



**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY**

**(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**

**2022/2023 ACADEMIC YEAR**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS**

**MAIN EXAM**

**FOR THE DEGREE**

**OF**

**BACHELOR OF OPTOMETRY AND VISION SCIENCES**

**COURSE CODE: BOV 121**

**COURSE TITLE: OCULAR ANATOMY AND PHYSIOLOGY**

**DATE: 12/4/2023 TIME: 8.00-10.00 AM**

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**INSTRUCTIONS TO CANDIDATES**

- 1. Answer all questions.**

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

**SECTION A. MCQs (20 Marks)**

1. **Which of the following is part of the blood- ocular barrier?**
  - a) Non-fenestrated ciliary body capillaries
  - b) Tight junctions between retinal capillary endothelial cells.
  - c) Tight junctions between choroidal cells
  - d) Tight junctions between the cells of the pigmented ciliary epithelium
  
2. **Which of the following factors contributes to lens transparency?**
  - a) Corneal vasculature
  - b) Semi-permeable lens capsule
  - c) Arrangement of stromal cells
  - d) Corneal epithelium
  
3. **Which one of the following extra- ocular muscles arise from the Circle of Zinn.**
  - a) Inferior oblique
  - b) Levator palpebral superioris
  - c) Superior oblique
  - d) Medial rectus
  
4. **Where does the inferior oblique muscle arise from?**
  - a) Annulus of zinn
  - b) Periosteum of sphenoid bone
  - c) Maxillary bone
  - d) Lesser wing of sphenoid bone
  
5. **Vascularity is key to;**
  - a) Retina
  - b) Vitreous
  - c) Eyelids
  - d) Orbit
  
6. **One of the following is part of the uvea tract.**
  - a) Ciliary body
  - b) Anterior chamber
  - c) Retinal pigment epithelium
  - d) Cornea
  
7. **Where is the lacrimal gland located?**
  - a) Anterior part of the medial wall of the orbit
  - b) Anterior and the lateral part of the roof of the orbit
  - c) Floor of the orbit
  - d) Lacrimal fossa of the lacrimal bone

- 8. Which one of the following is not true about the ciliary body?**
- a) Divided into pars plicata and pars plana
  - b) Each eye contains 70-80 ciliary processes
  - c) Capillary network with non-fenestrated endothelium
  - d) Two layers of epithelium with apices facing each other.
- 9. Which retinal cell is correctly matched with its function?**
- a) Photoreceptors – convert light energy into an electrical current
  - b) Horizontal cells – provide negative feedback to bipolar cells
  - c) Bipolar cells are the secondary order neurons in the visual pathway
  - d) Amacrine cells – process spatial information
- 10. Which is the most power refractive surface of the eye?**
- a) Cornea
  - b) Ocular lens
  - c) Vitreous
  - d) Retina
- 11. What are the secondary functions of the superior rectus?**
- a) Elevation
  - b) Intorsion and adduction
  - c) Extorsion and adduction
  - d) Intorsion and abduction
- 12. Which one of the following is responsible for the drainage of the aqueous?**
- a) Ciliary processes
  - b) Ciliary body
  - c) Posterior chamber
  - d) Trabecular meshwork
- 13. Which one of the following is the correct arrangement of the Pre-corneal tear film from anterior to posterior surface?**
- a) Oily layer - aqueous layer – mucoïd layer
  - b) Aqueous layer – mucoïd layer – oily layer
  - c) Mucoïd layer – oily layer – aqueous layer
  - d) Oily layer – mucoïd layer – aqueous layer
- 14. Which one of the following plays part in the protective mechanism of the eye?**
- a) Cornea ulceration
  - b) Cilliary body
  - c) Binocular vision
  - d) Eye lashes

- 15. Which one of the following is part of the layers of the cornea?**
- a) Stroma
  - b) Ciliary body
  - c) Lens capsule
  - d) Amacrine cells
- 16. The corneal epithelium is continuous with which part at the limbs?**
- a) Conjunctival epithelium
  - b) Sclera
  - c) Choroid
  - d) Episclera
- 17. Which one of the following forms the larger part of the roof of the orbit?**
- a) Sphenoid bone
  - b) Zygomatic bone
  - c) Lacrimal bone
  - d) Frontal bone
- 18. Embryologically the ocular lens is formed from which one of the following.**
- a) Ectoderm
  - b) Mesoderm
  - c) Endoderm
  - d) None of the above
- 19. Which one of the following cells are part of the retina?**
- a) Stromal cells
  - b) Ells zeis
  - c) Ganglion cells
  - d) Glands of wolfring
- 20. The visual centre is located in which part of the brain?**
- a) Cerebellum
  - b) Frontal lobe
  - c) Temporal lobe
  - d) Occipital lobe

**SECTION B (40 Marks): Short answer questions**

1. List 5 functions of the eye lids. (5 Marks)
2. Name the 7 layers of the eye lids (7 Marks)
3. Describe the parts of the conjunctiva (3 Marks)
4. Describe the 2 types of conjunctiva glands (4 Marks)
5. List 3 functions of the tear film (3 Marks)
6. Name the 3 factors that contribute in maintaining corneal transparency. (3 Marks)
7. Name the apparatus (structures) involved in accommodation (5 Marks)

**SECTION C: Long answered questions**

1. Name the ten layers of the retina (10Marks)
2. About the extra-ocular muscles (10Marks)
  - (i) Name the six extra-ocular muscles of the eye (3 Marks)
  - (ii) List the primary, secondary and tertiary functions of each of extra-ocular muscles. (7 Marks)

