

TMC Respiratory Care Boards Practice Exam (Sample)

Study Guide



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SAMPLE

Questions

- 1. What do bronchial breath sounds typically indicate?**
 - A. Normal respiratory function**
 - B. Pneumonia**
 - C. Atelectasis**
 - D. Chronic obstructive pulmonary disease**
- 2. What is a common sign of electrolyte imbalance?**
 - A. Increased energy**
 - B. Muscle weakness and soreness**
 - C. Hyperactivity**
 - D. Dysphagia**
- 3. Which of the following statements is true regarding left ventricular function?**
 - A. It serves pulmonary circulation**
 - B. It ejects blood into systemic circulation**
 - C. It receives blood from the systemic veins**
 - D. It receives blood from pulmonary arteries**
- 4. Which of the following is NOT one of the three types of ECG cardiac contractions?**
 - A. Normal sinus rhythm**
 - B. Junctional rhythm**
 - C. Atrial flutter**
 - D. Ventricular rhythm**
- 5. Which factor is NOT included in the APGAR score evaluation?**
 - A. Appearance (color)**
 - B. Heart rate**
 - C. Breathing rate**
 - D. Grimace (reflex, irritability)**

- 6. What condition is characterized by difficulty swallowing and hoarseness?**
- A. Dysphagia**
 - B. Clubbing**
 - C. Pitting edema**
 - D. Ascites**
- 7. Which imaging technique provides a three-dimensional view of structures in the chest?**
- A. AP chest x-ray**
 - B. Lateral chest x-ray**
 - C. Pleural ultrasound**
 - D. CT scan of the chest**
- 8. What color of sputum is typically associated with pulmonary edema?**
- A. Green**
 - B. Clear**
 - C. Yellow**
 - D. Pink frothy**
- 9. Friction rub sounds in the lungs are primarily associated with which condition?**
- A. Chronic bronchitis**
 - B. Pleurisy**
 - C. Asthma**
 - D. Interstitial lung disease**
- 10. What measure can indicate the effectiveness of peripheral circulation?**
- A. Capillary refill**
 - B. Fluid balance**
 - C. Venous pressure**
 - D. Respiratory rate**

Answers

SAMPLE

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

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Explanations

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1. What do bronchial breath sounds typically indicate?

- A. Normal respiratory function
- B. Pneumonia**
- C. Atelectasis
- D. Chronic obstructive pulmonary disease

Bronchial breath sounds are characterized by a loud, high-pitched quality and are normally heard over the trachea and main bronchi. When they are heard in areas of the lung where they are not typically present, such as over the peripheral lung fields, it often indicates that there is an underlying pathology, such as pneumonia. In pneumonia, the lung tissue becomes consolidated due to the accumulation of fluid, pus, or other materials, which provides a pathway for the transmission of these sounds. This pathological consolidation can cause bronchial breath sounds to be heard in areas where normal breath sounds—such as vesicular sounds—would usually prevail. Normal respiratory function is indicated by the presence of vesicular breath sounds, while conditions like atelectasis and chronic obstructive pulmonary disease (COPD) would typically produce diminished or abnormal breath sounds rather than bronchial sounds. In summary, the presence of bronchial breath sounds when they occur in the lung areas suggests that there is pathology such as pneumonia, where lung consolidation is affecting normal sound transmission.

2. What is a common sign of electrolyte imbalance?

- A. Increased energy
- B. Muscle weakness and soreness**
- C. Hyperactivity
- D. Dysphagia

Muscle weakness and soreness are common signs of electrolyte imbalance due to the critical role that electrolytes, such as sodium, potassium, calcium, and magnesium, play in muscle function and nerve conduction. An imbalance can disrupt normal electrical activity within muscles, leading to symptoms like weakness, cramps, and soreness. For example, low levels of potassium (hypokalemia) can cause muscle weakness, while elevated levels of calcium (hypercalcemia) may also lead to muscles feeling weak and achy. The other options do not typically relate directly to electrolyte imbalances. Increased energy is not a common symptom; rather, imbalances often result in fatigue. While hyperactivity might occur in some specific situations such as hypernatremia, it isn't a general sign of imbalance. Dysphagia, or difficulty swallowing, is not specifically linked to electrolyte abnormalities but rather could arise from a variety of neuromuscular or structural issues. Therefore, muscle weakness and soreness offer a more direct indication of an electrolyte imbalance.

3. Which of the following statements is true regarding left ventricular function?

- A. It serves pulmonary circulation**
- B. It ejects blood into systemic circulation**
- C. It receives blood from the systemic veins**
- D. It receives blood from pulmonary arteries**

The statement about left ventricular function that is true is that it ejects blood into systemic circulation. This is a fundamental aspect of the left ventricle's role in the cardiovascular system. The left ventricle is responsible for pumping oxygenated blood received from the left atrium into the aorta, which then distributes it throughout the body. This process is essential for delivering oxygen and nutrients to various tissues and organs, making it a critical component of systemic circulation. In contrast, if we look at the other options, the left ventricle does not serve pulmonary circulation; that function is served by the right ventricle, which pumps deoxygenated blood to the lungs for gas exchange. The left ventricle does not receive blood from systemic veins; the right atrium receives deoxygenated blood from systemic circulation before passing it to the right ventricle. Finally, the left ventricle does not receive blood from pulmonary arteries; those arteries carry deoxygenated blood from the right ventricle to the lungs. Hence, recognizing the left ventricle's role in ejecting blood into systemic circulation is crucial for understanding the heart's functionality.

4. Which of the following is NOT one of the three types of ECG cardiac contractions?

- A. Normal sinus rhythm**
- B. Junctional rhythm**
- C. Atrial flutter**
- D. Ventricular rhythm**

The correct answer is based on the classification of cardiac rhythms and how they relate to the electrical activity of the heart. The three primary types of ECG cardiac contractions are typically categorized into normal, abnormal, and varied rhythms that occur in specific parts of the heart. Normal sinus rhythm refers to the standard electrical activity of the heart originating from the sinus node, which is the natural pacemaker. Junctional rhythm occurs when the conduction of electrical impulses is initiated from the atrioventricular (AV) junction, often due to a malfunction in the sinus node, leading to variations in heart rate. Ventricular rhythm arises from the ventricles, usually when higher centers of the heart are not functioning effectively. It represents a slower, distinct rhythm indicative of underlying cardiac dysfunction, such as when the AV node or upper conduction pathways fail. Atrial flutter, although a recognized arrhythmia, is characterized by rapidly organized atrial contractions, which leads to a distinct pattern on an ECG but does not fit into the primary types of rhythm as determined by their origin. It is classified more as an abnormal rhythm rather than a primary type of cardiac contraction. Thus, atrial flutter is notable for its presentation and implications, but it does not fit the categories fundamentally recognized as the primary

5. Which factor is NOT included in the APGAR score evaluation?

- A. Appearance (color)**
- B. Heart rate**
- C. Breathing rate**
- D. Grimace (reflex, irritability)**

The APGAR score is a quick assessment tool used to evaluate the health of newborns immediately after birth. It focuses on five criteria: Appearance (skin color), Pulse (heart rate), Grimace response (reflexes), Activity (muscle tone), and Respiration (breathing rate). The scores for these criteria help healthcare providers determine if a newborn requires immediate medical attention. While breathing rate is indeed an important aspect of assessing a newborn's condition, it is specifically categorized as "Respiration" in the APGAR scoring system, rather than assessed in the more general term of "breathing rate." Thus, this contributes to the understanding that "breathing rate" itself is not one of the APGAR score evaluation factors. The correct answer highlights that "breathing rate," as such, does not appear in the list of factors used to calculate the APGAR score, leaving the other criteria—appearance, heart rate, and grimace—central to this quick assessment.

6. What condition is characterized by difficulty swallowing and hoarseness?

- A. Dysphagia**
- B. Clubbing**
- C. Pitting edema**
- D. Ascites**

Dysphagia, which refers to difficulty swallowing, is often associated with conditions that affect the esophagus, the throat muscles, or neurological function. This condition causes pain or discomfort when swallowing liquids or solids and can manifest in various ways, such as coughing, choking, or a sensation of food getting stuck in the throat. Hoarseness typically results from irritation or inflammation of the vocal cords or larynx, which can occur alongside dysphagia due to a common underlying cause, such as an infection, gastroesophageal reflux disease (GERD), or structural abnormalities. In these scenarios, the esophageal or respiratory systems are involved, leading to symptoms in both swallowing and voice quality. The other options do not correlate with both difficulty swallowing and hoarseness. Clubbing is a physical finding often associated with chronic respiratory diseases and does not involve swallowing issues or voice changes. Pitting edema refers to a condition characterized by swollen areas in the body, most often related to fluid retention, and has no association with swallowing or voice problems. Ascites, the accumulation of fluid in the abdominal cavity, can lead to swallowing difficulties indirectly but does not typically cause hoarseness.

7. Which imaging technique provides a three-dimensional view of structures in the chest?

- A. AP chest x-ray**
- B. Lateral chest x-ray**
- C. Pleural ultrasound**
- D. CT scan of the chest**

The imaging technique that provides a three-dimensional view of structures in the chest is a CT scan of the chest. This method utilizes multiple X-ray images taken from different angles, which a computer then processes to create cross-sectional images of the chest. These images can be reconstructed to visualize anatomy in three dimensions, offering detailed information about the lungs, pleura, blood vessels, and other mediastinal structures. In contrast, an AP chest x-ray and a lateral chest x-ray provide two-dimensional images. While they can reveal certain conditions in the chest, they do not offer the same level of detail or three-dimensional insight as a CT scan. Pleural ultrasound is primarily used for evaluating soft tissue structures and fluid collection—again, not providing the comprehensive three-dimensional view that a CT scan does. Therefore, for thorough investigation and visualization of anatomical structures in the chest in three dimensions, the CT scan is the preferred imaging technique.

8. What color of sputum is typically associated with pulmonary edema?

- A. Green**
- B. Clear**
- C. Yellow**
- D. Pink frothy**

The color of sputum that is typically associated with pulmonary edema is pink frothy. This is a hallmark sign of pulmonary edema, which occurs when excess fluid accumulates in the lungs. The pink color in the sputum is often due to the presence of blood in the alveoli, which can result from the increased pressure in the pulmonary capillaries that occurs with edema. The frothy nature of the sputum is a consequence of the liquid being mixed with air as it's expelled from the lungs, giving it a characteristic bubbly appearance. In pulmonary edema, the patient's condition is often related to heart failure, where the heart struggles to effectively pump blood, leading to fluid buildup. The presence of pink frothy sputum can serve as an important clinical indicator, guiding healthcare professionals in diagnosing the underlying cause of the patient's respiratory distress and determining the appropriate treatment plan.

9. Friction rub sounds in the lungs are primarily associated with which condition?

- A. Chronic bronchitis**
- B. Pleurisy**
- C. Asthma**
- D. Interstitial lung disease**

Friction rub sounds in the lungs are primarily associated with pleurisy, which is an inflammation of the pleura, the membranes surrounding the lungs. When these layers become inflamed, they can rub against each other during breathing, leading to the characteristic sound known as a pleural friction rub. This sound is often described as a low-frequency, grating noise that can be heard with a stethoscope, especially during inhalation and exhalation. This condition typically presents with sharp chest pain that may worsen with breathing, coughing, or movement, further correlating with the sound produced by the inflamed pleura. Recognizing the friction rub is crucial for healthcare providers, as it can guide them toward appropriate diagnosis and treatment for conditions affecting the pleura, such as infections, autoimmune disorders, or malignancies. The other conditions listed, while they can produce various lung sounds, do not typically lead to the distinct friction rub associated specifically with pleurisy. For example, chronic bronchitis may cause wheezing and rhonchi, asthma is commonly associated with wheezing due to airway constriction, and interstitial lung disease can lead to fine crackles but not friction rubs. Thus, pleurisy is the most accurate association for friction rub

10. What measure can indicate the effectiveness of peripheral circulation?

- A. Capillary refill**
- B. Fluid balance**
- C. Venous pressure**
- D. Respiratory rate**

Capillary refill time is a valuable clinical measure for assessing peripheral circulation. It evaluates the time it takes for color to return to an area of the skin after pressure is applied. A normal capillary refill time, typically less than two seconds, suggests effective blood flow and adequate peripheral circulation. When peripheral circulation is compromised, such as in cases of shock, vasoconstriction, or hypothermia, capillary refill may be prolonged, indicating potential issues with perfusion. This makes it a straightforward and quick way for healthcare providers to assess circulation at the bedside. Fluid balance is concerned with the overall volume of fluids in the body and does not directly measure peripheral circulation efficiency. While venous pressure may indicate overall circulatory status, it is more about the central venous system rather than peripheral circulation specifically. Respiratory rate assesses respiratory function and is not related to blood flow or circulation. Therefore, capillary refill stands out as the most direct indicator of peripheral circulation effectiveness.