

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE AND ENGINEERING

DEPARTMENT OF OPTOMETRY

BACHELOR OF SCIENCE HONOURS DEGREE IN OPTOMETRY

OPTC201: OCULARANATOMY AND PHYSIOLOGY

DURATION: 3 HOURS

TOTAL MARKS (100)

NOV 2024

CANDIDATE NUMBER:

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INSTRUCTIONS

Answer questions in all three sections as instructed.

Answer Section A on the question paper and Sections B and C in the Exam booklet.

SECTION A. ATTEMPT ALL QUESTIONS. Only one answer is correct. (1 Mark)

1. Which statement is true of the number of extraocular muscles?
 - (a) 3 pairs.
 - (b) 6 pairs.
 - (c) 4 pairs.
 - (d) 8 pairs.
2. Which statement is not true of recti muscles?
 - (a) They are six in total.
 - (b) They are four in total.
 - (c) The medial and lateral recti muscles work in apposition.
 - (d) The superior and inferior recti work in apposition.
3. Which statement is true of regional anatomy?
 - (a) It is the study of all body structures in a particular region.
 - (b) It is the study of blood vessels, nerves and muscles in a particular area.
 - (c) It is the study of an area like the abdomen.
 - (d) All the above.
4. Which statement is true of nerve supply to the extraocular muscles?
 - (a) They all eminent from the 12 cranial nerves.
 - (b) Only three pairs supply the extraocular muscles.
 - (c) The sixth cranial nerve supplies extraocular muscles.
 - (d) All the above.

5. Which muscles are not innervated by the oculomotor nerve?
 - (a) Superior rectus.
 - (b) Inferior rectus.
 - (c) Inferior oblique.
 - (d) Lateral rectus.
6. Which is the approximate total refractive power provided by the cornea?
 - (a) 50 Diopters.
 - (b) 60 Diopters.
 - (c) 40 Diopters.
 - (d) 30 Diopters.
7. Which is the approximate refractive index of the cornea?
 - (a) 1.476
 - (b) 1.376
 - (c) 1.276
 - (d) 1.576
8. Which cellular components are responsible of corneal transparency?
 - (a) Collagen fibrils in the stroma.
 - (b) Stellate cells in the epithelium.
 - (c) The endothelial cells.
 - (d) The Dua layer cells.
9. Which is the main secretory source of the aqueous part of the tear film?
 - (a) The lacrimal glands.
 - (b) The meibomian glands.
 - (c) The glands of Moll.
 - (d) The glands of Krause.
10. Which is the main secretory source of the lipid layer of the tear film?
 - (a) The lacrimal glands.
 - (b) The meibomian glands.
 - (c) The glands of Moll.
 - (d) The glands of Krause.
11. Which are the main functions of the eyelids?
 - (a) For protections of the eyeball only.
 - (b) For secretion of essential ocular substances only.
 - (c) For the distribution of tears only.
 - (d) All the above.

12. Which terms best describe some skull components?
- (a) Ocular or orbital for the eye.
 - (b) Ocular or nasal for the ear.
 - (c) Ocular or otic for the mouth.
 - (d) Rhino or buccal for the chin.
13. Which nerves supply the eyelids?
- (a) The Trigeminal (5th) nerve only.
 - (b) The facial (7th) nerve only.
 - (c) The oculomotor (3rd) nerve only.
 - (d) All the above.
14. Which are the main components of the eyelids?
- (a) The Orbicularis oculi muscle.
 - (b) The levator palpebral muscle.
 - (c) The tarsal plate
 - (d) All the above.
15. Which is not true of the Sclera?
- (a) It is predominantly vascular.
 - (b) It is principally collagenous.
 - (c) It relatively acellular.
 - (d) Only the blood vessels, the optic nerve pass through the sclera.
16. A plane that divides the eye into vertical equal halves is known as?
- (a) Sagittal plane.
 - (b) Vertical axis.
 - (c) Frontal plane.
 - (d) Oblique plane.
17. Which is not a true function of the cornea?
- (a) Acts a refracting surface.
 - (b) Prevents ocular infections.
 - (c) To supply blood to the whole eye.
 - (d) To allow light rays into the eye.
18. Which is the correct number of cellular layers of the cornea?
- (a) 4.
 - (b) 7.
 - (c) 5.
 - (d) 6.

19. Which is the thickest layer of the cornea?

- (a) Epithelium.
- (b) Endothelium.
- (c) Stroma.
- (d) Bowman's membrane.

20. Which muscle has secondary action of intorsion?

- (e) Inferior rectus.
- (f) Inferior oblique.
- (g) Lateral rectus.
- (h) Superior rectus.

Section B. Attempt all questions in this section. (20 Marks)

1. Give three main functions of the human cornea. [6 Marks]
2. Explain the main functions of the extraocular muscles. [3 Marks]
3. Describe the rods and cones. [3 Marks]
4. Describe the differences between the radial and circular muscles of the iris. [5 Marks]
5. Explain any one of the ocular nerves and its functions. [3 Marks]

Section C. Attempt ANY three questions in this section. (60 Marks)

1. Describe the circulatory system in the eye. [20 Marks]
2. Define integumentary system and (b) briefly discuss the various systems that are present in the eye. [20 Marks]
3. Outline the main components of the visual system including a brief on function. [20 Marks]
4. Describe the different glands associated with the human eye. [20 Marks]

END OF PAPER