USMLE (United States Medical Licensing Examination) Step 1 Practice Exam (Sample)

Study Guide

BY EXAMZIFY

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. **In which condition does expiration become challenging due to airway narrowing and reduced elastic recoil in the lungs?**

   A. Compromised airways in Obstructive Airway Diseases

   B. Right-to-Left Shunt

   C. Restrictive Lung Disease

   D. Decreased Alv Ventilation

2. **Which translocation, t(8;14), is associated with which type of lymphoma characterized by c-myc activation and rapid cell proliferation?**

   A. Burkitt lymphoma

   B. Follicular lymphoma

   C. Mantle cell lymphoma

   D. Diffuse large B-cell lymphoma

3. **Which type of lung disease results in a reduced TLC largely due to limited inspiration?**

   A. Obstructive Lung Capacity

   B. Right-to-Left Shunt

   C. Physiological Shunt

   D. Restrictive Lung Disease

4. **Which condition is characterized by an empty sella turcica on radiological studies, leading to compression and atrophy of the pituitary gland?**

   A. Acute thyroiditis

   B. Empty sella syndrome

   C. Estrogen Effects on TBG and Thyroid Hormones

   D. Hashimoto thyroiditis

5. **Which enzyme deficiency leads to increased urine levels of methylmalonic acid and propionic acid along with symptoms such as hyperammonemia, ketotic hypoglycemia, and metabolic acidosis?**

   A. Methylmalonyl-CoA mutase

   B. Glucose-6-Phosphatase

   C. Pyruvate Carboxylase

   D. Adenosine Deaminase

6. Which of the following drugs is a known cause of Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH)?

A. Carbamazepine

B. Cyclophosphamide

C. SSRI

D. All of the above

7. What is the specific treatment-resistant condition targeted by clozapine treatment guidelines?

A. Diastolic heart failure

B. Systolic heart failure

C. Patent ductus arteriosus

D. Mitral stenosis

8. Which condition presents with hypertension, hypernatremia, and hypokalemia with no edema due to the Aldosterone escape mechanism?

A. 2° Aldosteronism

B. Addison disease

C. Primary hyperparathyroidism

D. 1° Aldosteronism

9. Which of the following is associated with Staphylococcus epidermidis infections?

A. Coagulase positive

B. Novobiocin resistant

C. Common in infective endocarditis

D. Common in urinary tract infections

10. What is the primary pathophysiological mechanism of acute rheumatic fever?

A. Molecular mimicry

B. Direct bacterial invasion

C. Primary viral infection

D. Autoimmune destruction

Answers

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

Explanations

1. In which condition does expiration become challenging due to airway narrowing and reduced elastic recoil in the lungs?

A. Compromised airways in Obstructive Airway Diseases

B. Right-to-Left Shunt

C. Restrictive Lung Disease

D. Decreased Alv Ventilation

The correct choice indicates that expiration becomes difficult primarily due to airway narrowing and reduced elastic recoil associated with obstructive airway diseases, such as asthma and chronic obstructive pulmonary disease (COPD). In these conditions, the airways are narrowed either due to inflammation, bronchoconstriction, or structural changes, which leads to difficulty in expelling air from the lungs. Furthermore, the loss of elastic recoil in the lung tissue can exacerbate this difficulty, resulting in air trapping and reduced airflow during expiration. Obstructive airway diseases specifically affect the ability to exhale air effectively, as there is increased resistance to airflow, which is a hallmark of these conditions. In contrast, other options such as a right-to-left shunt involve different mechanisms primarily affecting oxygenation rather than airflow obstruction. Restrictive lung disease is characterized by reduced lung volumes, making inhalation challenging rather than expiration. Decreased alveolar ventilation pertains to overall gas exchange inefficiency, which encompasses both inhalation and exhalation but does not specifically highlight the difficulties during expiration caused by airway narrowing.

2. Which translocation, t(8;14), is associated with which type of lymphoma characterized by c-myc activation and rapid cell proliferation?

A. Burkitt lymphoma

B. Follicular lymphoma

C. Mantle cell lymphoma

D. Diffuse large B-cell lymphoma

The translocation involving chromosomes 8 and 14, specifically t(8;14), is a hallmark of Burkitt lymphoma. This genetic alteration leads to the activation of the c-myc oncogene, which results in uncontrolled cell proliferation. Burkitt lymphoma is characterized by a very aggressive course and is most commonly seen in children but can also occur in adults. The c-myc gene, when overexpressed due to its juxtaposition to the immunoglobulin heavy chain locus on chromosome 14, drives the rapid division of B-lymphoid cells. This aggressive proliferation is a key characteristic of Burkitt lymphoma, distinguishing it from other types of lymphomas. While other lymphomas mentioned are associated with different genetic changes and pathways, Burkitt lymphoma's association with c-myc activation is particularly significant in its pathology and clinical presentation.

3. Which type of lung disease results in a reduced TLC largely due to limited inspiration?

A. Obstructive Lung Capacity

B. Right-to-Left Shunt

C. Physiological Shunt

D. Restrictive Lung Disease

Restrictive lung disease is characterized by a reduction in total lung capacity (TLC) primarily due to limited expansion of the lungs during inspiration. This limitation can arise from various factors, including intrinsic lung pathologies (such as pulmonary fibrosis) that cause stiffening of the lung tissue or extrinsic factors, like obesity or chest wall deformities, that hinder lung expansion. In restrictive lung disease, the lung volumes and capacities are diminished, but the airflow rates are generally normal or even increased since the air passage is not obstructed; rather, it is the lung's ability to contain air that is impaired. This contrasts with obstructive lung diseases like asthma or chronic obstructive pulmonary disease (COPD), where TLC may be normal or increased, but the ability to expel air is limited, leading to hyperinflation. Conditions such as right-to-left shunt and physiological shunt refer to issues related to blood flow and gas exchange rather than direct restrictions in lung volume; thus, they do not appropriately fit the context of decreased TLC due to limited inspiration.

4. Which condition is characterized by an empty sella turcica on radiological studies, leading to compression and atrophy of the pituitary gland?

A. Acute thyroiditis

B. Empty sella syndrome

C. Estrogen Effects on TBG and Thyroid Hormones

D. Hashimoto thyroiditis

Empty sella syndrome is a condition where the sella turcica, a bony structure in the skull that houses the pituitary gland, appears empty on radiological studies. This can lead to compression and atrophy of the pituitary gland. The other options, although they may involve the pituitary gland or thyroid hormones, do not cause an empty sella on radiological studies. Acute thyroiditis refers to inflammation of the thyroid gland, Estrogen Effects on TBG and Thyroid Hormones refers to the effects of estrogen on thyroid hormone levels, and Hashimoto thyroiditis is a chronic autoimmune disorder affecting the thyroid gland. These conditions would not result in an empty sella on radiological studies.

5. Which enzyme deficiency leads to increased urine levels of methylmalonic acid and propionic acid along with symptoms such as hyperammonemia, ketotic hypoglycemia, and metabolic acidosis?

A. Methylmalonyl-CoA mutase

B. Glucose-6-Phosphatase

C. Pyruvate Carboxylase

D. Adenosine Deaminase

The correct choice is associated with a deficiency in methylmalonyl-CoA mutase, an enzyme involved in the metabolism of certain amino acids and fatty acids, specifically in the conversion of methylmalonyl-CoA to succinyl-CoA. When this enzyme is deficient, there is a buildup of methylmalonic acid, which subsequently leads to increased levels of propionic acid as well. This metabolic disruption manifests clinically as hyperammonemia (because of impaired urea cycle function), ketotic hypoglycemia (due to the body's inability to properly utilize fats for energy and produce ketone bodies), and metabolic acidosis (resulting from the accumulation of acids in the body). In this scenario, the urine levels of both methylmalonic acid and propionic acid serve as diagnostic markers. Elevated levels of these organic acids in urine indicate a problem with the metabolism of certain dietary components, typically seen in conditions like methylmalonic acidemia, which is often caused by a deficiency in methylmalonyl-CoA mutase. The other enzymatic deficiencies listed do not lead to the same combination of metabolic derangements. For example, glucose-6-phosphatase deficiency primarily leads to glycogen storage diseases such as von Gierke's disease

6. Which of the following drugs is a known cause of Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH)?

A. Carbamazepine

B. Cyclophosphamide

C. SSRI

D. All of the above

Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH) is a condition characterized by excessive release of antidiuretic hormone (ADH), which leads to water retention, dilutional hyponatremia, and concentrated urine. Various medications can induce SIADH, and all of the mentioned drugs are known to cause this condition. Carbamazepine, an anticonvulsant, has been recognized for its potential to stimulate the release of ADH, contributing to SIADH development, particularly in certain populations or with higher doses. Cyclophosphamide, a chemotherapy agent, can also lead to SIADH. Its effects on the kidneys can result in enhanced sensitivity to ADH or increased release of the hormone, thus promoting water retention. Selective serotonin reuptake inhibitors (SSRIs) are another class of drugs associated with SIADH. They can increase serotonin levels, which may enhance ADH secretion. Since all the options listed are recognized causes of SIADH, the choice indicating that all of them contribute to the syndrome is accurate.

7. What is the specific treatment-resistant condition targeted by clozapine treatment guidelines?

A. Diastolic heart failure

B. Systolic heart failure

C. Patent ductus arteriosus

D. Mitral stenosis

The focus of the question is on the specific treatment-resistant condition that clozapine is indicated for, which relates to psychiatric disorders rather than cardiovascular conditions. Clozapine is primarily utilized in the management of treatment-resistant schizophrenia. This medication is highly effective for patients who do not respond satisfactorily to standard antipsychotic therapies. Clozapine's mechanism includes its unique ability to modulate neurotransmitter systems, particularly through its effects on serotonin and dopamine receptors. It is not used to treat heart failure or any structural heart defects like patent ductus arteriosus or mitral stenosis. Instead, its efficacy is particularly notable in cases where patients fail to achieve adequate symptom relief with other antipsychotic medications, making it a key option in severe schizophrenia management. Understanding the specific indications for clozapine is essential in the context of psychiatric treatment, emphasizing its role in addressing complex cases of schizophrenia that are resistant to other standard antipsychotic treatments.

8. Which condition presents with hypertension, hypernatremia, and hypokalemia with no edema due to the Aldosterone escape mechanism?

A. 2° Aldosteronism

B. Addison disease

C. Primary hyperparathyroidism

D. 1° Aldosteronism

This condition presents with hypertension, hypernatremia, and hypokalemia due to increased levels of aldosterone in the body. However, unlike in secondary aldosteronism (A), where there is an underlying issue causing the increase in aldosterone levels, in primary aldosteronism, the issue lies with the adrenal gland itself. This can be due to an adenoma (growth) on the adrenal gland or hyperplasia (enlargement) of the adrenal gland. Addison's disease (B) is a disorder where the adrenal gland does not produce enough hormones, including aldosterone, leading to hypotension and low sodium levels. Primary hyperparathyroidism (C) is a condition where the parathyroid gland produces too much hormone, leading to increased calcium levels and potential hypertension, but it does not affect aldosterone levels. Thus, the correct answer is 1° Aldosteronism (D).

9. Which of the following is associated with Staphylococcus epidermidis infections?

A. Coagulase positive

B. Novobiocin resistant

C. Common in infective endocarditis

D. Common in urinary tract infections

Staphylococcus epidermidis is a coagulase-negative staphylococcus that is part of the normal flora of human skin and mucous membranes. It is known to be a major opportunistic pathogen, especially in individuals with compromised immune systems or those with implanted medical devices such as catheters and prosthetic devices. The infection it causes can often lead to infections associated with devices or biofilms, making it a concerning pathogen in clinical settings. One of the notable associations of Staphylococcus epidermidis infections is its role in infective endocarditis, particularly in patients who have prosthetic heart valves or other cardiac devices. This pathogen can adhere to foreign surfaces in the body and form biofilms, which are protective layers that enable bacteria to resist the host's immune response and standard treatment. The other options do not accurately reflect the characteristics of Staphylococcus epidermidis. While it is a coagulase-negative organism, it is specifically coagulase-negative rather than positive, and it may exhibit sensitivity to novobiocin, contrary to some other Staphylococcus species. While Staphylococcus species can cause urinary tract infections, Staphylococcus epidermidis is not the primary organism responsible for these infections compared to other pathogens like E. coli.

10. What is the primary pathophysiological mechanism of acute rheumatic fever?

A. Molecular mimicry

B. Direct bacterial invasion

C. Primary viral infection

D. Autoimmune destruction

The primary pathophysiological mechanism of acute rheumatic fever is molecular mimicry. This phenomenon occurs when the immune response generated against streptococcal antigens (specifically those from group A Streptococcus, such as the M protein) inadvertently targets similar antigens present in human tissues. In this case, the body's immune system recognizes these bacterial antigens as foreign and mounts an attack against them. However, because these antigens share structural similarities with proteins found in human tissues—such as cardiac, neural, and connective tissue—the immune response can cross-react with and damage these tissues. This molecular mimicry is central to the development of rheumatic fever, leading to complications such as carditis, arthritis, and chorea. While direct bacterial invasion does not play a significant role in acute rheumatic fever, as the disease is primarily a post-infectious immunological condition rather than an infectious one, and viral infections do not cause rheumatic fever, focusing on molecular mimicry provides essential insight into the underlying mechanisms of this illness and its autoimmune-like manifestations.

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://usmlestep1.examzify.com

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