

# Respiratory Therapy CRT Practice Exam (Sample)

## Study Guide



**Everything you need from our exam experts!**

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# Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

**Remember:** successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

# How to Use This Guide

**This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:**

## **1. Start with a Diagnostic Review**

**Skim through the questions to get a sense of what you know and what you need to focus on. Don't worry about getting everything right, your goal is to identify knowledge gaps early.**

## **2. Study in Short, Focused Sessions**

**Break your study time into manageable blocks (e.g. 30 - 45 minutes). Review a handful of questions, reflect on the explanations, and take breaks to retain information better.**

## **3. Learn from the Explanations**

**After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.**

## **4. Track Your Progress**

**Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.**

## **5. Simulate the Real Exam**

**Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.**

## **6. Repeat and Review**

**Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning.**

## **7. Use Other Tools**

**Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.**

**There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly – adapt the tips above to fit your pace and learning style. You've got this!**

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## Questions

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- 1. Which of the following conditions can lead to metabolic acidosis?**
  - A. Asthma**
  - B. Ketoacidosis**
  - C. Chronic obstructive pulmonary disease**
  - D. Hypertension**
  
- 2. What is the primary complication associated with long-term oxygen therapy?**
  - A. Carbon dioxide retention**
  - B. Oxygen toxicity**
  - C. Hypoventilation**
  - D. Pneumothorax**
  
- 3. What device is used to measure lung volumes?**
  - A. Spirometer**
  - B. Stethoscope**
  - C. Flow meter**
  - D. Pulse oximeter**
  
- 4. What diagnostic test is utilized to assess arterial blood gases (ABGs)?**
  - A. Venous blood analysis**
  - B. Arterial blood analysis**
  - C. Sputum culture**
  - D. Chest X-ray**
  
- 5. What does PEEP stand for in mechanical ventilation?**
  - A. Positive End-Expiratory Pressure**
  - B. Positive End-Expiration Pressure**
  - C. Pressure Evaluating End-Expiratory**
  - D. Pulmonary End-Expiratory Pressure**



- 6. What type of breathing pattern is characterized by periods of apneas followed by periods of rapid breathing?**
- A. Kussmaul's respiration**
  - B. Cheyne-Stokes respiration**
  - C. Biot's respiration**
  - D. Normal breathing**
- 7. What happens to arterial blood gas values in mixed acid-base disorders?**
- A. pH decreases, PaCO<sub>2</sub> decreases**
  - B. pH increases, PaCO<sub>2</sub> increases**
  - C. pH decreases, HCO<sub>3</sub> increases**
  - D. pH remains unchanged**
- 8. What is a common indication for using supplemental oxygen therapy?**
- A. Improved exercise capacity**
  - B. Severe respiratory distress with cyanosis**
  - C. Cost reduction in hospital stays**
  - D. Management of anxiety disorders**
- 9. Which type of lung volume cannot be measured directly by spirometry?**
- A. Tidal volume**
  - B. Residual volume**
  - C. Forced vital capacity**
  - D. Inspiratory reserve volume**
- 10. What is the clinical relevance of measuring peak expiratory flow rate (PEFR)?**
- A. To assess the risk of respiratory failure**
  - B. To evaluate asthma control and treatment efficacy**
  - C. To measure lung compliance**
  - D. To analyze carbon dioxide levels in the blood**

## **Answers**

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

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## **Explanations**

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**1. Which of the following conditions can lead to metabolic acidosis?**

- A. Asthma
- B. Ketoacidosis**
- C. Chronic obstructive pulmonary disease
- D. Hypertension

Ketoacidosis is a condition characterized by the accumulation of ketone bodies in the blood, resulting in a decrease in blood pH, which leads to metabolic acidosis. This condition primarily arises in individuals with uncontrolled diabetes mellitus, particularly type 1 diabetes, where the absence of insulin prompts the body to break down fat for energy, producing ketones as a byproduct. The excessive buildup of these acids overwhelms the body's buffer systems, causing a significant decrease in bicarbonate levels and leading to a state of acidosis. In contrast, asthma and chronic obstructive pulmonary disease (COPD) are primarily respiratory conditions that can lead to respiratory acidosis, particularly during acute exacerbations or during severe episodes of breathlessness. Hypertension, while it can have various systemic effects, is not directly associated with metabolic acidosis and typically does not lead to a decrease in blood pH in the same manner that ketoacidosis does. Thus, ketoacidosis stands out as a key direct cause of metabolic acidosis.

**2. What is the primary complication associated with long-term oxygen therapy?**

- A. Carbon dioxide retention
- B. Oxygen toxicity**
- C. Hypoventilation
- D. Pneumothorax

The primary complication associated with long-term oxygen therapy is oxygen toxicity. This condition can occur when high concentrations of oxygen are administered for extended periods, leading to damage in the lungs and other tissues. Oxygen toxicity can manifest as pulmonary symptoms, such as cough, decreased lung function, and even acute respiratory distress syndrome, characterized by inflammation and difficulty breathing. While other complications, such as carbon dioxide retention and pneumothorax, may occur under specific circumstances, they are not the primary risks linked specifically to prolonged oxygen therapy. Carbon dioxide retention typically happens in patients with chronic obstructive pulmonary disease (COPD) when oxygen is delivered inappropriately high concentrations, but it is more situational rather than a direct consequence of oxygen therapy itself. Hypoventilation could lead to elevated carbon dioxide levels but is not a direct complication of oxygen therapy. Thus, recognizing the risks associated with prolonged oxygen use is crucial, particularly the potential for developing oxygen toxicity as the most significant concern.

### 3. What device is used to measure lung volumes?

- A. Spirometer**
- B. Stethoscope**
- C. Flow meter**
- D. Pulse oximeter**

A spirometer is the device specifically designed to measure lung volumes. It operates by quantifying the amount of air a person can inhale and exhale, as well as the rate at which the air is exchanged. This information is crucial for assessing lung function and diagnosing conditions like asthma, chronic obstructive pulmonary disease (COPD), and other respiratory disorders. In the context of lung volume measurement, spirometry provides data such as tidal volume, forced vital capacity, and forced expiratory volume. These metrics can help healthcare practitioners evaluate a patient's respiratory health and guide treatment decisions. Other devices listed serve different purposes: a stethoscope is used for auscultation to listen to internal sounds, a flow meter measures the rate of airflow, and a pulse oximeter measures the oxygen saturation level in the blood. None of these devices provide direct measurements of lung volumes like a spirometer does, making it the correct response in this context.

### 4. What diagnostic test is utilized to assess arterial blood gases (ABGs)?

- A. Venous blood analysis**
- B. Arterial blood analysis**
- C. Sputum culture**
- D. Chest X-ray**

The diagnostic test utilized to assess arterial blood gases (ABGs) is arterial blood analysis. This test involves drawing blood directly from an artery, typically the radial or femoral artery, to measure levels of oxygen, carbon dioxide, and the pH of the blood. These parameters are crucial for evaluating a patient's respiratory function, acid-base balance, and metabolic status. Arterial blood analysis provides specific insights into how well oxygen is being delivered to the tissues and how effectively carbon dioxide is being removed from the body, making it essential for diagnosing conditions such as respiratory failure, chronic obstructive pulmonary disease (COPD), and other respiratory disorders. In contrast, other options like venous blood analysis do not provide a reliable picture of oxygen and carbon dioxide levels, as they reflect the state of blood after it has passed through the tissues rather than before. Sputum culture is primarily used for microbiological diagnosis of respiratory infections, while a chest X-ray is a radiological tool used to visualize the lungs and surrounding structures, rather than providing direct information regarding gas exchange. Therefore, arterial blood analysis is the appropriate choice for assessing ABGs.

## 5. What does PEEP stand for in mechanical ventilation?

- A. Positive End-Expiratory Pressure**
- B. Positive End-Expiration Pressure**
- C. Pressure Evaluating End-Expiratory**
- D. Pulmonary End-Expiratory Pressure**

PEEP stands for Positive End-Expiratory Pressure. This term is critical in mechanical ventilation as it refers to a mode of mechanical ventilation where a pressure is maintained in the airways at the end of expiration. This helps to prevent the collapse of the alveoli, enhancing lung recruitment and improving oxygenation by increasing functional residual capacity. The use of PEEP can improve the overall efficiency of gas exchange and respiratory mechanics, making it an essential component in the management of patients with respiratory failure or other conditions that affect lung function. The other choices do not accurately represent the established terminology used in respiratory therapy. Positive End-Expiration Pressure, while sounding plausible, is not the correct term; the word "expiratory" is not synonymous with "expiration." The option related to "Pressure Evaluating End-Expiratory" does not convey a recognized concept in mechanical ventilation and lacks established usage in clinical practice. Lastly, "Pulmonary End-Expiratory Pressure" introduces an unnecessary term ("pulmonary") that is not part of the official definition of PEEP. Understanding the correct terminology ensures effective communication and application of concepts in clinical practice.

## 6. What type of breathing pattern is characterized by periods of apneas followed by periods of rapid breathing?

- A. Kussmaul's respiration**
- B. Cheyne-Stokes respiration**
- C. Biot's respiration**
- D. Normal breathing**

The breathing pattern characterized by periods of apneas followed by periods of rapid breathing is known as Cheyne-Stokes respiration. This pattern is typically associated with a cyclical variation in depth and rate of breathing, where there are phases of increasing tidal volume leading to hyperventilation, followed by a gradual decrease in volume until a period of apnea occurs. Cheyne-Stokes respiration can be associated with several clinical conditions, particularly in patients with heart failure or neurological impairment. The cyclic nature of this pattern reflects alterations in the brain's processing of respiratory drive, which can be affected in various pathological states. Understanding this pattern is critical for respiratory therapists as it aids in assessing the severity of underlying conditions and helps dictate appropriate management strategies. Recognizing Cheyne-Stokes respiration in a patient can prompt further evaluation and monitoring since it may indicate poor prognosis or the need for specific interventions.

**7. What happens to arterial blood gas values in mixed acid-base disorders?**

- A. pH decreases, PaCO<sub>2</sub> decreases
- B. pH increases, PaCO<sub>2</sub> increases**
- C. pH decreases, HCO<sub>3</sub> increases
- D. pH remains unchanged

In mixed acid-base disorders, the interplay between multiple acid-base disturbances can lead to complex results in arterial blood gas values. When examining the characteristics of such disorders, the overall trend is that pH can reflect influences from both respiratory and metabolic components. In the scenario where the pH increases and PaCO<sub>2</sub> increases, this could indicate the presence of a metabolic alkalosis (which raises pH and might lower PaCO<sub>2</sub>) alongside a respiratory acidosis (which would raise PaCO<sub>2</sub> and lower pH). However, if the primary process that dominates is respiratory acidosis (a rise in PaCO<sub>2</sub> contributing to a decrease in pH), then the overall response can still have a high PaCO<sub>2</sub> without a significant change in pH depending on compensation from the metabolic side. This combination of mechanisms can result in a pH that does not shift dramatically while the PaCO<sub>2</sub> increases. This reflects the complexity of mixed disturbances where one process may partially counteract the other. In essence, the characteristics of mixed acid-base disorders make it feasible for the arterial blood gas values to remain within a relatively narrow range, resulting in less predictable changes in pH. The upright answer for mixed acid-base disorders often reveals that while the impacts on individual components vary,

**8. What is a common indication for using supplemental oxygen therapy?**

- A. Improved exercise capacity
- B. Severe respiratory distress with cyanosis**
- C. Cost reduction in hospital stays
- D. Management of anxiety disorders

Supplemental oxygen therapy is primarily indicated in situations where patients are experiencing severe respiratory distress accompanied by cyanosis. Cyanosis is a bluish discoloration of the skin, particularly evident in the lips and extremities, indicating that there is inadequate oxygenation of the blood. When a patient displays these symptoms, it often points to significant hypoxemia, which can lead to further complications if not addressed swiftly. Administering supplemental oxygen helps improve tissue oxygenation and can prevent organ damage due to inadequate oxygen supply. The other options describe scenarios that, while they may be connected to respiratory health, do not represent the primary clinical indications for supplemental oxygen therapy. Improved exercise capacity is an outcome that may benefit from oxygen therapy but is not a direct indication. Cost reduction does not relate to a clinical need for oxygen therapy and suggests a focus on economics rather than patient care. Lastly, managing anxiety disorders does not have a direct correlation with oxygen therapy, making it an inappropriate choice in this context.



**9. Which type of lung volume cannot be measured directly by spirometry?**

- A. Tidal volume
- B. Residual volume**
- C. Forced vital capacity
- D. Inspiratory reserve volume

Residual volume refers to the amount of air that remains in the lungs after a person has exhaled as much air as possible. This volume is significant because it helps prevent the lungs from collapsing and ensures that gas exchange can continue in the alveoli. However, residual volume cannot be directly measured using spirometry, which is a technique that typically captures volumes of air that can be inhaled or exhaled during breathing. Spirometry measures volumes such as tidal volume, which is the amount of air inhaled or exhaled in a normal breath, as well as forced vital capacity—the total amount of air that can be forcibly exhaled after a full inhalation. Inspiratory reserve volume, defined as the amount of air that can be inhaled after a normal tidal inhalation, can also be measured directly with spirometry. In contrast, because residual volume cannot be directly exhaled or inhaled after maximum effort, clinicians often use indirect methods, such as gas dilution techniques or body plethysmography, to estimate this volume. Thus, the ability to measure residual volume indirectly versus direct measurement of other lung volumes highlights its unique and essential role in pulmonary function testing.

**10. What is the clinical relevance of measuring peak expiratory flow rate (PEFR)?**

- A. To assess the risk of respiratory failure
- B. To evaluate asthma control and treatment efficacy**
- C. To measure lung compliance
- D. To analyze carbon dioxide levels in the blood

Measuring peak expiratory flow rate (PEFR) is clinically relevant primarily because it allows healthcare providers to evaluate asthma control and the efficacy of treatment. PEFR is a simple and effective tool that provides real-time information about a patient's airflow, particularly in conditions like asthma where airway obstruction can vary throughout the day or in response to treatment. By regularly measuring PEFR, patients can track their lung function over time, identifying trends that indicate worsening asthma control or the effectiveness of prescribed medications. For example, if a patient's PEFR readings are consistently below their personal best or target levels, this may indicate that their asthma is not well-controlled, prompting the need to reassess their treatment plan. This peak flow measurement can help patients recognize early signs of an asthma exacerbation, allowing for timely intervention. Using PEFR in this way enhances personalized asthma management and helps maintain optimal lung function, which is crucial in preventing acute attacks. Other options, while relevant to respiratory assessment, do not specifically align with the main purpose of PEFR. For instance, assessing respiratory failure or lung compliance typically requires more complex tests and evaluations than just PEFR, while analyzing carbon dioxide levels in the blood involves blood gas measurements, not peak flow readings. Thus, the core role of

## Next Steps

**Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.**

**As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.**

**If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at [hello@examzify.com](mailto:hello@examzify.com).**

**Or visit your dedicated course page for more study tools and resources:**

**<https://respiratorycrt.examzify.com>**

**We wish you the very best on your exam journey. You've got this!**