



BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – M.Optomety-2024

Course Name – Applied Ocular Biology for Ocular Diseases

Course Code - MOP10101

(Semester I)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) What type of tissue makes up the epithelium of the cornea?
 - a) Columnar keratinised
 - b) Columnar non-keratinised
 - c) Stratified Squamous, keratinised
 - d) Stratified Squamous non-keratinised
- (ii) How is the cornea supplied with blood?
 - a) Through limbal vessels
 - b) Through branches of ophthalmic artery
 - c) Through facial artery branches
 - d) None of these
- (iii) Which muscle is present only in the upper eyelid and originates from the apex of the orbit, with its insertion divided into five parts?
 - a) Upper Mullers muscle
 - b) Lower mullers muscle
 - c) Orbicularis oculi
 - d) Levator palpebrae superioris
- (iv) In pathologies of which part of the eye the patient may complain about sticky discharge?
 - a) Goblet cells
 - b) Gland of Zeiss
 - c) Gland of Moll
 - d) All of these
- (v) Which part of the rod and cones are divided into an outer ellipsoid and an inner myoid portion?
 - a) Outer segment
 - b) Synaptic Terminal
 - c) Inner segment
 - d) Outer plexiform layer
- (vi) A patient is diagnosed with vertical diplopia, which muscle underaction/overaction may cause it?
 - a) Medial Rectus
 - b) Superior Rectus
 - c) Lateral Rectus
 - d) All of these
- (vii) Which genetic technique is used to detect specific gene mutations?
 - a) Karyotyping
 - b) FISH
 - c) PCR
 - d) NGS

(viii) What is the inheritance pattern of PAX6 mutations in aniridia?

- a) Mitochondrial
- b) Autosomal recessive
- c) Autosomal dominant
- d) X-linked

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(ix) Which of the following is a characteristic of aqueous humor?

- a) High protein content
- b) High ascorbate concentration
- c) High glucose concentration
- d) Low pH

(x) Which of the following is the main barrier for topical ocular drugs that limits their penetration into the eye?

- a) Lens
- b) Corneal epithelium
- c) Retinal pigment epithelium
- d) Iris

(xi) Ocular bioavailability of a topically applied drug is low because of which reason?

- a) The tear film dilutes the drug
- b) Most of the drug is absorbed systemically
- c) The drug binds to melanin in the iris
- d) The corneal endothelium has tight junctions

(xii) Which drug is used in the treatment of herpetic keratitis?

- a) Acetazolamide
- b) Ciprofloxacin
- c) Acyclovir
- d) Netamycin

(xiii) Long-term use of corticosteroids in the eye is associated with which of the following complications?

- a) Cataract formation
- b) Corneal neovascularization
- c) Pupil constriction
- d) Retinal detachment

(xiv) A patient presents with optic neuritis, have a medical history of under medication for cardiac arrhythmia. How should you evaluate the drug's role in the development of optic neuritis?

- a) let the patient continue his existing systemic drug
- b) Evaluate the risk of drug-induced optic neuritis and refer to cardiologist for alternative option if needed.
- c) Discontinue the drug immediately to prevent further optic damage
- d) Treat the patient for his optic neuritis

(xv) A patient using AGM shows side effect of bradycardia and hypotension. Which class of drug he is taking presently?

- a) Beta-blockers
- b) Prostaglandin analogs
- c) Alpha-agonists
- d) Carbonic anhydrase inhibitors

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Describe the medial wall of Orbit. (3)
3. Explain the changes in retinal sensitivity during dark adaptation, focusing on the roles of rods and cones. (3)
4. Describe Optic canal and its importance. (3)
5. Explain Lockwood's Ligament and its clinical importance. (3)
6. Explain the anatomical connection of Lateral Rectus muscle with oblique muscles that helps to retrieve the lost muscle during surgery. (3)

OR

Explain the clinical importance of the anatomical relationship between Superior Rectus muscle and LPS muscle. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Describe the Origin, Course and Insertion of Superior Oblique Muscle. (5)

8. Explain the pathophysiology of diabetic cataracts, including the biochemical mechanisms involved in their formation. (5)
9. What are the key host defense mechanisms of the eye, and how do they protect against infections? (5)
10. Explain the Trichromatic theory and Opponent cell theory of Color Vision. (5)
11. Discuss the limitations of standard visual acuity tests in assessing overall visual function and evaluate the role of contrast sensitivity testing as a complementary measure. (5)
12. Evaluate how contrast sensitivity can be affected by various ocular diseases and discuss the implications for treatment and management. (5)

OR

Evaluate the effectiveness of the Pelli-Robson chart in pediatric populations and discuss potential modifications needed to accommodate younger patients. (5)

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