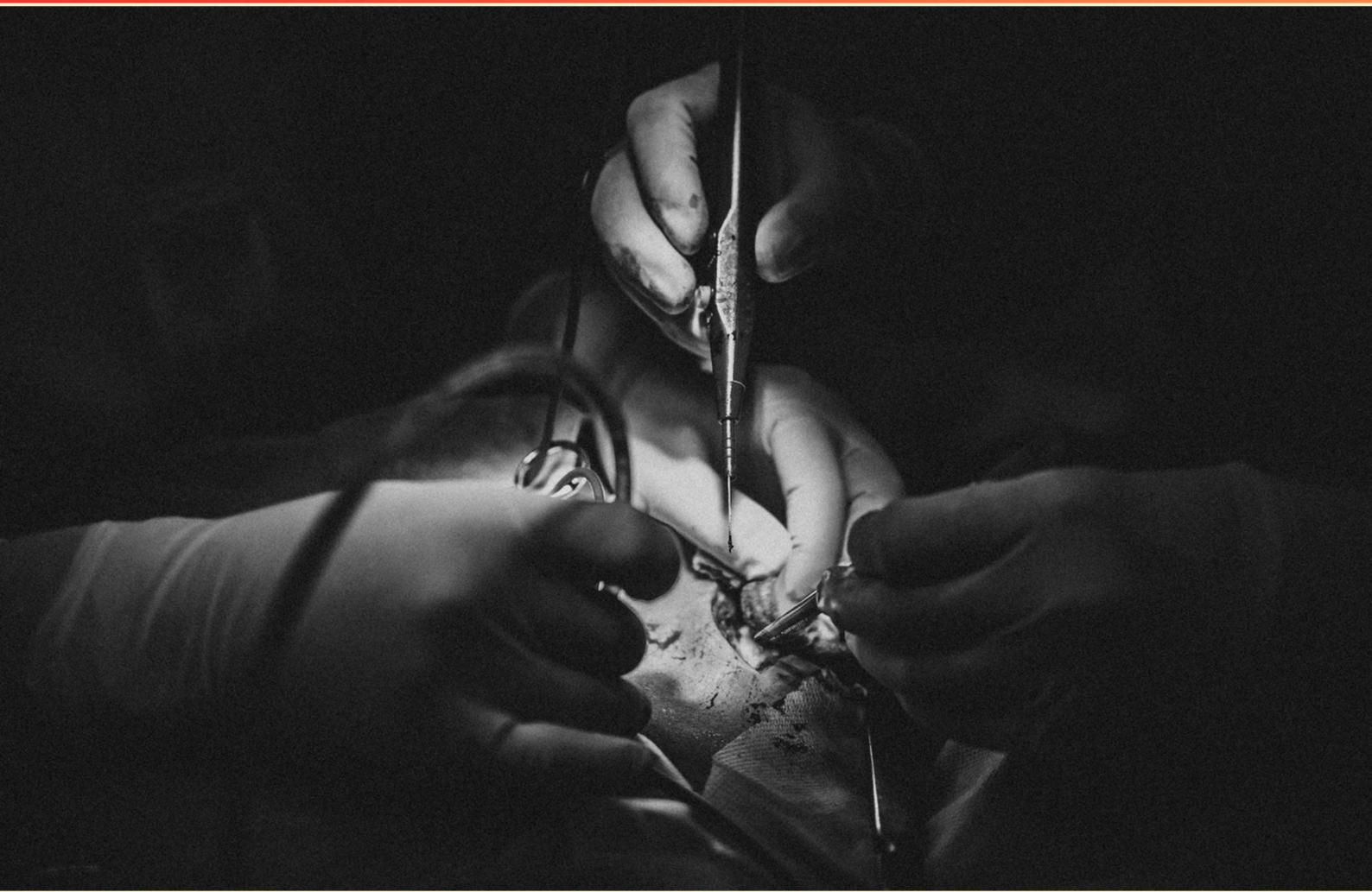


ANESTHESIA KNOWLEDGE TEST 24 (AKT-24) PRACTICE (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

**VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE**

<https://anesthesiaakt24.examzify.com>



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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. 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!

Questions

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- 1. What is the gender distribution for Trisomy 18 (Edwards syndrome)?**
 - A. Males > females
 - B. Females > males
 - C. Equal distribution
 - D. Males only

- 2. Which level of anesthesia is characterized by irregular respiration and often requires airway support?**
 - A. Moderate anesthesia
 - B. General anesthesia
 - C. Light anesthesia
 - D. Deep anesthesia

- 3. In which population is obesity a predictor for difficult intubation?**
 - A. Pediatrics
 - B. Adolescents
 - C. Adults
 - D. Geriatrics

- 4. What percentage of carbon dioxide is typically present in the dissolved form in the body?**
 - A. 7%
 - B. 20%
 - C. 40%
 - D. 53%

- 5. How does progesterone primarily affect respiratory changes during pregnancy?**
 - A. Increases respiratory rate only
 - B. Causes respiratory alkalosis
 - C. Decreases tidal volume
 - D. Increases metabolic acid production

- 6. What condition is characterized by radicular pain in the nerve above the spinal level?**
- A. Central spinal stenosis
 - B. Lateral recess stenosis
 - C. Sciatica
 - D. Disc herniation
- 7. What effect does PEEP have on pulmonary edema?**
- A. Reduces it significantly
 - B. Redistributes it into interstitial tissue
 - C. Completely removes it
 - D. Increases it
- 8. What is one of the major indicators of fetal distress during labor?**
- A. High maternal blood pressure
 - B. Fetal tachycardia
 - C. Fetal bradycardia
 - D. Maternal fever
- 9. What causes a rightward shift in the oxyhemoglobin dissociation curve?**
- A. Increased oxygen concentrations
 - B. Increases in temperature, CO₂, and acidity
 - C. Increased hemoglobin concentration
 - D. Decreased metabolic activity
- 10. What are the predominant metabolites of morphine?**
- A. Morphine-1-glucuronide and morphine-2-glucuronide
 - B. Morphine-2-glucuronide and morphine-6-glucuronide
 - C. Morphine-3-glucuronide and morphine-6-glucuronide
 - D. Morphine-4-glucuronide and morphine-5-glucuronide

Answers

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

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Explanations

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1. What is the gender distribution for Trisomy 18 (Edwards syndrome)?

- A. Males > females
- B. Females > males**
- C. Equal distribution
- D. Males only

Trisomy 18, also known as Edwards syndrome, has a notable gender distribution that favors females over males. This condition is characterized by the presence of an extra 18th chromosome and is associated with a variety of severe health issues and developmental challenges. Epidemiological studies have shown that the prevalence of Edwards syndrome is higher in females, with approximately 80% of cases occurring in females and only about 20% in males. This difference in gender distribution is thought to be related to the higher prenatal mortality in males with the condition. As a result, when looking at live births, one will observe a greater number of females affected by Trisomy 18 compared to males. The understanding of this gender imbalance is critical for both genetic counseling and understanding the pathophysiology of the syndrome.

2. Which level of anesthesia is characterized by irregular respiration and often requires airway support?

- A. Moderate anesthesia
- B. General anesthesia**
- C. Light anesthesia
- D. Deep anesthesia

General anesthesia is characterized by a state of controlled unconsciousness and requires careful monitoring and management of the patient's airway and vital functions. One of the hallmark features of general anesthesia is the potential for irregular respiration, as the anesthetic agents depress the central nervous system, affecting the respiratory centers in the brain. This can lead to a significant reduction or complete loss of the automatic respiratory drive, necessitating airway support to ensure sufficient oxygenation and ventilation during the procedure. In addition, general anesthesia often involves muscle relaxation, which can further impact a patient's ability to maintain an adequate airway. Therefore, anesthesiologists frequently use devices such as endotracheal tubes, LMA (laryngeal mask airway), or other forms of airway management to ensure the patient can breathe properly during surgery. Other levels of anesthesia, like light anesthesia and moderate anesthesia, allow for more stable respiratory patterns and do not usually require such extensive airway interventions. Deep anesthesia might present challenges, but the defining characteristic of general anesthesia is the need for consistent and effective airway management due to the higher risk of irregular respiration and unconsciousness.

3. In which population is obesity a predictor for difficult intubation?

- A. Pediatrics
- B. Adolescents
- C. Adults**
- D. Geriatrics

Obesity significantly impacts airway anatomy and physiology, making it a critical factor in predicting difficult intubation, particularly in adults. In adults, excess adipose tissue in the neck and oropharyngeal region can lead to decreased visibility and access to the airway during intubation attempts. Increased neck circumference may provide a challenge for proper alignment of the airway and can also result in fatty deposits that obstruct the glottic opening. Additionally, adults are typically subjected to a wider variety of comorbidities and respiratory issues associated with obesity, such as obstructive sleep apnea and other pulmonary concerns, which can further complicate the intubation process. Proper positioning and equipment selection become increasingly important in this population due to their unique anatomical challenges. While difficult intubation can occur in any demographic, the anatomical changes associated with obesity in the adult population are notably significant, making obesity a well-recognized predictor for intubation challenges specifically in adults.

4. What percentage of carbon dioxide is typically present in the dissolved form in the body?

- A. 7%**
- B. 20%
- C. 40%
- D. 53%

In the human body, carbon dioxide (CO₂) is transported in three main forms: dissolved in plasma, as bicarbonate ions (HCO₃⁻), and bound to hemoglobin. Typically, about 7% of carbon dioxide is present in the dissolved form in the blood. This dissolved carbon dioxide is critical in maintaining acid-base balance and plays a key role in the regulation of respiration. While the majority of carbon dioxide is carried as bicarbonate ions (around 70%), the relatively small percentage that is dissolved is still important for physiological processes, such as affecting the pH of blood and helping to drive the respiratory drive through chemoreceptor stimulation. The other percentages reflect the other forms of carbon dioxide transport, not the dissolved form. Thus, recognizing that approximately 7% of carbon dioxide remains dissolved underscores its significance in maintaining adequate respiratory function and the acid-base homeostasis within the body.

5. How does progesterone primarily affect respiratory changes during pregnancy?

- A. Increases respiratory rate only
- B. Causes respiratory alkalosis**
- C. Decreases tidal volume
- D. Increases metabolic acid production

Progesterone plays a significant role in modulating respiratory physiology during pregnancy. As progesterone levels rise, one of the primary effects is an increase in the sensitivity of the respiratory centers in the brain to carbon dioxide (CO₂). This increased sensitivity leads to enhanced ventilation. As ventilation increases, there is a greater exhalation of CO₂, which results in lower levels of CO₂ in the blood. Since CO₂ is a weak acid, a decrease in its concentration leads to a rise in blood pH, resulting in a state of respiratory alkalosis. This physiological change is necessary in pregnancy to enhance oxygen delivery to both the mother and the fetus by improving the efficiency of gas exchange in the lungs. The other options do not reflect the primary effects of progesterone on respiratory changes during pregnancy. While respiratory rate may increase along with tidal volume, the significant shift to a state of respiratory alkalosis due to increased ventilation is a hallmark of progesterone's action. The decrease in tidal volume and the increase in metabolic acid production are not direct or primary effects of progesterone in this context.

6. What condition is characterized by radicular pain in the nerve above the spinal level?

- A. Central spinal stenosis
- B. Lateral recess stenosis**
- C. Sciatica
- D. Disc herniation

The condition characterized by radicular pain in the nerve above the spinal level is lateral recess stenosis. This occurs when the lateral recess of the spinal canal becomes narrowed, often due to degenerative changes or bony overgrowth, which can compress the nerve roots as they exit the spinal canal. In lateral recess stenosis, the displacement or narrowing affects the space that accommodates these nerve roots, potentially leading to symptoms that may present as pain radiating down the associated dermatome but originating from the spinal level above where the compression occurs. This distinguishes lateral recess stenosis from conditions like disc herniation or sciatica, which typically involve direct nerve root compression at the same or lower spinal level rather than above it. Understanding the mechanics of nerve root compression in relation to spinal levels is crucial for diagnosis and treatment, making lateral recess stenosis a clear cause of radicular pain presenting in such a manner.

7. What effect does PEEP have on pulmonary edema?

- A. Reduces it significantly
- B. Redistributes it into interstitial tissue**
- C. Completely removes it
- D. Increases it

Applying positive end-expiratory pressure (PEEP) during mechanical ventilation influences pulmonary edema primarily by altering the distribution of fluid within the lungs. PEEP increases the end-expiratory lung volume, which helps to recruit collapsed alveoli and enhance overall lung compliance. However, this recruitment can lead to a redistribution of pulmonary edema from the alveolar spaces into the interstitial tissues. When PEEP is used, the elevated pressure in the alveoli can displace pulmonary edema fluid from alveolar spaces, preventing gas exchange and improving ventilation-perfusion matching in areas of the lung that are functioning better. This mechanism can lead to a transient increase in interstitial edema, as fluid moves out of the alveoli but may not necessarily reduce the total amount of fluid present in the lungs. The other options are not accurate in the context of how PEEP interacts with pulmonary edema: it does not significantly reduce or completely remove pulmonary edema; rather, it modifies its distribution, and the idea that PEEP increases pulmonary edema is misleading, as it does not create edema but can complicate its distribution. This intricate relationship underscores the importance of careful management of PEEP in patients with existing pulmonary edema.

8. What is one of the major indicators of fetal distress during labor?

- A. High maternal blood pressure
- B. Fetal tachycardia
- C. Fetal bradycardia**
- D. Maternal fever

Fetal bradycardia is recognized as a significant indicator of fetal distress during labor. This condition refers to a sustained heart rate of the fetus that is below the normal range, typically defined as less than 110 beats per minute. When the fetus experiences bradycardia, it can indicate inadequate oxygen delivery or blood flow, often due to issues such as cord compression, uterine hyperstimulation, or placental insufficiency. This decreased heart rate can be a sign that the fetus is under stress and may require immediate intervention to prevent potential complications or harm. It's important to differentiate this from the other conditions presented. High maternal blood pressure can affect gestational health but isn't a direct indicator of fetal distress. Fetal tachycardia, although it can indicate fetal distress, is characterized by an increased heart rate rather than a decrease, making it a different physiological response. Maternal fever may suggest infection and can impact fetal well-being, but it is not as direct a sign of fetal distress as bradycardia. Understanding these distinctions is crucial for monitoring fetal well-being during labor.

9. What causes a rightward shift in the oxyhemoglobin dissociation curve?

- A. Increased oxygen concentrations
- B. Increases in temperature, CO₂, and acidity**
- C. Increased hemoglobin concentration
- D. Decreased metabolic activity

A rightward shift in the oxyhemoglobin dissociation curve indicates a decreased affinity of hemoglobin for oxygen, which facilitates the release of oxygen to the tissues. This phenomenon is primarily caused by increases in temperature, CO₂, and acidity, collectively known as the Bohr effect. When tissue metabolism increases, it produces more CO₂ and lactic acid, leading to acidosis and warming of the blood. The elevated levels of CO₂ and hydrogen ions (from the dissociation of acids) promote the release of oxygen from hemoglobin by stabilizing its deoxygenated form. Additionally, higher temperatures reduce hemoglobin's affinity for oxygen, allowing for more oxygen to be delivered to metabolically active tissues that require it. In contrast, increased oxygen concentrations would not necessarily shift the curve to the right; rather, it influences the saturation of hemoglobin but does not alter its affinity in the same way. Increased hemoglobin concentration can enhance the oxygen-carrying capacity but does not dictate the affinity of hemoglobin for oxygen, and decreased metabolic activity typically results in less CO₂ and lower acidity, promoting a leftward shift in the curve, indicating increased affinity for oxygen.

10. What are the predominant metabolites of morphine?

- A. Morphine-1-glucuronide and morphine-2-glucuronide
- B. Morphine-2-glucuronide and morphine-6-glucuronide
- C. Morphine-3-glucuronide and morphine-6-glucuronide**
- D. Morphine-4-glucuronide and morphine-5-glucuronide

The predominant metabolites of morphine are primarily morphine-3-glucuronide (M3G) and morphine-6-glucuronide (M6G). M3G is generally considered an inactive metabolite, while M6G has analgesic activity and may contribute to the overall effects of morphine. The glucuronidation process facilitates the excretion of morphine by enhancing its water solubility, allowing these metabolites to be eliminated through the kidneys. Understanding the pharmacokinetics of morphine includes recognizing these metabolites' significance in both therapeutic effects and potential side effects. M6G can accumulate, particularly in patients with renal impairment, leading to prolonged analgesic effects or increased risk of toxicity. This knowledge aids in managing dosages effectively and monitoring for adverse effects in patients receiving morphine therapy.

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://anesthesiaakt24.examzify.com>

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

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