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

1. Which blood type is the universal donor?

A. Type AB

B. Type O

C. Type A

D. Type B

2. What symptoms characterize a febrile transfusion reaction?

A. Nausea and vomiting

B. Chills and fever

C. Rash

D. No symptoms

3. What are T-regulatory cells?

A. Help suppress or regulate the immune response

B. Destroy pathogens

C. Produce antibodies

D. Activate T cells

4. Vinca alkaloids are associated with which toxicity?

A. Nephrotoxicity

B. Peripheral neuropathy

C. Pulmonary fibrosis

D. Hemorrhagic cystitis

5. Tamoxifen is used to treat which type of cancer?

A. Prostate cancer

B. Ovarian cancer

C. Estrogen receptor positive (ER+) metastatic breast cancer

D. Lymphoma

6. Compared to live attenuated vaccines, inactivated vaccines typically require

A. No boosters are ever needed

B. Boosters to maintain long-term immunity

C. No immune response

D. All vaccines provide lifelong immunity

7. Saw Palmetto is commonly used for which condition?

A. Benign prostatic hyperplasia (BPH)

B. Prostatitis

C. Prostate cancer

D. Erectile dysfunction

8. In adults, where are injections most commonly given?

A. Gluteus maximus

B. Deltoid

C. Vastus lateralis

D. Quadriceps

9. A common adverse effect of chemotherapy is:

A. Hypertension

B. Myelosuppression

C. Seizures

D. Hyperlipidemia

10. Which antibody is typically the first produced in the primary immune response?

A. IgG

B. IgA

C. IgM

D. IgD

Answers

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

Explanations

1. 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.

2. 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.

3. What are T-regulatory cells?

A. Help suppress or regulate the immune response

B. Destroy pathogens

C. Produce antibodies

D. Activate T cells

Regulatory T cells are the subset of T cells that keep the immune system in check by suppressing immune responses and maintaining tolerance. They help prevent excessive inflammation and autoimmunity by dampening the activity of other immune cells through mechanisms such as inhibitory cytokines (like IL-10 and TGF-beta) and surface molecules (such as CTLA-4) that reduce activation signals. This regulatory role means their primary function is to restrain the immune response rather than attack pathogens, produce antibodies, or actively stimulate T cells. Vaccines, infections, and cancer contexts can involve Tregs shaping how strongly the immune system responds.

4. Vinca alkaloids are associated with which toxicity?

A. Nephrotoxicity

B. Peripheral neuropathy

C. Pulmonary fibrosis

D. Hemorrhagic cystitis

Vinca alkaloids inhibit microtubule formation, which blocks cell division. In neurons, microtubules are essential for axonal transport, so this disruption also affects nerve function and leads to peripheral neuropathy. This neurotoxicity is the hallmark toxicity of these drugs, especially vincristine, and is dose-limiting. Nephrotoxicity is not a typical issue with vinca alkaloids; pulmonary fibrosis is more associated with drugs like bleomycin; and hemorrhagic cystitis is a known risk with alkylating agents such as cyclophosphamide or ifosfamide due to a toxic metabolite.

5. Tamoxifen is used to treat which type of cancer?

A. Prostate cancer

B. Ovarian cancer

C. Estrogen receptor positive (ER+) metastatic breast cancer

D. Lymphoma

Estrogen receptor signaling drives growth in cancers that express the estrogen receptor, so blocking that pathway can slow or stop their progression. Tamoxifen is a selective estrogen receptor modulator that binds to estrogen receptors in breast tissue and acts as an antagonist, preventing estrogen from stimulating cancer cell growth. This makes it effective for estrogen receptor positive (ER+) metastatic breast cancer, where the cancer has spread but still relies on estrogen signaling. It isn't a standard treatment for cancers driven by other pathways, such as prostate cancer (which relies on androgens), ovarian cancer in general, or lymphoma (a hematologic cancer not driven by estrogen receptor signaling). In ER+ breast cancer, tamoxifen helps control disease by cutting off the estrogen signal that the cancer cells depend on, with possible side effects like hot flashes and risks related to endometrial changes or clotting.

6. Compared to live attenuated vaccines, inactivated vaccines typically require

A. No boosters are ever needed

B. Boosters to maintain long-term immunity

C. No immune response

D. All vaccines provide lifelong immunity

Inactivated vaccines deliver antigen without replication, so the immune stimulus is less robust and shorter-lived than with live attenuated vaccines. Because they don't replicate, the initial exposure often produces lower antibody titers and weaker memory responses, meaning protection can wane over time. Booster doses repeatedly re-expose the immune system, re-stimulating memory B and T cells and boosting antibody levels, which helps maintain long-term protection. Live attenuated vaccines, by replicating in the body, tend to produce stronger, more durable immunity with fewer doses, so they don't typically require boosters as often as inactivated ones. That's why boosters are typically needed for inactivated vaccines to sustain long-term immunity.

7. Saw Palmetto is commonly used for which condition?

A. Benign prostatic hyperplasia (BPH)

B. Prostatitis

C. Prostate cancer

D. Erectile dysfunction

Saw palmetto is used mainly to help manage symptoms of benign prostatic hyperplasia because its active components may modulate hormone activity in the prostate and reduce inflammation. By potentially inhibiting 5-alpha-reductase and lowering dihydrotestosterone levels, it can help relax the prostate and bladder neck, improving urine flow and reducing nighttime urination in men with BPH. While the evidence is mixed, this symptomatic benefit makes it a common choice for BPH. It's not a standard treatment for prostatitis, prostate cancer, or erectile dysfunction, which is why those conditions aren't the typical use. Keep in mind that preparations vary and there can be interactions with other meds, so medical guidance is important.

8. In adults, where are injections most commonly given?

A. Gluteus maximus

B. Deltoid

C. Vastus lateralis

D. Quadriceps

In adults, injections are most commonly given into the deltoid muscle of the upper arm. This site is easily accessible, allows quick absorption of vaccines or small-volume medicines (typically about 0.5 mL to 1 mL), and is straightforward to locate by feeling the point a few centimeters below the shoulder bone. Other sites exist but are used less often for routine injections in adults. The gluteus maximus has a long history as an IM site but can be harder to target accurately and carries a higher risk of hitting a nerve or causing variable absorption, so it's less favored now. The vastus lateralis is commonly used for infants and small children because their gluteal region isn't ideal, and in adults it isn't the standard choice for routine IM injections. The term quadriceps isn't a typical site for IM injections in adults compared with the deltoid.

9. A common adverse effect of chemotherapy is:

A. Hypertension

B. Myelosuppression

C. Seizures

D. Hyperlipidemia

Chemotherapy often damages rapidly dividing cells, with the bone marrow particularly affected. This bone marrow suppression, or myelosuppression, reduces white blood cells, red blood cells, and platelets, leading to higher infection risk, fatigue from anemia, and bleeding tendencies. This pattern is a hallmark adverse effect across many chemotherapy regimens, so it's the best answer. Hypertension, seizures, and hyperlipidemia are not typical direct effects of standard chemotherapy, though some agents can cause neurotoxicity or other organ-specific issues in certain cases.

10. Which antibody is typically the first produced in the primary immune response?

A. IgG

B. IgA

C. IgM

D. IgD

The antibody produced first during a primary immune response is IgM. This happens because naive B cells initially respond to the antigen by making IgM as their default secreted isotype before class switching occurs. IgM is produced as pentamers, which gives high overall avidity and is especially effective at early pathogen neutralization and complement activation, helping to control infection before more specialized antibodies come into play. As the response matures, signals from helper T cells and cytokines drive class-switch recombination, so B cells start producing other isotypes like IgG, IgA, or IgE depending on the infection site and needs. IgG often becomes dominant later and provides memory, IgA is key at mucosal surfaces, while IgD mainly serves as a membrane-bound B cell receptor on naive B cells and is not the primary secreted antibody in the early response.

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://immunityvaccinescancer.examzify.com

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