ABO Exam Practice Test – Free Study Guide & Optician Test Prep (2025) (Sample)

Study Guide

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Questions

1. What aspect of lenses does the "index of refraction" specifically affect?

A. The weight of the lens

B. Light bending capabilities

C. Color uniformity in lenses

D. Lens curvature

2. What is the speed of light in air?

A. 186,000 miles per second

B. One meter

C. One diopter prism

D. Refraction

3. What is the standard unit of measurement for lens power?

A. Millimeter (mm)

B. Diopter (D)

C. Degree (°)

D. Meter (m)

4. What happens when rays of light go from a medium of less density to a more dense medium?

A. Minifies

B. Disperses

C. Reflects

D. Slows down

5. What term is used for a unit of measurement for ophthalmic prism?

A. Antireflection

B. 34mm

C. Diopters

D. Colmascope

6. What is the material that filters the least UV radiation?

- **A. Crown Glass**
- **B. CR-39**
- **C. Polycarbonate**
- **D. Trivex**

7. Which government agency is responsible for enforcing HIPPA?

- **A. Centers for Disease Control and Prevention (CDC)**
- **B. Food and Drug Administration (FDA)**
- **C. The Department of Health and Human Services**
- **D. National Institutes of Health (NIH)**

8. What is the expected outcome of using different lens powers?

- **A. All patients will find them equally effective**
- **B. They may alter the perceived size of the eyes**
- **C. They always improve vision**
- **D. They are solely for aesthetic purposes**

9. Which of the following is considered an indicator of lens thickness in opticianry?

- **A. Saggital value**
- **B. Base curves**
- **C. Prism tint**
- **D. Effective diameter**

10. How might a patient's lifestyle influence their eyewear choices?

- **A. It only affects the color of the frames**
- **B. Active lifestyles may require durable, impact-resistant frames and lenses**
- **C. It has no impact on eyewear choices**
- **D. It solely depends on prescription strength**

Answers

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

Explanations

1. What aspect of lenses does the "index of refraction" specifically affect?

A. The weight of the lens

B. Light bending capabilities

C. Color uniformity in lenses

D. Lens curvature

The index of refraction is a critical property of materials that measures how much light slows down and bends when it enters the material. When light travels through different media, it changes speed at the interface, which causes it to bend, or refract. The index of refraction quantifies this effect, and thus determines how effectively a lens can bend light. In optical terms, the higher the index of refraction, the more the light will bend as it passes through the lens. This property influences the design and effectiveness of lenses in correcting vision, as glasses with a higher index of refraction can be made thinner and lighter while still providing the necessary optical power. Therefore, the index of refraction directly affects the light bending capabilities of the lens. Other factors mentioned, such as weight, color uniformity, and lens curvature, are influenced by the material and design choices but do not directly relate to how light interacts with the lens in terms of bending.

2. What is the speed of light in air?

A. 186,000 miles per second

B. One meter

C. One diopter prism

D. Refraction

The speed of light in air is approximately 186,000 miles per second. This value is derived from the speed of light in a vacuum, which is roughly 299,792 kilometers per second (or about 300,000 kilometers per second), and when light travels through air, its speed is slightly reduced due to the refractive index of air. However, this reduction is minimal, so for practical purposes, the speed of light is often approximated as 186,000 miles per second when discussing its behavior in air. Other options do not relate directly to the measurement of the speed of light. One meter is a unit of distance, not a measure of speed. One diopter prism refers to a unit related to the bending of light, but does not specify speed. Refraction is a phenomenon that describes how light changes direction when moving from one medium to another, not a measurement of speed itself. Thus, stating that the speed of light in air is 186,000 miles per second accurately captures the scientific consensus on this topic.

3. What is the standard unit of measurement for lens power?

A. Millimeter (mm)

B. Diopter (D)

C. Degree (°)

D. Meter (m)

The standard unit of measurement for lens power is the diopter (D). Lens power refers to the degree to which a lens converges or diverges light, and it is directly related to the focal length of the lens. Specifically, one diopter is equal to the inverse of the focal length measured in meters. Therefore, a lens with a focal length of 1 meter has a power of 1 diopter. This unit is essential in optics because it allows opticians and eye care professionals to prescribe corrective lenses that effectively address a patient's vision needs based on their refractive errors. The other units mentioned, such as millimeter, degree, and meter, are not appropriate for measuring lens power. Millimeters are used to measure physical distances or dimensions, degrees may measure angles or the curvature of a lens, and meters also reflect distance but not the optical power of a lens. Thus, the diopter is uniquely suited for describing how lenses affect light and is the universally accepted standard in the field of optics.

4. What happens when rays of light go from a medium of less density to a more dense medium?

A. Minifies

B. Disperses

C. Reflects

D. Slows down

A This is incorrect because minification is a decrease in size or scope, which does not occur with light rays changing medium. B: This is incorrect because dispersion is the splitting of light into its component colors, not what happens when light changes medium. C: This is incorrect because reflection is when light bounces off a surface, which is not what occurs when light enters a different medium. D: This is correct because light slows down when it enters a more dense medium due to the increased interaction with particles in the medium. This can cause the light to change direction, depending on the angle of entry, which is known as refraction.

5. What term is used for a unit of measurement for ophthalmic prism?

A. Antireflection

B. 34mm

C. Diopters

D. Colmascope

Diopters are the unit of measurement for ophthalmic prism, while the other options are not related to this specific measurement. Antireflection is a coating used to reduce glare on lenses, 34mm is a measurement of lens diameter, and Colmascope is a medical instrument used for analyzing the eye. These options are not typically used as units of measurement for ophthalmic prism. Therefore, Option C is the best choice for this question.

6. What is the material that filters the least UV radiation?

A. Crown Glass

B. CR-39

C. Polycarbonate

D. Trivex

Crown Glass is the material that filters the least UV radiation compared to the other options. Crown Glass has a lower inherent UV protection compared to modern lens materials like CR-39, Polycarbonate, and Trivex. This is because Crown Glass does not have UV-blocking properties built into the material itself and requires additional coatings to provide adequate UV protection. On the other hand, CR-39, Polycarbonate, and Trivex have intrinsic UV protection due to the nature of their composition, making them more efficient at blocking UV radiation without the need for additional coatings.

7. Which government agency is responsible for enforcing HIPPA?

A. Centers for Disease Control and Prevention (CDC)

B. Food and Drug Administration (FDA)

C. The Department of Health and Human Services

D. National Institutes of Health (NIH)

The Department of Health and Human Services (HHS) is the government agency responsible for enforcing HIPAA (Health Insurance Portability and Accountability Act). HHS oversees the implementation and compliance efforts regarding HIPAA regulations, which are designed to protect patients' medical records and other personal health information. This agency has the authority to enforce HIPAA standards, investigate complaints, and impose penalties for violations. Understanding the roles of the other agencies can clarify why HHS is the correct choice. The Centers for Disease Control and Prevention (CDC) primarily focuses on public health and disease prevention. The Food and Drug Administration (FDA) is responsible for regulating food and drug safety and efficacy, not directly related to patient privacy rights. The National Institutes of Health (NIH) conducts medical research but does not have the regulatory authority over HIPAA enforcement. Therefore, HHS's specific mandate to handle healthcare privacy laws makes it the correct agency for enforcing HIPAA.

8. What is the expected outcome of using different lens powers?

A. All patients will find them equally effective

B. They may alter the perceived size of the eyes

C. They always improve vision

D. They are solely for aesthetic purposes

Using different lens powers can indeed alter the perceived size of the eyes. This phenomenon occurs due to the nature of optical magnification and minification associated with lens prescription. Lenses that are stronger (higher plus power) can make objects appear larger than they are, while stronger minus lenses often make objects appear smaller. This visual effect impacts how a patient perceives not only the objects they look at but also their own eyes in relation to their surroundings. Different lens powers are prescribed based on individual visual needs, aiming to correct refractive errors and improve overall vision clarity, but the influence on the perception of eye size is a notable and observable outcome. Therefore, while lens powers serve corrective functions, their impact on aesthetics—how the eyes are perceived—is an important consideration in optometry and eyewear fitting.

9. Which of the following is considered an indicator of lens thickness in opticianry?

A. Saggital value

B. Base curves

C. Prism tint

D. Effective diameter

The sagittal value is considered an indicator of lens thickness in opticianry because it measures the distance between the thickest and thinnest points of the lens. This measurement is important in determining the overall thickness of the lens and ensuring proper fit for the wearer. Base curves do not directly indicate lens thickness, but rather the curvature of the lens. Prism tint is a type of lens coating and does not accurately measure thickness. Effective diameter is simply the size of the lens and does not reflect its thickness.

10. How might a patient's lifestyle influence their eyewear choices?

A. It only affects the color of the frames

B. Active lifestyles may require durable, impact-resistant frames and lenses

C. It has no impact on eyewear choices

D. It solely depends on prescription strength

A patient's lifestyle significantly influences their eyewear choices, particularly the need for durable and impact-resistant frames and lenses in cases where their activities involve physical exertion or exposure to potential hazards. For individuals who lead active lifestyles, such as athletes or those engaged in outdoor activities, selecting eyewear that can withstand rigorous conditions becomes essential. This may include options made from flexible materials, that provide added comfort, or lenses that resist shattering and scratching. In contrast, the other options don't adequately consider the broad range of lifestyle factors influencing eyewear selection. For instance, while color may play a role, it is not the sole aspect affected by lifestyle choices. Additionally, uniformity in prescription strength does not account for the different uses and activities that can demand different features in eyewear—for example, sports goggles versus regular prescription glasses. Overall, lifestyle directly shapes practical considerations and preferences for eyewear.