2025/06

SET A

BACHELOR OF OPTOMETRY
SECOND SEMESTER
VISUAL OPTICS-I
BOP-206

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs. **Full Marks: 70**

Objective

Time: 30 mins. **Marks: 20**

Choose the correct answer from the following: ***1×20=20***

1. The anterior chamber depth of the human eye is typically:
   a. 2.5mm
   b. 3.0mm
   c. 4.5mm
   d. 5.0mm

2. The average refractive index of the crystalline lens in the human eye is:
   a. 1.336
   b. 1.376
   c. 1.406
   d. 1.410

3. The total refractive power of the emmetropic human eyeball is approximately:
   a. 40D
   b. 60D
   c. 80D
   d. 100D

4. How many Purkinje images are typically formed in the human eye?
   a. 4
   b. 3
   c. 5
   d. 2

5. The term "angle kappa" refers to the angle between:
   a. Visual axis and optical axis
   b. Line of sight and optical axis
   c. Pupillary axis and visual axis
   d. Optical axis and corneal axis

6. Greater the magnification leads to:
   a. Increased depth of field
   b. Decreased depth of field
   c. No effect on depth of field
   d. Increased accommodation

7. Which part of the eye is primarily responsible for focusing light onto the retina?
   a. Cornea
   b. Lens
   c. Retina
   d. Iris

8. The optical axis of the eye is:
   a. A straight line passing through the center of the lens, cornea and retina
   b. The pathway of light to the fovea
   c. The alignment of the iris with the retina
   d. The angle between the pupil and visual axis

9. What is the common term for myopia?
   a. Farsightedness
   b. Near sightedness
   c. Blurred vision
   d. Eye fatigue

10. Refractive correction using LASIK involves reshaping which part of the eye?
    a. Lens
    b. Retina
    c. Cornea
    d. Sclera

11. In spherical ametropia, the refractive error is caused by:
    a. Variation in the axial length
    b. Uneven focusing of light rays
    c. Uniform changes in the refractive power of the eye
    d. Asymmetry in corneal curvature

12. Axial ametropia is more likely to occur when:
    a. The cornea is irregularly shaped
    b. The axial length is shorter or longer than normal
    c. There is an increase in the refractive index of the lens
    d. There is no accommodation effort

13. Presbyopia is caused by:
    a. Increased axial length
    b. Loss of lens elasticity
    c. Increased corneal curvature
    d. Retinal degeneration

14. At what age does presbyopia typically start developing?
    a. 10 - 20 years
    b. 20 - 30 years
    c. 40 - 45 years
    d. 65 - 70 years

15. Presbyopia affects which type of vision the most?
    a. Distance vision
    b. Night vision
    c. Near vision
    d. Peripheral vision

16. Presbyopia is primarily due to changes in which part of the eye?
    a. Cornea
    b. Retina
    c. Lens
    d. Optic nerve

17. Which test is commonly used to measure Amplitude of Accommodation?
    a. Ishihara test
    b. Push-up test
    c. Cover test
    d. Fluorescein staining

18. .....unit of measurement for Amplitude of Accommodation.
    a. Degrees
    b. Diopters (D)
    c. Millimeters (mm)
    d. Seconds

19. What happen to the ciliary muscle when focusing on a distant object?
    a. Contracts
    b. Relaxes
    c. Becomes grid
    d. Expand

20. .....muscle controls the shape of the lens during accommodation.
    a. Ciliary muscle
    b. Extraocular muscle
    c. Pupil muscle
    d. Optic muscle

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Descriptive

Time : 2 hr. 30 mins. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1. Describe the construction of the Gullstrand exact schematic eye, including its refractive surfaces, refractive indices, and focal points. How does it represent the optical properties of the human eye more accurately than the reduced eye? 7+3=10
2. Define accommodation, mechanism of accommodation and assessment of accommodation. 10
3. Write a detailed note on the angles of the eye: angle alpha, angle kappa, angle gamma, optical axis and visual axis with a diagram. 10
4. What is the difference between presbyopia and hypermetropia, and how can they be differentiated during an eye examination? 10
5. Explain myopia in detail. Include its causes, types, symptoms, diagnosis and correction methods. 10
6. Explain the methods used to measure corneal curvature and thickness. Discuss the Purkinje Images formation and orientation. 6+4=10
7. Describe the different types of aberrations in an optical system with diagram. 10
8. Define presbyopia and explain its chart showing the progression of presbyopia according to age, causes, symptom, diagnosis and management. 2+8=10

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