. The same**
- D. Indeterminate**

The oxygen content of the fetus is lower than that of the pregnant mother primarily due to the physiological differences in their circulatory systems and the process of placental oxygen transfer. In a pregnant woman, oxygen is carried in the blood primarily bound to hemoglobin, which is more effective in adults due to higher oxygen saturation levels. The fetal hemoglobin has a higher affinity for oxygen than adult hemoglobin, allowing the fetus to extract oxygen from maternal blood across the placenta. Despite this efficient transfer, the overall concentration of oxygen in the fetal blood is still lower than what is found in the maternal blood because the fetus is extracting a portion of oxygen from a lower arterial saturation in the mother. Furthermore, in the event of certain maternal conditions, such as hypoxemia or anemia, the oxygen content available to the fetus can be further diminished. This leads to a critical understanding that, although the fetus has mechanisms to maximize its oxygen uptake, the absolute oxygen content in the fetal circulation remains lower compared to that in the mother's circulation.

6. After intubating a patient, noticing air sounds over the epigastrium indicates what action should be taken?

- A. Deflate the cuff and pull back the tube 2 to 3 cm.**
- B. Deflate the cuff and advance the tube 1 to 2 cm.**
- C. Continue to ventilate for another minute and then reassess.**
- D. Deflate the cuff, remove the tube, and repeat the steps for oral intubation.**

Noticing air sounds over the epigastrium after intubating a patient typically indicates that the endotracheal tube may be improperly placed in the esophagus rather than the trachea. In such a case, the most appropriate action is to deflate the cuff, remove the tube, and repeat the intubation procedure. This step is crucial because if air is entering the stomach instead of the lungs, effective ventilation is not occurring, and the patient may not receive adequate oxygenation or ventilation. By removing the tube and repeating the intubation process, you can properly assess the airway, ensure correct tube placement in the trachea, and secure the airway effectively. It's vital to avoid continuing ventilation with the tube positioned incorrectly, as this can lead to further complications, including aspiration and inadequate oxygenation. Repeating the oral intubation steps allows for a proper assessment of the airway and the opportunity to use appropriate visualization and techniques to ensure placement is in the right location.

7. What hormone is primarily responsible for lowering blood glucose levels?

- A. Glucagon**
- B. Insulin**
- C. Cortisol**
- D. Adrenaline**

Insulin is the hormone primarily responsible for lowering blood glucose levels. It is produced by the pancreas in response to elevated blood sugar levels, such as after eating a meal. Insulin facilitates the uptake of glucose into cells, particularly muscle and fat cells, allowing them to use glucose for energy or store it for future use. Additionally, insulin promotes the conversion of excess glucose into glycogen in the liver, further reducing circulating blood glucose levels. This action is crucial in maintaining homeostasis and helps prevent hyperglycemia, a condition characterized by excessively high blood sugar levels. In contrast, glucagon works to increase blood glucose levels by promoting the breakdown of glycogen in the liver, while cortisol and adrenaline also have roles in raising blood sugar levels during stress responses. Thus, insulin is the key hormone in the regulation of lower blood glucose concentrations.

8. Which adjunct feature should be utilized in conjunction with Synchronized Intermittent Mandatory Ventilation (SIMV)?

- A. Volume**
- B. Pressure Support**
- C. Pressure Control**
- D. No other features needed**

Utilizing Pressure Support in conjunction with Synchronized Intermittent Mandatory Ventilation (SIMV) enhances patient comfort and reduces the work of breathing. In SIMV mode, the ventilator delivers a set number of mandatory breaths at predetermined volumes while allowing the patient to breathe spontaneously between these mandatory breaths. By adding Pressure Support, each spontaneous breath the patient takes is aided by a pre-established pressure support level, ensuring that even smaller tidal volumes have augmented support, making the breathing effort less strenuous for the patient. This integration is particularly beneficial for patients who exhibit respiratory muscle fatigue or have varying levels of respiratory effort; it allows them to engage in spontaneous breathing while still receiving assistance when needed. This adjunct feature helps in maintaining adequate ventilation and oxygenation, tailoring ventilation support to the individual's needs in a more effective manner. While volume and pressure control can also be important factors in ventilatory support, they are not specifically adjuncts to SIMV like pressure support. The concept of no additional features needed does not account for the benefits that pressure support can provide to optimize patient comfort and reduce work of breathing during spontaneous efforts.

9. Which statement is TRUE regarding Bilevel Positive Airway Pressure (BiPAP) ventilation?

- A. It maintains a constant airway pressure throughout the breathing cycle.**
- B. It is not considered traditional "life support."**
- C. It delivers preset pressure during nonspontaneous breathing.**
- D. It decreases the functional residual capacity (FRC).**

The statement that BiPAP ventilation is not considered traditional "life support" is accurate. BiPAP, or Bilevel Positive Airway Pressure, is a non-invasive ventilation method that provides two levels of pressure to assist patients with breathing. While it can significantly help improve the oxygenation and ventilation of patients who are experiencing respiratory distress, it does not provide the same life-sustaining support as methods like mechanical ventilation, which often involves intubation and complete control over the patient's breathing. This distinction is critical in clinical practice, particularly for flight nurses who may need to assess the appropriateness of various ventilation strategies based on a patient's condition and the urgency of transport. BiPAP is often used in less severe cases, such as those involving COPD exacerbations or congestive heart failure, where the patient still has some ability to initiate breaths, thus differentiating it from more invasive life support measures. This understanding informs when to employ BiPAP versus other options in a critical care setting.

10. Which two hormones are primarily responsible for regulating blood glucose levels?

- A. Glucagon and glycogen**
- B. Glucagon and insulin**
- C. Insulin and glycogen**
- D. Glucose and insulin**

The regulation of blood glucose levels is primarily managed by glucagon and insulin, making them the two main hormones involved in this process. Insulin is produced by the beta cells of the pancreas and plays a crucial role in lowering blood glucose levels by facilitating the uptake of glucose into cells, particularly in muscle and fat tissues. This hormone promotes the storage of glucose as glycogen in the liver and muscles, and also aids in the conversion of glucose into fat for long-term energy storage. On the other hand, glucagon is produced by the alpha cells of the pancreas and acts in opposition to insulin. When blood glucose levels drop, glucagon is secreted to raise glucose levels by stimulating the liver to convert stored glycogen back into glucose and release it into the bloodstream. This hormonal balance between insulin and glucagon is vital for maintaining homeostasis and ensuring that the body has a steady supply of glucose for energy. The other options involve terms that do not align with the primary hormonal regulators of blood glucose. Glycogen, for instance, is a storage form of glucose rather than a hormone, and while glucose itself is the substance being regulated, it is not a hormone but rather the target of hormonal action. Hence, the most accurate answer involves glucagon and insulin.