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IMAGE PROCESSING ASSIGNMENT-1

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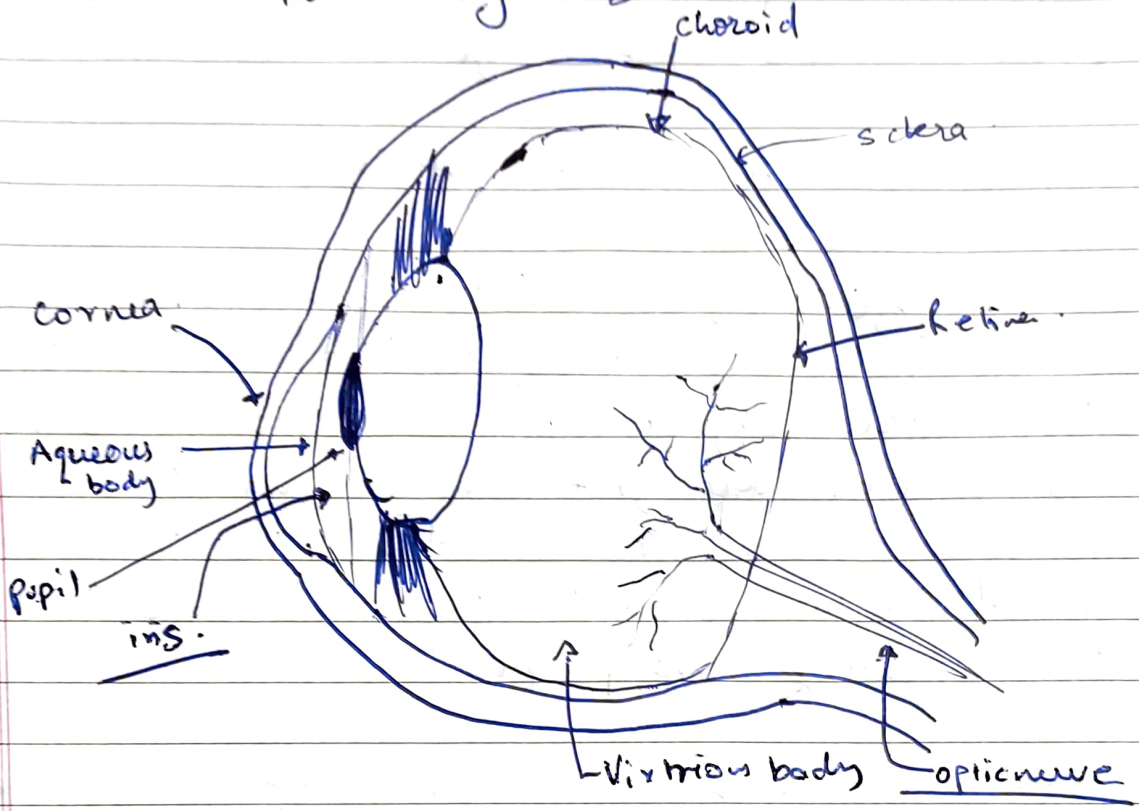
Q1 Describe the human eye structure.



ANS: Size & shape: 2.5 cm in Diameter.

↳ 3 Layers.

- Outer fibrous layer: Selera, cornea, conjuntiva.
- Middle vascular layer: Ciliary body, iris.
- Inner layer: Retina.

Selera: Thick membrane of tough fibrous tissue.

Iris: Muscular, opaque

Eye lens: Large, flexible.

Retina: Highly specialized cells

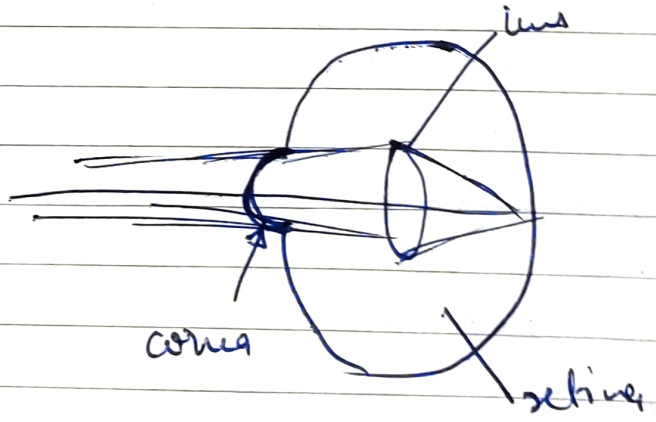
Q2 Image Formation Process.

↳ Image Light rays from objects are bent by cornea & lens at a single point at retina. Formation of the image is inverted & the brain inverts the image

↳ — JUST LIKE A PIN HOLE CAMERA. —

↳ Amid focussing, the light beam passes through cornea & lens. The light beams reflected from the object at a distance striking the cornea are just about parallel to one another. Lens focuses the light rays on a special spot called fovea centralis for creating sharp pics.

↳ For a clear image, the Lens changes its convexity to create enough refraction in addition to that delivered by cornea to get the pic. into focus & form a vivid pic on the retina



Q3 How does brightness adaptation & discrimination take place in the human eye?

ANS: The subjective brightness perceived is a logarithmic function of light incident on eye.

- The human visual system cannot operate over such a large range simultaneously it accomplished this large variation by changes in its overall sensitivity. This is brightness adaptation.
- The total range of distinct intensity levels it can be discriminate simultaneously is small when compared to the total adaption range.
- The brightness discrimination is poor at low levels of illumination when vision is carried out by rods whereas it is good at high levels of illumination when vision is carried out by cones.