REGISTERED RESPIRATORY THERAPIST (RRT-TMC) PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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Table of Contents

Copyright 1

Table of Contents 2

Introduction 3

How to Use This Guide 4

Questions 5

Answers 8

Explanations 10

Next Steps 15

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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.

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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. 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.

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. 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. **In a patient weighing 60 kg, the expected spontaneous tidal volume during weaning is within which range?**

   A. 200 - 355 mL

   B. 300 - 480 mL

   C. 400 - 620 mL

   D. 600 - 720 mL

2. **Which device would produce the greatest humidity output for a patient?**

   A. Bubble humidifier

   B. Wick-type humidifier

   C. Large reservoir nebulizer

   D. Ultrasonic nebulizer

3. **During an intermittent positive pressure breathing treatment, the ventilator self-cycles between patient breaths; The therapist should adjust**

   A. Flow.

   B. Sensitivity.

   C. Expiratory time.

   D. Inspiratory pressure.

4. **Which ventilator parameter is most directly used to assess the adequacy of alveolar ventilation?**

   A. $PaCO_2$

   B. PaO_2

   C. HCO_3^-

   D. SaO_2

5. **In the ED evaluation of chest pain, what is the respiratory therapist's initial step?**

   A. Administer 100% oxygen

   B. Place on cardiac monitor

   C. Administer nitroglycerin

   D. Start an IV line

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6. In the described ventilator setup, based on the ABG and ventilator settings, which adjustment should be made?

A. Maintain the current settings

B. Increase the rate to 12 br/min

C. Decrease the tidal volume to 500 mL

D. Increase the sigh volume to 1.0 L

7. Which action is NOT recommended when mist disappears during inspiration in a T-piece aerosol trial?

A. Lengthen the reservoir tubing

B. Increase the flow to 15 L/min

C. Increase the temperature to 39 C

D. Add an additional nebulizer

8. A 62-year-old female patient on SIMV ventilation with ABG showing pH 7.50, PaCO2 30; The therapist should

A. Institute pressure support.

B. Switch to pressure control mode.

C. Decrease the minute volume.

D. Decrease the FiO2.

9. While weaning a patient from inhaled nitric oxide therapy, a recent dose reduction is followed by an increase in pulmonary artery pressure. The therapist should:

A. Discontinue the nitric oxide

B. Call the physician for guidance

C. Continue to monitor the patient

D. Return the iNO dose to the previous level

10. A spontaneous breathing trial has been initiated for a patient on a T-piece with aerosol delivery. The aerosol mist disappears from the reservoir outlet during inspiration. The therapist should consider all the following EXCEPT

A. lengthening the reservoir tubing.

B. adding an additional nebulizer.

C. increasing the flow to 15 L/min.

D. increasing the temperature to 39 C.

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Answers

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

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Explanations

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1. In a patient weighing 60 kg, the expected spontaneous tidal volume during weaning is within which range?

A. 200 - 355 mL

B. 300 - 480 mL

C. 400 - 620 mL

D. 600 - 720 mL

Spontaneous tidal volume during weaning is typically about 5–8 mL per kilogram of body weight. For a 60 kg patient, that range translates to roughly 300–480 mL per breath. This gives enough ventilation to remove CO2 without risking volutrauma from excessively large breaths. Tidal volumes much lower than this (e.g., around 200–355 mL) can under-ventilate, while volumes well above (e.g., 400–620 mL or more) approach higher, less desirable ranges during weaning. So the expected range is about 300–480 mL.

2. Which device would produce the greatest humidity output for a patient?

A. Bubble humidifier

B. Wick-type humidifier

C. Large reservoir nebulizer

D. Ultrasonic nebulizer

Humidity output hinges on how much water vapor the device can put into the inspired gas. An ultrasonic nebulizer does this most effectively because it uses high-frequency vibration to atomize water into a dense mist. The droplets are extremely fine and there's a large surface area of water exposed to the gas, so a lot of water vapor can be carried into the airway, delivering a high absolute humidity. Bubble humidifiers rely on gas diffusing through a water bath, which is limited by water temperature and surface area, so their humidity contribution is modest. Wick-type humidifiers saturate air by dripping water through a wetted wick, but their delivery is limited by wick capacity and diffusion, producing less humidity than ultrasonic devices. Large-volume nebulizers can deliver substantial moisture as well, but their efficiency depends on drive gas flow and other factors, and they typically do not match the consistent, high-output mist produced by ultrasonic units.

3. During an intermittent positive pressure breathing treatment, the ventilator self-cycles between patient breaths; The therapist should adjust

A. Flow.

B. Sensitivity.

C. Expiratory time.

D. Inspiratory pressure.

Self-cycling during IPPB is usually due to the trigger being too sensitive. The ventilator senses small pressure or flow changes as if the patient is initiating a breath, so it delivers breaths in between the patient's actual breaths. By adjusting the trigger sensitivity to require a larger, more deliberate effort (making the trigger less sensitive), you reduce these false triggers and stop the machine from auto-cycling. Other adjustments, like inspiratory pressure, mainly change the size of each breath, and expiratory time changes the interval between breaths but doesn't address unintended triggering. So tuning the trigger sensitivity directly targets the cause of the self-cycling and is the appropriate fix.

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4. Which ventilator parameter is most directly used to assess the adequacy of alveolar ventilation?

A. $PaCO_2$

B. PaO_2

C. HCO_3^-

D. SaO_2

Alveolar ventilation adequacy is best judged by arterial CO_2 because $PaCO_2$ directly reflects how well CO_2 is being removed by the lungs. The relationship is essentially $PaCO_2$ CO_2 production divided by alveolar ventilation; when ventilation falls, $PaCO_2$ rises, and when ventilation increases, $PaCO_2$ falls. Oxygen-related values (PaO_2 and SaO_2) depend on FiO_2, diffusion, and V/Q matching and can appear normal even if ventilation is not adequate. Bicarbonate changes reflect chronic metabolic compensation, not immediate ventilation status. So, $PaCO_2$ is the most direct indicator of how effectively the ventilator is achieving alveolar ventilation.

5. In the ED evaluation of chest pain, what is the respiratory therapist's initial step?

A. Administer 100% oxygen

B. Place on cardiac monitor

C. Administer nitroglycerin

D. Start an IV line

Ensuring adequate oxygenation is the first priority when a patient presents with chest pain. If there is hypoxemia or respiratory distress, delivering supplemental oxygen promptly helps raise the arterial oxygen content and improves oxygen delivery to the heart muscle, which can reduce ongoing ischemia while other diagnostic and therapeutic steps are arranged. In practice, you'd start oxygen therapy (often via a non-rebreather mask at high flow) and titrate to a target SpO_2, typically around 94% or higher unless COPD or another condition dictates a different goal. If the patient already has normal SpO_2, oxygen isn't continued at 100% indiscriminately; you'd monitor and adjust as needed while the rest of the assessment and management—such as monitoring, IV access, and other treatments—progress. The big idea is that correcting hypoxemia takes precedence because it directly affects myocardial oxygen supply and overall patient stability.

6. In the described ventilator setup, based on the ABG and ventilator settings, which adjustment should be made?

A. Maintain the current settings

B. Increase the rate to 12 br/min

C. Decrease the tidal volume to 500 mL

D. Increase the sigh volume to 1.0 L

The key idea is using intermittent larger breaths to recruit collapsed or fluid-filled alveoli and raise oxygenation by increasing mean airway pressure. When the ABG shows hypoxemia or a marked drop in oxygenation despite baseline PEEP, alveolar recruitment becomes helpful. A sigh breath—an occasional, larger tidal volume, such as 1.0 L—delivers a brief, higher-pressurization breath that can reopen atelectatic units and improve gas exchange without altering the regular ventilation pattern. Increasing the rate would mainly boost minute ventilation and help with CO_2 removal, but it may not adequately address low PaO_2 and can risk air trapping in obstructive disease. Decreasing tidal volume reduces overall ventilation, which can worsen CO_2 clearance and oxygenation. Maintaining current settings leaves the hypoxemia unaddressed. Therefore, increasing the sigh volume to 1.0 L directly targets alveolar recruitment and improves oxygenation as reflected in the ABG. Monitor for effects on airway pressures and ensure safety limits are respected.

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7. Which action is NOT recommended when mist disappears during inspiration in a T-piece aerosol trial?

A. Lengthen the reservoir tubing

B. Increase the flow to 15 L/min

C. Increase the temperature to 39 C

D. Add an additional nebulizer

When mist disappears during inspiration in a T-piece aerosol trial, the patient's breath is outpacing the amount of aerosol being produced and delivered. The system needs a continuous supply of aerosol to meet the rapid inhalation, and if the reservoir of mist is depleted or the flow isn't enough to sustain output, the mist visibly vanishes with inhalation. Warming the gas to 39 C does not address this delivery issue. Temperature changes don't increase the rate at which the nebulizer creates mist or extend the amount of aerosol available during the next breath. In fact, heating can alter particle behavior or cause condensation in tubing, which can complicate delivery rather than fix the problem. In contrast, extending the reservoir tubing provides more stored mist to draw on during inhalation, increasing the chance that mist remains present throughout the breath. Raising the driving flow to 15 L/min helps maintain a steady aerosol production and delivery, ensuring the mist keeps coming as the patient inhales. Adding another nebulizer directly boosts total aerosol output, helping meet the inspiratory demand.

8. A 62-year-old female patient on SIMV ventilation with ABG showing pH 7.50, PaCO2 30; The therapist should

A. Institute pressure support.

B. Switch to pressure control mode.

C. Decrease the minute volume.

D. Decrease the FiO2.

High pH with a low PaCO2 means the patient is being over-ventilated, causing respiratory alkalosis. On SIMV, how fast and how deeply you ventilate is determined by minute ventilation (tidal volume multiplied by respiratory rate). To correct the alkalosis, you need to reduce the amount of CO2 being removed, so you decrease minute ventilation. This is best done by lowering tidal volume, lowering the respiratory rate, or both, and then rechecking after a short interval. Options that would increase ventilation (like adding pressure support or switching to a mode that tends to deliver more breaths or higher volumes) would worsen the alkalosis. Decreasing FiO2 won't address the CO2 problem and could risk hypoxemia if oxygenation becomes inadequate. After adjusting, monitor the patient and obtain another ABG to confirm the CO2 and pH move toward normal.

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9. While weaning a patient from inhaled nitric oxide therapy, a recent dose reduction is followed by an increase in pulmonary artery pressure. The therapist should:

A. Discontinue the nitric oxide

B. Call the physician for guidance

C. Continue to monitor the patient

D. Return the iNO dose to the previous level

Inhaled nitric oxide provides rapid, dose-dependent pulmonary vasodilation and wears off quickly if the dose is reduced. If lowering the dose is followed by a rise in pulmonary artery pressure, it means the previous level was still needed to keep the pulmonary vessels dilated. The best action is to restore the dose to the prior level to quickly reestablish stable pulmonary pressures and avoid rebound pulmonary hypertension. After stabilization, plan a slower, more gradual wean with close monitoring and physician guidance. Stopping iNO abruptly or ignoring the hemodynamic change could worsen the situation, and while communicating with the physician is important, the immediate corrective step is to revert to the previous effective dose.

10. A spontaneous breathing trial has been initiated for a patient on a T-piece with aerosol delivery. The aerosol mist disappears from the reservoir outlet during inspiration. The therapist should consider all the following EXCEPT

A. lengthening the reservoir tubing.

B. adding an additional nebulizer.

C. increasing the flow to 15 L/min.

D. increasing the temperature to 39 C.

The situation tests how to maintain continuous aerosol delivery during a spontaneous breathing trial with a T-piece. When the aerosol mist vanishes during inspiration, the inspiratory flow is outpacing what the nebulizer reservoir can supply. That means you need to increase the available aerosol and/or the driving force delivering it. Lengthening the reservoir tubing adds stored aerosol volume, so the mist can persist longer into the breath. Adding another nebulizer increases the total aerosol output, preventing depletion. Increasing the flow to 15 L/min provides more driving gas to push more aerosol toward the patient, helping maintain the mist throughout inspiration. Raising the temperature to 39 C doesn't address the underlying problem of insufficient aerosol supply; while warming gas affects humidity and comfort, it doesn't reliably improve the amount of aerosol delivered or its persistence during inspiration.

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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.

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

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

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