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

Study Guide

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Questions

1. What type of lens is typically used for reading glasses?

- **A. Concave lens**
- **B. Flat lens**
- **C. Convex lens**
- **D. Fresnel lens**

2. 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**

3. What is the primary difference between hard and soft contact lenses?

- **A. Hard lenses are thicker than soft lenses**
- **B. Hard lenses are rigid and do not conform to the shape of the eye, while soft lenses are flexible**
- **C. Soft lenses provide better vision than hard lenses**
- **D. Hard lenses are disposable while soft lenses are not**

4. What does hypophoria in optometry refer to?

- **A. A. Inward eye deviation**
- **B. B. Upward eye deviation**
- **C. C. Downward eye deviation**
- **D. D. Outward eye deviation**

5. Which type of lenses represent a biconvex lens?

- **A. cylinder lenses**
- **B. plus lenses**
- **C. minus lenses**
- **D. two plus surfaces**

6. What characteristic is associated with a minus lens?

A. Slows down

B. Minifies

C. Reflects

D. Disperses

7. What is the speed of light in air?

A. 186,000 miles per second

B. One meter

C. One diopter prism

D. Refraction

8. Where is the industry standard between the alignment markings on a progressive lens?

A. The side of the lens where the add power if etched

B. On the temporal side of the lens

C. Unit of measurement for ophthalmic prism

D. When a patient's eyes move inward to focus at near

9. In optical dispensing, what is the term for the distance from the back surface of the lens to the front surface of the cornea?

A. Focal length

B. Vertex distance

C. Optical center distance

D. Lenticular distance

10. What is the role of the limbus in conjunction with the cornea and sclera?

A. The blue portion of light on the visible spectrum

B. Power times 0.5

C. Measures vertex distance

D. None of the above

Answers

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

Explanations

1. What type of lens is typically used for reading glasses?

A. Concave lens

B. Flat lens

C. Convex lens

D. Fresnel lens

Reading glasses are designed to assist with near vision, primarily for tasks such as reading or other close-up work. When a person has difficulty focusing on nearby objects, which is common as a result of presbyopia (the natural aging of the eye), a convex lens is used in reading glasses. A convex lens is thicker at the center than at the edges and converges light rays, allowing the viewer to focus on close objects more easily. By bending the light rays inward, the lens helps bring the image into clearer focus on the retina, compensating for the decreased ability of the eye's lens to focus on near objects due to age. In contrast, concave lenses are generally employed for correcting myopia (nearsightedness) and diverge light rays, which wouldn't be suitable for reading. Flat lenses do not alter the vision and thus are not used for correction. Fresnel lenses are used in specific applications like lighthouses or certain types of eyeglasses, but they are not typically prescribed for standard reading glasses.

2. 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.

3. What is the primary difference between hard and soft contact lenses?

A. Hard lenses are thicker than soft lenses

B. Hard lenses are rigid and do not conform to the shape of the eye, while soft lenses are flexible

C. Soft lenses provide better vision than hard lenses

D. Hard lenses are disposable while soft lenses are not

The primary difference between hard and soft contact lenses lies in their material and flexibility. Hard lenses, often referred to as rigid gas permeable (RGP) lenses, are manufactured from a firm, durable material that does not bend or flex. This rigidity allows them to maintain their shape on the eye, providing a consistent refractive surface. Their design often results in clearer vision for patients, especially those with certain vision conditions, as they can correct higher levels of astigmatism. On the other hand, soft lenses are made from a pliable, hydrophilic (water-attracting) material that allows them to conform to the shape of the eye. This flexibility makes soft lenses generally more comfortable for wearers, as they move with the eye during blinking and are less likely to dislodge. The snug fit also allows for better oxygen permeability, contributing to the overall comfort of the wearer. This distinction in material and functionality is crucial for selecting the appropriate type of contact lens based on individual needs, comfort levels, and the specific vision correction required. The other options do not accurately summarize the fundamental difference, such as the misconception about thickness, vision quality comparisons, or disposability, which can vary within each lens type and wear schedule.

4. What does hypophoria in optometry refer to?

A. A. Inward eye deviation

B. B. Upward eye deviation

C. C. Downward eye deviation

D. D. Outward eye deviation

Hypophoria refers specifically to a condition where there is a downward deviation of one eye relative to the other when the eyes are in a primary position of gaze. This term is often used in the context of strabismus or misalignment of the eyes. In instances of hypophoria, one eye may appear to be lower than the other due to muscular imbalances or neurological issues affecting the eye muscles. Understanding this condition is crucial in optometry for diagnosing and managing various types of strabismus, and it highlights the importance of binocular vision in maintaining proper visual alignment and function. An accurate interpretation and recognition of eye deviations are essential to develop appropriate treatment plans for patients experiencing these conditions.

5. Which type of lenses represent a biconvex lens?

A. cylinder lenses

B. plus lenses

C. minus lenses

D. two plus surfaces

A biconvex lens is a type of lens that is curved outwards on both sides. In comparison, a cylinder lens only has one curved surface, while minus lenses are curved inward and do not have the outward convex shape. Plus lenses generally have a convex shape, but they are not necessarily biconvex. The only option that includes two outwardly curved surfaces, making it biconvex, is D two plus surfaces. Therefore, D is the correct answer.

6. What characteristic is associated with a minus lens?

A. Slows down

B. Minifies

C. Reflects

D. Disperses

A minus lens, also known as a concave lens, is characterized by its ability to minify or reduce the size of an image seen through it. This characteristic is a result of the lens shape, which is thinner at the center and thicker at the edges. When light rays enter a concave lens, they diverge or spread out, which results in the formation of a virtual image that appears smaller than the object itself. This minifying effect is particularly useful in correcting nearsightedness (myopia), allowing individuals to see distant objects more clearly. The other options represent different characteristics that are not associated with a minus lens. "Slows down" does not accurately describe the optical properties of a minus lens, as the lens itself does not affect the speed of light but rather the direction in which the light rays travel. "Reflects" pertains to the behavior of certain types of surfaces or coatings but does not define the function of a minus lens. "Disperses" is more commonly associated with lenses that split light into its component colors, typically seen in prisms rather than concave lenses. Thus, the defining feature of a minus lens is its ability to minify images, making this the correct answer.

7. 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.

8. Where is the industry standard between the alignment markings on a progressive lens?

A. The side of the lens where the add power if etched

B. On the temporal side of the lens

C. Unit of measurement for ophthalmic prism

D. When a patient's eyes move inward to focus at near

The industry standard for alignment markings on a progressive lens is located on the temporal side of the lens. This positioning is crucial for ensuring that the lens is properly aligned with the wearer's line of sight. When the alignment markings are on the temporal side, it helps in maintaining the correct orientation of the progressive design, allowing the wearer to benefit from the full range of vision provided by the lens—distance, intermediate, and near. Positioning the markings on the temporal side also plays a significant role in the fitting process. It allows opticians to conveniently adjust the lenses based on the visual needs and anatomical characteristics of the wearer, ensuring that the progressive zones of the lens are properly aligned with the pupil centers. This proper alignment is essential for optimizing the visual experience and minimizing any distortions or discomfort that could arise from misalignments. The other options do not pertain to the standard placement of alignment markings on progressive lenses. The presence of an etched add power on the lens refers to a feature not typically associated with alignment and is often placed on the front surface. The unit of measurement for ophthalmic prism is relevant for assessing prism effects but does not relate to the specific alignment marks on progressive lenses. Finally, the process of a patient's eyes moving inward to focus

9. In optical dispensing, what is the term for the distance from the back surface of the lens to the front surface of the cornea?

A. Focal length

B. Vertex distance

C. Optical center distance

D. Lenticular distance

The term for the distance from the back surface of the lens to the front surface of the cornea is known as vertex distance. This measurement is crucial in optical dispensing because it affects the effective power of the lens as perceived by the patient. Changes in vertex distance can alter the way light is focused on the retina, which can impact the overall visual acuity for the wearer. In practice, understanding vertex distance is important for ensuring that prescription lenses are fitted in a way that optimizes visual performance. If the lenses are positioned too far away or too close to the eye, the wearer might experience distorted vision or discomfort. Thus, properly measuring and considering vertex distance during the fitting process helps in achieving the best possible visual correction for the patient.

10. What is the role of the limbus in conjunction with the cornea and sclera?

A. The blue portion of light on the visible spectrum

B. Power times 0.5

C. Measures vertex distance

D. None of the above

The limbus plays a crucial role in maintaining the structure and function of the eye, particularly as it interfaces between the cornea and sclera. It is located at the junction where the transparent cornea meets the opaque sclera, serving several important functions. Firstly, the limbus houses the stem cells that are essential for the regeneration of corneal epithelial cells. These stem cells ensure that the outer layer of the cornea can repair itself after injury, maintaining clarity and proper functioning of this vital part of the eye. Additionally, the limbus contains the trabecular meshwork, which is involved in the drainage of the aqueous humor, the fluid that provides internal pressure to the eye and nourishes its avascular tissues. This drainage system is crucial for maintaining intraocular pressure, which is important for eye health and preventing conditions like glaucoma. Also, the limbus has a role in the vascular supply and immune response of the eye through its connections with blood vessels. It provides a site for nutrient exchange and helps in the defense against pathogens. Understanding these functions helps clarify why options related to light spectrum, optical power calculations, or vertex distance do not apply to the role of the limbus. Thus, it becomes clear that the correct choice is that none of