

# Immunity, Vaccines, and Cancer 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. When should the first dose of colony-stimulating factors be administered after chemotherapy?**
  - A. Immediately after chemotherapy**
  - B. No sooner than 24 hours after chemotherapy, and can be up to 96 hours after.**
  - C. One week after**
  - D. Two weeks after**
  
- 2. Why might three different chemotherapy agents be given in combination?**
  - A. To shorten the overall treatment time**
  - B. To target different processes outside the cell cycle**
  - C. To reduce the risk of drug interactions**
  - D. To target different areas of the cell cycle**
  
- 3. What symptoms characterize a febrile transfusion reaction?**
  - A. Nausea and vomiting**
  - B. Chills and fever**
  - C. Rash**
  - D. No symptoms**
  
- 4. Which statement about blood type O is true?**
  - A. It is the universal donor**
  - B. It is the universal recipient**
  - C. It cannot donate to anyone**
  - D. It is the rarest blood type**
  
- 5. Which blood type is the universal donor?**
  - A. Type AB**
  - B. Type O**
  - C. Type A**
  - D. Type B**

- 6. How should colony-stimulating factors be stored?**
- A. They should be stored in the refrigerator and not shaken.**
  - B. Room temperature.**
  - C. In the freezer.**
  - D. In direct sunlight.**
- 7. Methotrexate (DMARDs) is used to treat which condition?**
- A. Hypertension**
  - B. Diabetes**
  - C. Asthma**
  - D. Rheumatoid arthritis**
- 8. Cytotoxic antineoplastic drugs carry which major safety warning?**
- A. They have a black box warning**
  - B. They are safe with no warnings**
  - C. They are over-the-counter**
  - D. They have no potential for harm**
- 9. Prednisone and Dexamethasone are examples of which drug class?**
- A. Glucocorticoids**
  - B. Antibiotics**
  - C. Antifungals**
  - D. Antivirals**
- 10. Which blood type is the universal recipient?**
- A. Type O**
  - B. Type A**
  - C. Type AB**
  - D. Type B**

## Answers

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

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## **Explanations**

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**1. When should the first dose of colony-stimulating factors be administered after chemotherapy?**

**A. Immediately after chemotherapy**

**B. No sooner than 24 hours after chemotherapy, and can be up to 96 hours after.**

**C. One week after**

**D. Two weeks after**

Timing of colony-stimulating factors after chemotherapy is about supporting neutrophil recovery after myelosuppression. The first dose is given after chemotherapy, but not immediately; waiting at least 24 hours allows the cytotoxic effects to peak and the marrow to respond to growth signals. It can be given up to about 96 hours (4 days) after chemotherapy, which provides protection during the period when neutrophil counts are most at risk of dropping. Starting too early (immediately) offers little benefit and can complicate management, while waiting much longer would leave patients exposed to febrile neutropenia during the highest-risk window. Therefore, administering the first dose no sooner than 24 hours and within about 96 hours after chemotherapy best optimizes neutrophil recovery and infection protection.

**2. Why might three different chemotherapy agents be given in combination?**

**A. To shorten the overall treatment time**

**B. To target different processes outside the cell cycle**

**C. To reduce the risk of drug interactions**

**D. To target different areas of the cell cycle**

Combining three chemotherapy agents is most effective when they cover different stages of the cell cycle. Tumor cells don't all progress through the cycle at the same rate, and some drugs work best only at specific phases (for example, certain agents act mainly during DNA synthesis while others disrupt mitosis), while others can damage cells regardless of phase. Using a combination that targets multiple phases means more cancer cells are vulnerable at any given time, increasing chances of killing more cells overall and helping to prevent resistance that can arise if only one phase is targeted. Additionally, this approach can allow using lower doses of each drug, potentially reducing specific toxicities. This is why targeting different areas of the cell cycle is the best way to describe the rationale for giving three agents together. Shortening treatment time is not the primary goal, drug interactions are a consideration but not the motivating idea, and focusing on processes outside the cell cycle isn't the main strategy since the strength lies in hitting multiple cell-cycle phases.

### 3. What symptoms characterize a febrile transfusion reaction?

- A. Nausea and vomiting
- B. Chills and fever**
- C. Rash
- D. No symptoms

Febrile transfusion reaction is identified by fever with chills occurring during or soon after a blood transfusion. The fever reflects cytokines released by stored donor leukocytes or antibodies in the recipient reacting to donor leukocytes. This combination of fever and chills is the hallmark, setting it apart from other transfusion reactions: allergic reactions typically present with rash or hives; anaphylactic reactions involve trouble breathing and hypotension; transfusion-associated circulatory overload presents with shortness of breath and edema. Nausea and vomiting can appear in various settings but do not define a febrile transfusion reaction.

### 4. Which statement about blood type O is true?

- A. It is the universal donor**
- B. It is the universal recipient
- C. It cannot donate to anyone
- D. It is the rarest blood type

Blood type O is defined by the absence of A and B antigens on red blood cells. Because there are no A or B antigens for recipient antibodies to attack, O red cells can be given to people of any ABO type, so it's considered the universal donor in RBC transfusions. In practice, the strict universal donor is O negative, since that also lacks Rh antigen and won't provoke Rh incompatibility. However, people with type O blood have anti-A and anti-B antibodies in their plasma, so they can only receive type O blood. The other statements aren't true: AB is the universal recipient, type O is not the rarest blood type, and type O can donate to others.

### 5. Which blood type is the universal donor?

- A. Type AB
- B. Type O**
- C. Type A
- D. Type B

Red blood cell transfusion compatibility hinges on avoiding A or B antigens that a recipient's plasma antibodies would attack. Type O red blood cells have neither A nor B antigens on their surface, so they won't provoke anti-A or anti-B antibodies in recipients of any ABO type. If you also consider Rh, type O negative lacks the D antigen, making it safe to transfuse to patients of any Rh status in emergencies. That combination makes type O (especially O negative) the universal donor for red blood cells. For plasma transfusions, note that AB plasma is the universal donor because it contains no anti-A or anti-B antibodies.

## 6. How should colony-stimulating factors be stored?

- A. They should be stored in the refrigerator and not shaken.**
- B. Room temperature.**
- C. In the freezer.**
- D. In direct sunlight.**

Colony-stimulating factors are protein-based therapies, so they need cold storage to stay stable and preserve potency. Keeping them in the refrigerator (about 2-8°C) slows degradation, and avoiding shaking helps prevent denaturation or aggregation of the protein. Freezing can damage the protein and its container, and exposure to direct sunlight or heat can degrade it, so those options aren't appropriate. If the product is a lyophilized powder, reconstitute per the instructions and then refrigerate.

## 7. Methotrexate (DMARDs) is used to treat which condition?

- A. Hypertension**
- B. Diabetes**
- C. Asthma**
- D. Rheumatoid arthritis**

Methotrexate, used in low doses as a disease-modifying antirheumatic drug, is a cornerstone therapy for rheumatoid arthritis. In RA, the immune system drives joint inflammation and progressive damage; DMARDs slow this process, reducing inflammation and joint erosion over time and improving function. Methotrexate works by dampening immune cell activity and increasing anti-inflammatory adenosine, helping to control the autoimmune attack on joints. It's not a standard treatment for hypertension, diabetes, or asthma, which are managed with other classes of medications. So the condition best treated by methotrexate in this context is rheumatoid arthritis.

## 8. Cytotoxic antineoplastic drugs carry which major safety warning?

- A. They have a black box warning**
- B. They are safe with no warnings**
- C. They are over-the-counter**
- D. They have no potential for harm**

Cytotoxic antineoplastic drugs carry a black box warning because they are extremely toxic and can cause life-threatening or fatal adverse effects if not used with strict precautions. The black box warning is the FDA's strongest safety alert, signaling serious risks such as severe bone marrow suppression, infections, bleeding, organ toxicity, and fetal harm, along with dangers like tissue damage if the drug leaks from the vein (extravasation). Because of these substantial hazards, these drugs require careful patient selection, precise dosing, vigilant monitoring, and strict handling and disposal procedures for healthcare workers. They are not safe with no warnings, they are not over-the-counter, and they do carry real potential for harm.

**9. Prednisone and Dexamethasone are examples of which drug class?**

- A. Glucocorticoids**
- B. Antibiotics**
- C. Antifungals**
- D. Antivirals**

Prednisone and dexamethasone are synthetic glucocorticoids, a type of corticosteroid. They work by binding to glucocorticoid receptors inside cells, which changes which genes are turned on or off. This shifts the balance toward anti-inflammatory and immunosuppressive effects, lowering the production of inflammatory cytokines and mediators. They also increase lipocortin-1, which dampens the activity of phospholipase A2 and reduces prostaglandins and leukotrienes. That combination makes them powerful for reducing inflammation and modulating the immune response, which is why they're used in conditions like asthma, autoimmune diseases, and in certain cancer treatment regimens. The other categories—antibiotics, antifungals, and antivirals—target pathogens directly, not host inflammation or immune suppression, so they don't describe these drugs.

**10. Which blood type is the universal recipient?**

- A. Type O**
- B. Type A**
- C. Type AB**
- D. Type B**

Blood transfusion compatibility hinges on antibodies in the plasma and the antigens on the donor red cells. People have antibodies against the ABO antigens they do not possess. Type AB blood has both A and B antigens on its red cells and, importantly, no anti-A or anti-B antibodies in the plasma. That means AB individuals won't attack donor cells from any ABO type, so they can receive from A, B, AB, or O. Because of this lack of anti-A and anti-B antibodies, Type AB is the universal recipient in the ABO system. Note that if you consider the Rh factor, the most permissive recipient is AB positive, since the Rh antigen adds another compatibility requirement; AB negative would not accept Rh-positive blood. In the common ABO context, however, AB is the universal recipient.

## 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://immunityvaccinescancer.examzify.com>**

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

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