



IACLE Distance Learning Program (DLP)

Phase 1 Assignment 1:

Course content covered:

A1. Anatomy and Physiology of the Anterior Eye

A2. History of Contact Lenses

A3. Optics of Contact Lenses

From the New IACLE Contact Lens Course (New ICLC)



ASSIGNMENT 1

Read the questions carefully and record your answers on the answer sheet template

- 1. What is considered a normal blink rate?**
 - a. 5 blinks per minute
 - b. 10 blinks per minute
 - c. 15 blinks per minute
 - d. 25 blinks per minute

- 2. What is the average centre thickness of the human cornea?**
 - a. 0.52 mm
 - b. 0.67 mm
 - c. 0.82 mm
 - d. 1.00 mm

- 3. Which one of the following regional divisions of the conjunctiva is known as the 'bulbar conjunctiva'?**
 - a. Fold of conjunctiva at the inner canthus
 - b. Conjunctival tissue overlying the sclera and limbus
 - c. Conjunctiva lining the inner eyelids, extending to the lid margins
 - d. Conjunctival tissue nasal to the plica semilunaris, defining the medial canthus

- 4. Which one the accessory lacrimal glands contributes to the aqueous phase of the basal tears?**
 - a. Gland of Zeiss
 - b. Gland of Henle
 - c. Conjunctival goblet cells
 - d. Glands of Krause and Wolfring

- 5. Ignoring the tear film, what is the actual refractive index of the cornea?**
 - a. 1.3375
 - b. 1.354
 - c. 1.376
 - d. 1.470

- 6. Which one of the following is responsible mainly for secreting the mucin layer of the tears?**
 - a. Conjunctival goblet cells
 - b. Meibomian glands
 - c. Glands of Krause
 - d. Glands of Zeis



- 7. How much oxygen does the cornea need to maintain normal function?**
- 9.5%
 - 12.5%
 - 20.9%
 - 25%
- 8. Which one of the following is the main source of glucose for the corneal epithelium?**
- Limbal vasculature
 - The tears
 - Palpebral conjunctiva
 - Aqueous humor
- 9. What is the typical pH of human tears under normal open-eye conditions?**
- 6.5
 - 7.4
 - 8.5
 - 8.8
- 10. Which cranial nerve is responsible for corneal innervation?**
- Optic (N2)
 - Oculomotor (N3)
 - Trigeminal (N5)
 - Facial (N7)
- 11. The hydrophilicity of which one of the following induces the natural tendency for water imbibition into the stroma?**
- Corneal fibroblasts
 - Glycosaminoglycans
 - Descemet's membrane
 - Collagenous lamellae
- 12. What is the average amount of overnight corneal oedema in normal eyes without CLs?**
- <2%
 - 2–4%
 - 5–7%
 - 9-11%



- 13. What is the main source of oxygen for the corneal endothelium during closed-eye conditions?**
- Limbal blood vessels
 - Palpebral conjunctiva
 - Aqueous humor
 - The tear layer
- 14. Which statement regarding the endothelial pump is NOT true?**
- Fuelled by glucose
 - Partially responsible for recovery from corneal oedema
 - Each cell pumps its own volume every 30 seconds
 - An active transport mechanism
- 15. What is the cornea's oxygen requirement to prevent a loss of corneal sensitivity?**
- 3%
 - 5%
 - 8%
 - 13%
- 16. In cases of complete stripping of the corneal epithelium, how long does it take for complete wound healing and cell regeneration?**
- 6 hours
 - 24 hours
 - 1 week
 - 6 weeks
- 17. What is the average thickness of the pre-corneal tear layer?**
- 0.5 to 1 μm
 - 2.0 μm
 - 3.0 to 4 μm
 - 6 to 10.0 μm
- 18. What are the average horizontal and vertical visible iris diameters respectively? (HVID & VVID)**
- 10.6 mm and 11.7 mm
 - 11.7 mm and 10.6 mm
 - 12.5 mm and 10.6 mm
 - 12.5 mm and 11.7 mm
- 19. What is the average temperature range of the normal human cornea?**
- 34.2 to 34.8°C
 - 34.9 to 35.3°C
 - 35.4 to 36.3°C
 - 36.4 to 36.9°C



- 20. The mucous layer of the tears is derived from all of the following, EXCEPT:**
- Goblet cells of the conjunctiva
 - Crypts of Henle
 - Glands of Zeis
 - Glands of Manz
- 21. What is the total volume of the human tear film considered to be?**
- 3.2 to 4.4 μL
 - 4.5 to 6.3 μL
 - 6.5 to 8.5 μL
 - 8.8 to 12.5 μL
- 22. All of the following contribute to the lipid layer of the tear film, EXCEPT:**
- Glands of Zeis
 - Meibomian glands
 - Glands of Krause
 - Glands of Moll
- 23. Who is said to be the first person to describe the concept of a 'contact' lens?**
- René Descartes
 - Leonardo da Vinci
 - Otto Wichterle
 - Carl Zeiss
- 24. Who is credited with developing the blister pack for disposable CLs?**
- Orlando A Battista
 - Normal O Stahl
 - John de Carle
 - Michael Bay
- 25. A patient has a spectacle refraction of -9.00 D at a vertex distance of 14 mm. If we wanted to fit this patient with a CL, what back vertex power (BVP) would be required for that CL?**
- -8.00 D
 - -8.75 D
 - -9.50 D
 - -10.00 D
- 26. A myope transferring from spectacles to CLs will use:**
- More accommodation and less convergence
 - More accommodation and more convergence
 - Less accommodation and more convergence
 - Less accommodation and less convergence



27. Theoretically, CLs may be contra-indicated in cases of:

- a. Irregular astigmatism
- b. Axial anisometropia
- c. Oblique astigmatism
- d. Refractive anisometropia

28. Which of the following statements is NOT true?

- a. Hyperopes experience a smaller image size with CLs than they do with spectacles of equivalent power
- b. Spectacle magnification is the ratio of the retinal image sizes in an ametropic eye in the corrected and uncorrected state
- c. Image size in an optical system is directly proportional to the focal length of the system
- d. In myopia, the CL focal length is shorter than the equivalent spectacle focal length

29. A patient has a spectacle refraction of +8.00 D at a vertex distance of 14 mm. If we wanted to fit this patient with a CL, what back vertex power (BVP) should be ordered?

- a. +7.25 D
- b. +7.75 D
- c. +8.50 D
- d. +9.00 D

30. Which of the following statements is NOT true?

- a. Spectacle wearing hyperopes accommodate more than spectacle wearing myopes
- b. With CL wear, the accommodation required in ametropia is approximately the same as for an emmetrope
- c. If a myope is switched from spectacles to CLs the need for a near vision correction may be postponed
- d. The accommodative demand of a hyperope is greater with spectacles than with CLs