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
IV Semester

Class : II UG **Time: 3 Hours**
Major : Optometry **Max. Marks: 100**

22BOPC22 Pharmacology

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

CO1: To explain the process of drug absorption and distribution mechanism.
CO2: To understand pharmacodynamics process in detail.
CO3: To gain knowledge on Ocular pharmacology and ocular drug delivery methods
CO4: To know ocular drugs and its usage in detail.
CO5: To acquire knowledge on neurotransmitters and toxicity of Ocular drugs.

Part A **10 x 1 = 10**
Choose the Correct Answer

1. The first-pass metabolism occurs primarily in: CO1 K1
   a. Lungs b. Liver c. Kidneys d. Intestines

2. This type route of drug administration provides the fastest action CO1 K1
   a) Oral b) Intravenous
   c) Subcutaneous d) Intramuscular

3. The primary mechanism of action of NSAIDs is: CO2 K1
   a) Inhibition of cyclooxygenase enzymes b) Inhibition of histamine receptors
   c) Activation of opioid receptors d) Stimulation of adrenergic receptors

4. The half-life of a drug is defined as: CO1 K1
   a) Time required for complete elimination
   b) Time required for plasma concentration to reduce by half
   c) Time taken for absorption
   d) Duration of drug action

5. This drug is used in open-angle glaucoma CO4 K1
   a) Atropine b) Timolol c) Acetazolamide d) Tropicamide

6. The following drug is contraindicated in narrow-angle glaucoma CO4 K1
   a) Timolol b) Latanoprost c) Dorzolamide d) Atropine

7. Commonly used drug as a mydriatic in fundus examination CO4 K1
   a) Pilocarpine b) Atropine c) Tropicamide d) Timolol

8. This drug is used as the choice of management of allergic conjunctivitis CO3 K1
   a) Latanoprost b) Timolol c) Olopatadine d) Acetazolamide

9. The main indication for botulinum toxin injection in ophthalmology is: CO4 K1
   a) Glaucoma b) Blepharospasm c) Corneal ulcer d) Retinal detachment

10. The following drug is used to treat dry eye disease by increasing tear production CO4 K1
    a) Timolol b) Cyclosporine c) Tropicamide d) Acetazolamide

Part B **5 x 6 = 30**

Answer ALL questions

Each answer should not exceed 400 words or two pages

11.a. Describe pharmacokinetics. Mention the four key processes involved in drug movement within the body and write one factor each that are affecting the processes. CO1 K2

(or)

11.b. Describe pharmacology and differentiate between pharmacokinetics and pharmacodynamics. CO1 K2

12.a. Explain the various routes of drug administration in eye and their advantages and disadvantages. CO4 K2

12.b. Describe the Chemotherapy. CO3 K2

13.a. Explain the role of Antihypertensive drugs. CO2 K2

(or)

13.b. Explain how beta-blockers help in managing glaucoma. Mention their side effects and Give examples of few commonly used beta – blockers. CO4 K2

14.a. Explain on General and local anesthetics. CO3 K2

(or)

14.b. Describe their role of artificial tears in managing dry eye syndrome. CO4 K2

15.a. Describe the role of cycloplegics in optometry? Name two commonly used cycloplegic agents along with their dosage. CO4 K2

(or)

15.b. Explain the term "half-life of a drug" and its importance in dosing. CO1 K2

Part C **5 x 12 = 60**

Answer ALL questions

Each answer should not exceed 800 words or four pages

16.a. i. Classify drugs used in the treatment of glaucoma
ii. Explain the mechanism of action, uses and adverse effects of prostaglandin analogs. CO4 K2

(or)

16.b. A patient presents with severe eye pain and a sudden decrease in vision after using Atropine eye drops. Examination reveals a shallow anterior chamber and increased intraocular pressure. CO4 K2

I. What is the likely diagnosis?
II. Why did Atropine cause this reaction?
III. What is the action of Atropine in eye?

17.a. Write an essay on pharmacokinetics of topical drugs and factors influencing penetration of ocular drugs. CO1 K2

(or)

17.b. Describe the role of antibacterial, antifungal and antiviral drugs. CO5 K2

18.a. Describe the drugs that affect the central Nervous suptem. CO3 K2

(or)

18.b. Explain the use of antihistamines and mast cell stabilizers in allergic eye diseases. CO5 K2

19.a. Explain Diuretics and their systemic and ocular usage. CO3 K2

(or)

19.b. Describe the systemic pharmacology of anti diabetic drugs and their effects on the eye. CO3 K2

20.a. A 55-year-old patient with open-angle glaucoma has been prescribed timolol eye drops. After two weeks of use, he reports fatigue and shortness of breath. CO4 K2

I. Explain the pharmacological action of timolol in glaucoma.
II. Enumerate the side effect of B-blockers drops.
III. Suggest an alternative drug with a different mechanism of action for glaucoma treatment.

(or)

20.b. Classify autonomic nervous system (ANS) drugs and explain their mechanism of action, clinical uses, and side effects in ophthalmology. CO3 K2

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