

NBE Science Practice Test (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. 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 condition characterized by an increase in the number of leukocytes in the blood?**
 - A. Leukopenia
 - B. Leukocytosis
 - C. Anemia
 - D. Thrombocytosis

- 2. What is the term for intravascular blood discoloration?**
 - A. Hypostasis
 - B. Livor mortis
 - C. Rigor mortis
 - D. Putrefaction

- 3. How much 30 index fluid is needed to make 1 gallon of a 2% solution?**
 - A. 5 oz
 - B. 8.5 oz
 - C. 10 oz
 - D. 12 oz

- 4. The cardiac sphincter is associated with which part of the digestive system?**
 - A. Esophagus
 - B. Stomach
 - C. Intestine
 - D. Liver

- 5. Which statement is true regarding the embalming process?**
 - A. It should be done rapidly to prevent decay.
 - B. It involves the use of both chemical and physical techniques.
 - C. It is solely a chemical process without any manual manipulation.
 - D. It requires complete drainage before any fluid is injected.

6. What is the significance of embalming fluids containing anticoagulants?

- A. To enhance the color**
- B. To prevent clotting**
- C. To increase toxicity**
- D. To mask odor**

7. Rocky Mountain spotted fever is caused by which pathogen?

- A. Virus**
- B. Rickettsia**
- C. Bacteria**
- D. Fungi**

8. Which of the following best describes ischemia?

- A. Excess blood flow**
- B. Normal oxygen supply**
- C. Insufficient blood supply**
- D. Fluid accumulation**

9. What medical term describes the presence of blood in vomit?

- A. Hemoptysis**
- B. Hematemesis**
- C. Hematochezia**
- D. Melena**

10. What does formaldehyde react with to form urotropin?

- A. Chlorine**
- B. Water**
- C. Ammonia**
- D. Acetic acid**

Answers

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1. B
2. A
3. B
4. B
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 condition characterized by an increase in the number of leukocytes in the blood?

- A. Leukopenia**
- B. Leukocytosis**
- C. Anemia**
- D. Thrombocytosis**

Leukocytosis is the condition defined by an increase in the number of leukocytes, or white blood cells, in the bloodstream. This rise often indicates an active immune response to various factors such as infections, inflammation, or stress. The body produces more white blood cells to help fight off pathogens or react to other stressors, which results in higher levels being detectable in laboratory tests. This increase can be physiological, such as after exercise or during pregnancy, or pathological, stemming from diseases like leukemia or other bone marrow disorders. Understanding leukocytosis helps in diagnosing these conditions, as the differential count may provide further insights into the specific reason behind the leukocyte elevation. The other choices relate to different conditions affecting blood components; however, they do not describe an increase in leukocyte count, making them unrelated to the definition of leukocytosis.

2. What is the term for intravascular blood discoloration?

- A. Hypostasis**
- B. Livor mortis**
- C. Rigor mortis**
- D. Putrefaction**

The term for intravascular blood discoloration is best represented by livor mortis. Livor mortis refers to the settling of blood in the lower parts of the body after death, leading to a reddish-purple discoloration of the skin due to the gravitational pull on the blood in the blood vessels. This phenomenon occurs as the heart ceases to pump, allowing blood to pool in the capillaries and veins, resulting in staining of the surrounding tissues.

Hypostasis also involves the pooling of blood but refers more broadly to the process of blood settling in response to gravity, not specifically to the discoloration due to stagnant blood within the vessels. Rigor mortis pertains to the stiffening of the muscles post-mortem and is unrelated to blood discoloration. Putrefaction involves the decomposition of body tissues and is also not directly related to the discoloration caused by stagnant blood. Understanding livor mortis provides insight into both the physiological processes post-mortem and how medical professionals assess time of death based on the extent of discoloration observed in a deceased individual.

3. How much 30 index fluid is needed to make 1 gallon of a 2% solution?

- A. 5 oz**
- B. 8.5 oz**
- C. 10 oz**
- D. 12 oz**

To find out how much of a 30 index fluid is needed to create a 2% solution, we first need to understand what a 2% solution means. A 2% solution means that there are 2 grams of the solute (in this case, the 30 index fluid) for every 100 milliliters of solution. Since 1 gallon is approximately 3,785 milliliters, a 2% solution in 1 gallon would require:
$$\frac{2 \text{ g}}{100 \text{ mL}} \times 3,785 \text{ mL} \approx 75.7 \text{ g}$$
 Next, we need to determine how much of the 30 index fluid corresponds to this mass, given that the fluid has a specific gravity of approximately 1. This means 30 index fluid is near the density of water, where 1 mL has a mass of about 1 g. To convert 75.7 grams of the 30 index fluid into ounces, knowing there are about 28.35 grams in an ounce:
$$\text{Ounces} = \frac{75.7 \text{ g}}{28.35 \text{ g/oz}}$$

4. The cardiac sphincter is associated with which part of the digestive system?

- A. Esophagus**
- B. Stomach**
- C. Intestine**
- D. Liver**

The cardiac sphincter, also known as the lower esophageal sphincter, is located at the junction of the esophagus and the stomach. Its primary function is to control the passage of food from the esophagus into the stomach while preventing the backflow of stomach contents into the esophagus. This mechanism is crucial for maintaining the proper direction of food movement and protecting the esophagus from the acidic environment of the stomach. Proper functioning of the cardiac sphincter helps prevent conditions such as gastroesophageal reflux disease (GERD), where stomach acid can irritate the esophagus. Therefore, identifying the cardiac sphincter as being associated with the stomach is important for understanding its role in the digestive system.

5. Which statement is true regarding the embalming process?

- A. It should be done rapidly to prevent decay.
- B. It involves the use of both chemical and physical techniques.**
- C. It is solely a chemical process without any manual manipulation.
- D. It requires complete drainage before any fluid is injected.

The statement indicating that embalming involves the use of both chemical and physical techniques is accurate. The embalming process primarily relies on chemical agents, typically formaldehyde-based solutions, to preserve body tissues and slow down decomposition. At the same time, physical techniques are also crucial in the process. These can include the manipulation of body fluids through aspiration and injection of the embalming fluid, as well as positioning of the body to ensure effective treatment and preservation. The physical aspect involves the mechanical actions taken to ensure complete fluid distribution and effective embalming, such as the use of pumps and instruments. Therefore, it's not just a chemical process; it encompasses various manual techniques that contribute to the overall objective of preserving the body. The other statements do not accurately represent the embalming process. While rapid action may help prevent decay, it is not the primary focus of the embalming procedure. Similarly, while proper drainage is indeed an important aspect of embalming, it is not a requirement for complete drainage before fluid injection, as techniques may vary based on individual cases. Thus, emphasizing both chemical and physical techniques provides a more comprehensive understanding of the embalming process.

6. What is the significance of embalming fluids containing anticoagulants?

- A. To enhance the color
- B. To prevent clotting**
- C. To increase toxicity
- D. To mask odor

Embalming fluids often contain anticoagulants to prevent the clotting of blood and other bodily fluids during the embalming process. When a body is prepared for embalming, it is crucial to ensure that the fluids are able to circulate freely throughout the vascular system. Anticoagulants help to maintain the integrity of the blood and other fluids, allowing for a more uniform distribution of the embalming chemicals within the body. This is important not only for aesthetic reasons, ensuring a more natural appearance, but also for the preservation process itself, as effective embalming can only occur when the embalming solution can permeate tissues adequately. In contrast, enhancing color, increasing toxicity, or masking odor are not primary functions of anticoagulants in embalming fluids. While these factors may be influenced by other components of the embalming solution, they do not relate to the role of anticoagulants. The primary significance of anticoagulants lies in their ability to prevent clotting during the embalming process.

7. Rocky Mountain spotted fever is caused by which pathogen?

- A. Virus**
- B. Rickettsia**
- C. Bacteria**
- D. Fungi**

Rocky Mountain spotted fever is caused by a specific type of bacteria belonging to the genus *Rickettsia*, specifically *Rickettsia rickettsii*. This microorganism is an obligate intracellular parasite, meaning it can only reproduce within the cells of a host. It is primarily transmitted to humans through the bite of infected ticks, particularly the Rocky Mountain wood tick and the American dog tick. The symptoms of Rocky Mountain spotted fever often include fever, headache, rash, and other systemic issues, which are a result of the bacteria's invasion and the body's immune response. The identification of the pathogen as a *Rickettsia* is crucial for diagnosis and treatment because it distinguishes the disease from other causes of similar symptoms, such as viral or fungal infections. Effective treatment often involves antibiotics, which target bacterial infections specifically. This understanding highlights the importance of identifying the correct pathogen responsible for the disease and indicates the specific approach needed for medical intervention.

8. Which of the following best describes ischemia?

- A. Excess blood flow**
- B. Normal oxygen supply**
- C. Insufficient blood supply**
- D. Fluid accumulation**

Ischemia is best described as insufficient blood supply to a particular tissue or organ. This condition can result from various factors, including blockages in blood vessels due to atherosclerosis, blood clots, or compression of blood vessels. When blood supply is reduced, the affected tissues do not receive adequate oxygen and nutrients, which are crucial for their function and survival. Thus, ischemia can lead to damage or dysfunction of the tissues, and if prolonged, it may result in tissue death or necrosis. In contrast, other options involve processes that do not accurately define ischemia. An excess blood flow indicates a different condition, characterized by hyperemia, while normal oxygen supply means that tissues are receiving adequate blood flow and oxygen. Fluid accumulation refers to edema or other conditions not related to the direct supply of blood and oxygen, further differentiating it from ischemia.

9. What medical term describes the presence of blood in vomit?

- A. Hemoptysis**
- B. Hematemesis**
- C. Hematochezia**
- D. Melena**

The presence of blood in vomit is referred to as hematemesis. This term is derived from the Greek words "haima," meaning blood, and "emesis," meaning vomiting. When blood is expelled along with vomit, it can indicate various medical conditions, including gastrointestinal bleeding, peptic ulcers, or severe vomiting due to other underlying issues. Hematochezia is a different term that specifically refers to the passage of fresh, red blood through the anus, typically indicating lower gastrointestinal bleeding. Melena refers to black, tarry stools that result from the digestion of blood, often from upper gastrointestinal sources, but it does not pertain to vomiting. Hemoptysis is the coughing up of blood from the respiratory tract, not related to vomiting. Thus, hematemesis is the correct and precise term for blood in vomit.

10. What does formaldehyde react with to form urotropin?

- A. Chlorine**
- B. Water**
- C. Ammonia**
- D. Acetic acid**

Urotropin, also known as hexamethylenetetramine, is formed through the reaction of formaldehyde with ammonia. This reaction involves the condensation of formaldehyde and ammonia in an alkaline environment, resulting in the creation of a cyclic compound. The structural transformation includes the combination of multiple formaldehyde molecules that interact with ammonia, leading to the formation of urotropin, which has significant applications in pharmaceuticals and industrial chemistry. This process highlights the chemical properties and reactivity of formaldehyde, demonstrating its ability to engage in reactions with nitrogen-containing compounds such as ammonia. The formation of urotropin is a classic example of how aldehydes like formaldehyde can participate in amine reactions, producing notable products that are utilized in various fields.

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://nbescience.examzify.com>

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

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