



Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD (now MoE)

Re-accredited with 'A++' Grade by NAAC. CGPA 3.65/4, Category I by UGC

Coimbatore - 641 043, Tamil Nadu, India

Bachelor's Degree Examination – May 2025

II Semester

Class : I UG
Major : Optometry

Time: 3 Hours
Max. Marks: 100

22BOPC08 Ocular Physiology

Course Outcomes:

On the successful completion of the course, students will be able to

- CO1: To inspect the physiology of cornea, dynamics of aqueous humor and eyelid and tear film physiology.
CO2: To interpret physiology of lens, vitreous humor, retina, optic nerve and ocular circulation.
CO3: To investigate the physiology of extra ocular muscles and eye movements
CO4: To examine the physiology of pupils, accommodation and intraocular pressure
CO5: To scrutinize the physiology and neurophysiology of vision

Part A

10 x 1 = 10

Choose the Correct Answer

- The function of the tear film includes: CO1 K1
 - Lubrication
 - Optical clarity
 - Antimicrobial protection
 - All of the above
- The muscle responsible for lid closure is: CO1 K1
 - Levatorpalpebraesuperioris
 - Orbicularis oculi
 - Müller's muscle
 - Inferior oblique
- Aqueous humor is primarily drained through: CO1 K1
 - Vitreous chamber
 - Uveal meshwork
 - Schlemm's canal
 - Scleral spur
- The primary function of extraocular muscles is to: CO3 K2
 - Control eyelid movement
 - Move the eyeball
 - Regulate intraocular pressure
 - Control pupil dilation
- The physiological basis of light reflex involves: CO4 K2
 - Optic nerve
 - Oculomotor nerve
 - Both a and b
 - Trigeminal nerve
- The transparency of the cornea is mainly due to CO1 K2
 - High water content
 - Regular arrangement of collagen fibrils
 - Increased vascularity
 - High cellular density
- The accommodative mechanism is mainly controlled by: CO4 K2
 - Optic nerve
 - Ciliary body
 - Retina
 - Sclera
- Which is NOT a layer of the retina? CO2 K1
 - Ganglion cell layer
 - Photoreceptor layer
 - Choroid
 - Inner nuclear layer
- The visual pathway involves which of the following structures? CO2 K2
 - Lateral geniculate body
 - Optic chiasm
 - Primary visual cortex
 - All of the above
- The Purkinje shift refers to: CO5 K3
 - Change in color sensitivity from day to night
 - Inability to detect color at night
 - Increase in peripheral vision at night
 - Loss of central vision

Part B
Answer ALL questions
Each answer should not exceed 400 words or two pages

5 x 6 = 30

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|---|--------|
| 11.a. Describe the protective mechanisms of the eye, including the blinking reflex.
(or) | CO1 K2 |
| 11.b. Explain the physiological aspects of aqueous humor formation and drainage. | CO2 K2 |
| 12.a. Discuss the mechanics of extraocular muscle actions.
(or) | CO2 K2 |
| 12.b. Explain the physiological basis of monocular and binocular eye movements. | CO2 K2 |
| 13.a. Describe the pupillary reflex and its significance in vision.
(or) | CO3 K2 |
| 13.b. Explain the regulation of intraocular pressure and factors affecting it. | CO3 K2 |
| 14.a. Discuss the role of the vitreous humor in maintaining ocular function.
(or) | CO4 K2 |
| 14.b. Explain the physiological aspects of retinal organization and function. | CO4 K2 |
| 15.a. Describe the principles of color vision and the neural mechanisms involved.
(or) | CO5 K2 |
| 15.b. Explain the phenomenon of light and dark adaptation. | CO5 K2 |

Part C
Answer ALL questions
Each answer should not exceed 800 words or four pages

5 x 12 = 60

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|---|--------|
| 16.a. Explain the physiological properties of cornea and the factors that maintain its Transparency.
(or) | CO1 K2 |
| 16.b. Explain the principles of aqueous humor production, circulation, and its role in intraocular pressure regulation. | CO2 K2 |
| 17.a. Discuss the kinematics of ocular movements and their neural control.
(or) | CO2 K2 |
| 17.b. Explain the role of supranuclear control in eye movements. | CO2 K2 |
| 18.a. Discuss the mechanism of accommodation.
(or) | CO3 K2 |
| 18.b. Explain the physiology of pupil and its reflexes. | CO3 K2 |
| 19.a. Describe the electrophysiological basis of vision, including ERG, EOG, and VEP.
(or) | CO5 K2 |
| 19.b. Explain the ocular circulation and blood retinal barrier. | CO4 K2 |
| 20.a. Discuss the physiological basis of contrast sensitivity and its measurement.
(or) | CO5 K2 |
| 20.b. Explain the physiological mechanisms of visual Perception. | CO5 K2 |
