NBRC THERAPIST MULTIPLE-CHOICE (TMC) PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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. **What change is expected after removing 5 inches of mechanical deadspace on a ventilator circuit?**

   A. Unchanged MAP with slight increase in $PaCO_2$ and PaO_2

   B. Small reduction in $PaCO_2$ with slight increase in MAP

   C. Increase in pH with a reduction in MAP

   D. Small reduction in $PaCO_2$ with no increase in MAP

2. **What should be concluded if a pulmonary artery catheter's tip is seen over the right mid lung near the hilum on a chest radiograph?**

   A. It should be rotated away from the hilum

   B. It should be withdrawn several centimeters

   C. It has punctured the pericardial wall

   D. The balloon should be inflated and the catheter advanced

3. **In a scenario where suctioning a tracheostomy tube fails, what should the therapist do first?**

   A. Resume volume ventilation

   B. Deflate the cuff

   C. Perform bronchoscopy

   D. Increase catheter size and suction pressure

4. **For a patient experiencing trauma from a serious motor vehicle accident, which maneuver should be used to open the airway?**

   A. Chin lift

   B. Jaw-thrust maneuver

   C. Head-tilt maneuver

   D. Oral airway insertion

5. **What do the ABG analysis results of pH 7.36, PCO_2 43, PO_2 288, HCO_3 24, BE -2, and SO_2 100% most likely indicate for a patient receiving FiO_2 of 0.30?**

   A. Anemic hypoxemia

   B. Laboratory error

   C. Oxygen toxicity

   D. Normal oxygenation

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6. If calibration results for a spirometer using a 3.0 L syringe show a maximum variance outside 2.85 L - 3.15 L, what does this indicate?

A. Inaccurate measurement

B. Proof that the syringe requires calibration

C. Lacking in precision

D. Operating correctly

7. Which equation is used to calculate the cardiac index?

A. Stroke volume x heart rate

B. C.O. x ejection fraction

C. C.O. / stroke volume

D. (Stroke volume x heart rate) / BSA

8. Which calculation can be used to determine Total Lung Capacity (TLC)?

A. FRC + VT + IC

B. RV + ERV + VT + IC

C. IC + FRC

D. RV + ERV + VT

9. What is the relative humidity of the inspired gas of a patient who is intubated if the humidity deficit is 33 mg/L?

A. 50%

B. 75%

C. 25%

D. 100%

10. Which condition could cause a tracheal shift to the right?

A. Atelectasis in the left

B. Sputum consolidation on the right

C. Pneumothorax on the right

D. Lobectomy on the right

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Answers

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

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Explanations

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1. What change is expected after removing 5 inches of mechanical deadspace on a ventilator circuit?

A. Unchanged MAP with slight increase in $PaCO_2$ and PaO_2

B. Small reduction in $PaCO_2$ with slight increase in MAP

C. Increase in pH with a reduction in MAP

D. Small reduction in $PaCO_2$ with no increase in MAP

Removing 5 inches of mechanical deadspace from a ventilator circuit enhances the efficiency of ventilation. Mechanical deadspace refers to areas in the ventilatory circuit where gas exchange does not occur. By eliminating this deadspace, the patient receives a larger proportion of the tidal volume that participates in gas exchange, leading to improved ventilation. When deadspace is reduced, carbon dioxide levels ($PaCO_2$) in the blood are expected to decrease as more effective ventilation allows for better removal of CO_2. In contrast, mean airway pressure (MAP) may not significantly change since the overall resistance and compliance of the ventilatory setup remain mostly intact after such a minor adjustment. The slight decrease in $PaCO_2$ signifies improved alveolar ventilation without negatively impacting MAP. This relationship results in a small reduction in $PaCO_2$ without an increase in MAP, making this the most suitable choice. Understanding the impact of deadspace on respiratory mechanics and gas exchange is critical for managing patients on mechanical ventilation effectively.

2. What should be concluded if a pulmonary artery catheter's tip is seen over the right mid lung near the hilum on a chest radiograph?

A. It should be rotated away from the hilum

B. It should be withdrawn several centimeters

C. It has punctured the pericardial wall

D. The balloon should be inflated and the catheter advanced

When interpreting the positioning of a pulmonary artery catheter on a chest radiograph, observing the catheter's tip over the right mid lung near the hilum indicates improper placement in the pulmonary artery. This positioning suggests that the catheter may not be in the correct position to effectively measure hemodynamic parameters. Inflating the balloon and advancing the catheter can help guide it into the pulmonary artery. This technique allows the catheter to float into the correct position, minimizing the risk of complications associated with it being lodged incorrectly, such as pulmonary artery rupture or misinterpreted hemodynamic values. It's crucial to ensure that the catheter is positioned properly to provide accurate readings and to avoid potential complications. Proper placement is typically confirmed by the catheter being positioned within the pulmonary arteries, delivering reliable measurements such as pulmonary artery pressures.

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3. In a scenario where suctioning a tracheostomy tube fails, what should the therapist do first?

A. Resume volume ventilation

B. Deflate the cuff

C. Perform bronchoscopy

D. Increase catheter size and suction pressure

In a situation where suctioning a tracheostomy tube fails, the first action to take is to deflate the cuff. The cuff of the tracheostomy tube is designed to create a seal against the tracheal wall, which can sometimes impede suctioning if the secretions are particularly thick or if there is a significant pressure differential. By deflating the cuff, you facilitate better airflow and may help to clear the obstruction by allowing for more effective suctioning. This action could potentially improve ventilation and help the patient better manage their secretions. Ensuring the cuff is deflated can also prevent unnecessary damage to the trachea due to excessive pressure. While performing volume ventilation, bronchoscopy, or adjusting suctioning parameters like catheter size and suction pressure might be important later steps depending on the situation, the immediate first response should be to deflate the cuff to address the suctioning failure effectively.

4. For a patient experiencing trauma from a serious motor vehicle accident, which maneuver should be used to open the airway?

A. Chin lift

B. Jaw-thrust maneuver

C. Head-tilt maneuver

D. Oral airway insertion

In cases of suspected cervical spine injury, such as may occur from a serious motor vehicle accident, the jaw-thrust maneuver is the preferred method for opening the airway. This technique allows the healthcare provider to maintain spinal alignment while effectively relieving any obstruction in the airway. The jaw-thrust maneuver is performed by placing the fingers behind the angles of the mandible and thrusting the jaw forward, which can lift the tongue off the back of the throat and create a clear passage for air without moving the neck. This is critical in trauma situations where neck injury is possible, as other methods may inadvertently worsen a potential spinal injury. While the chin lift and head-tilt maneuvers are effective for airway management, they involve flexing the neck, which could exacerbate any existing cervical spine injuries. Oral airway insertion can be beneficial but requires an open airway first and is not used as an initial maneuver to clear the airway in suspected trauma cases. Thus, the jaw-thrust maneuver is the most appropriate choice in this scenario.

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5. What do the ABG analysis results of pH 7.36, PCO2 43, PO2 288, HCO3 24, BE -2, and SO2 100% most likely indicate for a patient receiving FiO2 of 0.30?

A. Anemic hypoxemia

B. Laboratory error

C. Oxygen toxicity

D. Normal oxygenation

The arterial blood gas (ABG) results present a pH of 7.36, which indicates a state of acidemia, as normal pH is typically between 7.35 to 7.45. The PCO2 is within the normal range, while the bicarbonate (HCO3) level is also normal. However, the remarkably high PO2 of 288 mmHg raises a significant concern regarding the validity of the results. A PO2 level this high is unlikely to be physiologically achievable, especially in a patient receiving an FiO2 of 0.30 (which corresponds to a supplemental oxygen concentration of 30%). This percentage typically results in PO2 levels that are much lower than what is indicated, leading to the suspicion of a laboratory error in the measurement. Therefore, this ABG profile suggests the possibility of a laboratory error due to the implausible PO2 value, as normal physiological responses to an FiO2 of 0.30 would not result in such elevated PO2 levels, especially in the context of the other associated parameters. This provides a strong rationale for selecting this answer as the most appropriate given the situation.

6. If calibration results for a spirometer using a 3.0 L syringe show a maximum variance outside 2.85 L - 3.15 L, what does this indicate?

A. Inaccurate measurement

B. Proof that the syringe requires calibration

C. Lacking in precision

D. Operating correctly

When calibration results for a spirometer using a 3.0 L syringe show a maximum variance outside the range of 2.85 L to 3.15 L, this indicates inaccurate measurement. The purpose of calibration is to ensure that the spirometer provides accurate measurements of lung volumes. The expected range for a properly calibrated spirometer when using a 3.0 L syringe is very specific; it should fall within ±5% of the target volume, which translates to 2.85 L to 3.15 L for a 3.0 L syringe. If the calibration results fall outside this range, it signifies that the spirometer is not giving reliable readings and may be underestimating or overestimating the lung volumes. Inaccurate measurement can lead to misdiagnosis or inappropriate treatment decisions, as clinicians rely on accurate spirometric values when assessing respiratory function and making decisions on patient care. Therefore, the indication of inaccurate measurement is critical for maintaining quality and safety in respiratory assessments.

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7. Which equation is used to calculate the cardiac index?

A. Stroke volume x heart rate

B. C.O. x ejection fraction

C. C.O. / stroke volume

D. (Stroke volume x heart rate) / BSA

The cardiac index is a crucial parameter that allows for the assessment of the heart's performance relative to the body size, making it a more useful measure than cardiac output alone in certain patient populations. The formula for calculating cardiac index involves taking the cardiac output (C.O.), which is the volume of blood the heart pumps per minute, and dividing it by the body surface area (BSA). This results in a measurement that is expressed in liters per minute per square meter (L/min/m²). The equation takes the stroke volume (the amount of blood pumped by the heart in one beat) and heart rate (the number of beats per minute), and the product of these two gives the cardiac output. Then, by factoring in the BSA, healthcare providers can account for varying body sizes, which is particularly important in pediatric or very large or small patients. Calculating the cardiac index helps in assessing cardiac performance and comparing results across different individuals, making it a valuable tool in clinical settings for evaluating heart function.

8. Which calculation can be used to determine Total Lung Capacity (TLC)?

A. FRC + VT + IC

B. RV + ERV + VT + IC

C. IC + FRC

D. RV + ERV + VT

Total Lung Capacity (TLC) encompasses the total volume of air the lungs can hold and is comprised of several distinct volumes. To accurately determine TLC, one must consider all relevant components based on lung volumes. The correct calculation includes both the Inspiratory Capacity (IC) and Functional Residual Capacity (FRC). IC represents the maximum amount of air that can be inhaled after a normal exhalation, while FRC is the volume of air remaining in the lungs after a normal exhale, comprising both Expiratory Reserve Volume (ERV) and Residual Volume (RV). Therefore, the combination of IC and FRC captures all the air held within the lungs when fully inflated. This approach to calculating TLC effectively accounts for the entirety of lung volume, illustrating how much air is available in the respiratory system at its fullest extent. The alternative options lack this comprehensive inclusion of necessary lung volumes to effectively determine TLC, thus reinforcing the appropriateness of combining IC and FRC to arrive at the accurate measurement.

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9. What is the relative humidity of the inspired gas of a patient who is intubated if the humidity deficit is 33 mg/L?

A. 50%

B. 75%

C. 25%

D. 100%

To determine the relative humidity of the inspired gas for an intubated patient when provided with the humidity deficit, it's important to understand what relative humidity represents and how it is impacted by humidity deficit. In this context, normal inspired air at body temperature (37°C) and at 100% relative humidity holds approximately 44 mg/L of water vapor. The humidity deficit indicates how much moisture is missing from the inspired gas compared to saturated air. If the humidity deficit is 33 mg/L, it means the inspired gas is 33 mg/L less than the maximum capacity of 44 mg/L. To calculate the actual humidity (in mg/L) of the inspired gas, you subtract the humidity deficit from the maximum: 44 mg/L (saturated at 100% humidity) - 33 mg/L (humidity deficit) = 11 mg/L. Next, to determine the relative humidity, you take the actual humidity and divide it by the maximum, then multiply by 100 to get a percentage: (11 mg/L / 44 mg/L) × 100 = 25%. Therefore, the relative humidity of the inspired gas in this scenario is 25% because it represents a significant reduction from the normal saturation level due to the humidity deficit

10. Which condition could cause a tracheal shift to the right?

A. Atelectasis in the left

B. Sputum consolidation on the right

C. Pneumothorax on the right

D. Lobectomy on the right

A tracheal shift to the right can occur due to a right-sided pneumothorax. In the event of a pneumothorax, air enters the pleural space, leading to increased pressure on the right side of the thoracic cavity. This pressure differential causes the trachea to deviate away from the affected side—in this case, shifting towards the right. It is a physiological response where the trachea moves toward the area of lesser pressure (the left side) to maintain equilibrium in the thoracic cavity. Other conditions, while they may affect the respiratory system, do not cause a tracheal shift to the right in the same manner. For instance, atelectasis on the left causes the trachea to shift toward the atelectatic side (the left), while sputum consolidation on the right may cause localized effects but typically does not produce a significant shift of the trachea. Lastly, a lobectomy on the right might lead to changes in lung volume or the configuration of the thoracic cavity, but does not necessarily cause the trachea to shift to the right unless there are other complications, such as increased pressure from a pleural space issue. Therefore, the condition that accurately explains a trache

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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:

https://nbrctmc.examzify.com

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

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