1. What is wrong?
   (A) A myopic eye is too long. To shorten its focal length, a positive lens has to be worn.
   (B) The length of the human eye is about 28 mm
   (C) At the age of about 45-50, human accommodation fails mainly because the crystalline lens looses its elasticity.
   (D) People at about this age become hyperopic (eye too short) and need therefore reading glasses

2. Which is correct?
   (A) Diopter is the unit for the refractive power of a lens. Diopters represent the reciprocal of the focal length in meters.
   (B) Refractive errors can be corrected wirth spectacles, contact lenses or refractive surgery. During refractive surgery, the corneal radius of curvature is changed so that its focal length, together the the focal length of the lens, is appropriate for the length of the eye.
   (C) In adults, elongation of the emmetropic (normal-sighted) eye by 1 mm results in myopia of about 2.7 Diopters.
   (D) In addition to spherical refractive errors (myopia and hypropia), our optics has also higher order aberrations like spherical aberration and coma. Interestingly, these higher order aberrations are partically balanced because they have different signs in lens and cornea.

3. Which is correct?
   (A) The maximal visual acuity of the vertebrate eye is ultimately limited by the retinal image size because the individual "pixels", the photoreceptors, cannot be made any smaller.
   (B) If photoreceptors would be made smaller than about 2 µm, optical crosstalk between them would limit spatial resolution.
   (C) Currently, the animal known to have the highest spatial acuity is the golden eagle. Because of its near perfect optics at up to 5 mm pupil size, it can resolve about 130 lines per degree (humans about 50-60)
   (D) Light of different wavelengths is differently refracted, the more the shorter the wavelength ("dispersion"). For this reason, blue light is focused in front of the retina, when red light is in focus in the fovea.

4. Which two optical variables determine the brightness of the retinal image in vertebrate eyes?

5. What determines a "Fovea" and what an "Area centralis"?

6. What is an inverted retina, and where does it occur?

7. What is the optic disc? Why are nerve fibres in the retina not myelinated?

8. What is diffraction and how does it limit our visual acuity?