CPHON Chemotherapy 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. Why is TPMT testing important before starting 6-mercaptopurine in pediatric oncology?

A. TPMT deficiency increases risk of severe myelosuppression with standard 6-MP dosing; test TPMT activity/genotype and adjust dose accordingly or avoid.

B. TPMT deficiency reduces risk of nephrotoxicity and allows higher dosing.

C. TPMT status only affects hepatic toxicity with 6-MP.

D. TPMT status has no clinical relevance for 6-MP therapy.

2. In TLS prevention, which uric acid–lowering therapy rapidly reduces uric acid levels and is used in high-risk patients?

A. Allopurinol rapidly lowers existing uric acid levels.

B. Probenecid rapidly lowers uric acid levels.

C. Rasburicase rapidly reduces uric acid levels.

D. Febuxostat rapidly lowers uric acid levels.

3. What central venous access device is commonly used for long-term pediatric chemotherapy to facilitate frequent dosing and vesicant administration?

A. Peripheral IV catheter

B. Implanted venous port

C. Umbilical venous catheter

D. Arterial line

4. What steps ensure safe drug administration for immunocompromised pediatric patients during hospitalization?

A. Strict hand hygiene, appropriate PPE, isolation if needed, minimize invasive procedures, prophylactic antibiotics as indicated, and close monitoring.

B. Standard precautions only; no special infection control measures needed.

C. PPE is optional in most pediatric units.

D. Only isolation is required; hand hygiene is not essential.

5. L-Asparaginase is classified as which type of agent?

A. Miscellaneous agent

B. Antimetabolite

C. Plant alkaloid

D. Alkylating agent

6. How is pharmacokinetics defined?

A. The inherited difference in the way a medication is metabolized and/or the effects of a medication on an individual

B. The movement of a drug in the body (absorption, distribution, metabolism, excretion)

C. The use of more than one drug in combination to achieve best results

D. The ability of the drug to target specific muscles after administration

7. Rituximab binds to the CD20 antigen on B cells. Which cell type is primarily affected?

A. T lymphocytes

B. B lymphocytes

C. NK cells

D. Macrophages

8. How is the absolute neutrophil count (ANC) calculated?

A. ANC = WBC × (percentage of neutrophils + bands); typically expressed in x10^9/L.

B. ANC = WBC × neutrophils%

C. ANC = RBC × (neutrophils% + bands%)

D. ANC = WBC × (lymphocytes%)

9. Cumulative dose of which class of chemotherapy agents should be monitored?

A. antimetabolites

B. alkylating agents

C. antiangiogenesis inhibitors

D. anthracyclines

10. Which toxicities are commonly associated with L-asparaginase and warrant monitoring?

A. Pancreatitis, hypersensitivity reactions, coagulation abnormalities

B. Nephrotoxicity and hypertension

C. Hyperthyroidism and hypoglycemia

D. Pulmonary fibrosis and edema

Answers

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

Explanations

1. Why is TPMT testing important before starting 6-mercaptopurine in pediatric oncology?

A. TPMT deficiency increases risk of severe myelosuppression with standard 6-MP dosing; test TPMT activity/genotype and adjust dose accordingly or avoid.

B. TPMT deficiency reduces risk of nephrotoxicity and allows higher dosing.

C. TPMT status only affects hepatic toxicity with 6-MP.

D. TPMT status has no clinical relevance for 6-MP therapy.

TPMT is the enzyme that inactivates thiopurines like 6-mercaptopurine. When TPMT activity is low due to genetic variants, the drug isn't inactivated as well, leading to higher levels of active metabolites that can strongly suppress the bone marrow. That makes severe myelosuppression a real danger if standard 6-MP doses are used. Testing TPMT activity or genotype before starting therapy lets you tailor the dose: with normal activity you can proceed with standard dosing, with reduced activity you start with a lower dose and monitor closely (often adjusting more gradually), and with little or no activity you may need to avoid 6-MP or use significant dose reductions and alternative strategies. This approach prevents dangerous cytopenias while still aiming for treatment efficacy.

2. In TLS prevention, which uric acid–lowering therapy rapidly reduces uric acid levels and is used in high-risk patients?

A. Allopurinol rapidly lowers existing uric acid levels.

B. Probenecid rapidly lowers uric acid levels.

C. Rasburicase rapidly reduces uric acid levels.

D. Febuxostat rapidly lowers uric acid levels.

Rapid reduction of uric acid is crucial in TLS prevention to prevent uric acid nephropathy after tumor cell breakdown. Rasburicase is a recombinant urate oxidase that converts uric acid to allantoin, a more soluble compound that is easily excreted by the kidneys. This enzymatic action provides a swift drop in uric acid levels, which is why it's used in high-risk TLS patients who already have elevated uric acid or large tumor burden. In contrast, agents that inhibit uric acid formation, like allopurinol and febuxostat, prevent the production of new uric acid but do not quickly reduce existing uric acid levels. Probenecid increases renal excretion of uric acid but does not achieve the rapid reduction TLS requires and isn't the standard approach there. So, the fast-acting option for high-risk TLS is rasburicase. Be aware that rasburicase can pose risks in patients with G6PD deficiency and related hypersensitivity reactions, so appropriate testing and monitoring are important.

3. What central venous access device is commonly used for long-term pediatric chemotherapy to facilitate frequent dosing and vesicant administration?

A. Peripheral IV catheter

B. Implanted venous port

C. Umbilical venous catheter

D. Arterial line

Long-term pediatric chemotherapy relies on a durable venous access device that can be accessed repeatedly for frequent dosing and the administration of vesicants. An implanted venous port fits this need by sitting under the skin and connecting to a central vein, allowing treatment through a small hub with a non-coring needle during each session. Because it remains in place for months to years, it minimizes painful needle sticks, reduces the risk of repeated vein damage, and can be used for both regular infusions and vesicant chemotherapies. In contrast, a peripheral IV is not ideal for long-term use or vesicant administration due to limited durability and higher risk of infiltration. An umbilical venous catheter is typically a short-term option used in newborns in specific settings, not for ongoing chemotherapy, and an arterial line is for arterial monitoring, not for venous drug delivery.

4. What steps ensure safe drug administration for immunocompromised pediatric patients during hospitalization?

A. Strict hand hygiene, appropriate PPE, isolation if needed, minimize invasive procedures, prophylactic antibiotics as indicated, and close monitoring.

B. Standard precautions only; no special infection control measures needed.

C. PPE is optional in most pediatric units.

D. Only isolation is required; hand hygiene is not essential.

Infection prevention and vigilant monitoring are essential when giving therapies to immunocompromised pediatric patients in the hospital. Protecting these kids from infections is as important as the medications themselves because their immune systems are weakened, so even small breaches can lead to serious, life-threatening problems. Strict hand hygiene and appropriate personal protective equipment reduce the chance that harmful microbes are transmitted to the patient during every contact or procedure. Isolation when needed helps prevent the spread of contagious organisms to others and protects the patient from acquiring new infections. Minimizing invasive procedures lowers the number of entry points for pathogens and reduces the risk of introducing infection during care. Prophylactic antibiotics, when indicated by the patient's risk factors (such as prolonged neutropenia or specific exposure risks), can prevent certain infections, though they must be used judiciously to balance benefits with the risks of resistance and adverse effects. Close monitoring ensures early detection of fever, sepsis, organ toxicity from drugs, and other adverse events, allowing rapid intervention and adjustment of therapy. While standard precautions are foundational, the heightened infection-control measures described here align with the needs of immunocompromised children, providing layered protection during drug administration and hospitalization.

5. L-Asparaginase is classified as which type of agent?

A. Miscellaneous agent

B. Antimetabolite

C. Plant alkaloid

D. Alkylating agent

L-asparaginase is best understood as an enzyme that depletes a specific amino acid, asparagine, from the bloodstream. Some leukemia cells depend on external asparagine because they can't make enough themselves, so removing it causes those cells to die while many normal cells are less affected. This mechanism isn't about blocking nucleotide synthesis (antimetabolites), damaging DNA directly through cross-links (alkylating agents), or interfering with microtubules (plant alkaloids). Because its action is enzymatic and pathway-specific rather than a typical small-molecule cytotoxic mechanism, it's categorized as a miscellaneous agent. This reflects its unique approach—depleting a nutrient rather than inhibiting a conventional drug target.

6. How is pharmacokinetics defined?

A. The inherited difference in the way a medication is metabolized and/or the effects of a medication on an individual

B. The movement of a drug in the body (absorption, distribution, metabolism, excretion)

C. The use of more than one drug in combination to achieve best results

D. The ability of the drug to target specific muscles after administration

Pharmacokinetics focuses on how the body handles a drug, describing the four main processes: absorption into the bloodstream, distribution to tissues, metabolism to metabolites, and eventual excretion from the body. These steps determine how quickly a drug enters circulation, how widely it spreads, how it is cleared, and how long its effects last. The other descriptions fit different concepts: inherited differences in metabolism point to pharmacogenetics, using more than one drug describes polypharmacy, and targeting specific muscles relates to where a drug acts (pharmacodynamics or drug targeting) rather than how the body processes it.

7. Rituximab binds to the CD20 antigen on B cells. Which cell type is primarily affected?

A. T lymphocytes

B. B lymphocytes

C. NK cells

D. Macrophages

The drug targets a B cell-specific marker. CD20 is expressed on mature B lymphocytes, so rituximab binds these cells and flags them for destruction by the immune system, primarily through antibody-dependent cellular cytotoxicity and complement-mediated lysis. Because CD20 is not present on T lymphocytes, NK cells, or macrophages as their defining marker, these cell types are not the primary targets. Plasma cells typically don't express CD20, so antibody-producing cells are largely spared, allowing B cells to gradually reconstitute after treatment. Therefore, mature B lymphocytes are the cell type primarily affected.

8. How is the absolute neutrophil count (ANC) calculated?

A. ANC = WBC × (percentage of neutrophils + bands); typically expressed in x10^9/L.

B. ANC = WBC × neutrophils%

C. ANC = RBC × (neutrophils% + bands%)

D. ANC = WBC × (lymphocytes%)

The essential idea is that the absolute neutrophil count shows how many neutrophils are in a given volume of blood, and neutrophils include both mature cells (segmented) and immature cells (bands). To get this, you take the total white blood cell count and multiply it by the fraction that are neutrophils, with both segmented neutrophils and bands combined. That's why the formula is WBC × (neutrophil percentage + bands percentage), giving the result in units like x10^9/L. Example: if WBC is 6.0 x10^9/L and neutrophils are 55% with 5% bands, ANC = 6.0 × (0.55 + 0.05) = 6.0 × 0.60 = 3.6 x10^9/L. The key is including both neutrophils and bands in the neutrophil portion. The other options omit bands, use the wrong cell type, or rely on a different calculation, which doesn't reflect the neutrophil portion of the WBC differential.

9. Cumulative dose of which class of chemotherapy agents should be monitored?

A. antimetabolites

B. alkylating agents

C. antiangiogenesis inhibitors

D. anthracyclines

Anthracyclines have a dose-related, cumulative risk of heart damage. The more total exposure a patient has over their lifetime, the higher the chance of developing cardiomyopathy or heart failure. This toxicity is largely irreversible, so clinicians closely track the cumulative dose (often across all cycles and even past treatments) and may limit further use or switch therapies as the total approaches a predefined threshold. That's why monitoring cumulative dose is emphasized for this class. Other classes have different dominant toxicities that aren't tied to a single lifelong dose limit in the same way. Antimetabolites and alkylating agents can cause cumulative marrow suppression and other organ toxicities, but not a clear, universal cardiotoxicity threshold driven by total dose. Antiangiogenesis inhibitors present risks like hypertension and thrombosis, rather than a well-defined cumulative-dose limit for a specific organ.

10. Which toxicities are commonly associated with L-asparaginase and warrant monitoring?

A. Pancreatitis, hypersensitivity reactions, coagulation abnormalities

B. Nephrotoxicity and hypertension

C. Hyperthyroidism and hypoglycemia

D. Pulmonary fibrosis and edema

L-asparaginase can cause effects that involve the pancreas, the immune system, and the liver's production of clotting factors, so those are the toxicities you monitor closely. Pancreatitis is a known risk with this drug, so watching for abdominal pain and testing pancreatic enzymes helps catch it early and guide management. Hypersensitivity reactions are common because the enzyme is a foreign protein to the body; signs range from mild allergic symptoms to anaphylaxis, so vigilance for allergy signs is essential and may require stopping or switching therapy. Coagulation abnormalities occur because asparaginase can impair the liver's synthesis of clotting factors and inhibitors like fibrinogen, leading to prolonged PT/aPTT and bleeding or thrombotic risk; regular coagulation tests and fibrinogen levels are important to detect and address these issues promptly. Other potential toxicities listed, such as nephrotoxicity and hypertension, hyperthyroidism and hypoglycemia, or pulmonary fibrosis and edema, are not typical or characteristic of L-asparaginase and do not usually drive routine monitoring in the same way.

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://cphonchemo.examzify.com

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