

**International Council of Ophthalmology**  
**International Ophthalmology Examinations**  
**Basic Sciences Sample Questions**

**Basic Science subjects related to Ophthalmology**

**Numbers of questions in each group**

i) Anatomy of the Eye, the Orbit and related structures	15
ii) Embryology and Development	6
iii) Neuro-Anatomy	10
iv) Principles of General Physiology	6
v) Vision, Ocular Physiology, Biochemistry and Cell Biology	13
vi) Pharmacology	10
vii) Epidemiology and Statistics	3
viii) Genetics	7
ix) Pathology and Micro-biology	5 + 5
x) Optics and Refraction	<u>10+10</u>

**100**

**Question Formats**

**The formats vary, here are some examples. It is VITAL to read the questions very carefully**

**1.**

**Pharmacology**

**Concerning  $\beta$ -blockers (Beta Blockers), which of the following statements is True and which are False?**

- |   |       |       |
|---|-------|-------|
| a. - betaxolol is a selective $\beta_1$ - receptor blocker.                 | [ T ] | [ F ] |
| b. - $\beta$ -blockers increase awareness of hypoglycaemia.                 | [ T ] | [ F ] |
| c. - selective $\beta_1$ -antagonists have no effect on the bronchial tree. | [ T ] | [ F ] |
| d. - overdose is treated with intravenous glucagons.                        | [ T ] | [ F ] |
| e. - $\beta$ -blocker eye drops can safely be used for infants.             | [ T ] | [ F ] |

**2.**

**Pharmacology**

**Concerning Acetazolamide:**

- |  |       |       |
|--|-------|-------|
| a. It should not be taken by individuals with Sickle Cell anaemia.                           | [ T ] | [ F ] |
| b. It may cause peripheral parasthesiae.   | [ T ] | [ F ] |
| c. It can cause metabolic alkalosis.   | [ T ] | [ F ] |
| d. It enhances the conversion of bicarbonate ( $\text{HCO}_3^-$ ) to water & carbon dioxide. | [ T ] | [ F ] |
| e. To reduce Aqueous flow, 99% of carbonic anhydrase must be inhibited.                      | [ T ] | [ F ] |

**3.**

**Optics**

**When light passes from one medium to another with a different refractive index, which of the following may occur?**

- a. Diffraction.                   [ T ] [ F ]
- b. Reflection.                   [ T ] [ F ]
- c. Refraction.                   [ T ] [ F ]
- d. Interference.               [ T ] [ F ]
- e. Polarisation.               [ T ] [ F ]

**4.**

**Refraction**

**A patient with a corneal scar has only 20/40 after best refractive correction. With a stenopaic aperture ('pinhole') his vision is 20/25. What could be an explanation?**

- a. Spherical aberration.       [ T ] [ F ]
- b. Myopic astigmatism.       [ T ] [ F ]
- c. Irregular astigmatism.     [ T ] [ F ]
- d. Simulation.                 [ T ] [ F ]
- e. Image degradation.         [ T ] [ F ]

**5.**

**Neuro Anatomy**

**Regarding the lateral ventricles, which of the following is correct?**

- a. They are separated from each other anteriorly by the septum pellucidum.                   [ T ] [ F ]
- b. Posterior horns extend into the temporal and occipital lobes of the hemispheres.       [ T ] [ F ]
- c. They are limited inferiorly by the corpus callosum.   [ T ] [ F ]
- d. The optic radiation passes between their central part and inferior horn.               [ T ] [ F ]
- e. They communicate with the third ventricle via the aqueduct of Sylvius.               [ T ] [ F ]

**Do not forget to mark your answers clearly with a HORIZONTAL line:-[—] in the correct box: T for True and F for False.**

**Oblique [/], even slightly oblique, or faint [-] lines will not be marked.**

**You do not HAVE to answer all the questions to pass the examination. Obviously, however, it helps!**

**There are no "trick" questions. If you do not understand the question you may ask the invigilator who may (but cannot guarantee to) be able to help you.**

**The ICO Examinations are difficult to pass. We try as far as possible to make them fair for candidates in every country and we welcome suggestions from anyone and contributions of questions from Co-ordinators.**

**No one passes the Examinations without being sufficiently prepared!**