

QUESTION 28.

a) i) Corti are situated in the organ, corti are hair cells which are stimulated by vibration (sound) and are a vital instrument in hearing. Many deaf or hearing impaired people have damaged or problems concerning their corti

ii) The relationship between Pitch & wavelength are a common bond, eg short wave length = high frequency / pitch & long wave = low frequency / pitch, ~~these~~ wavelengths are what the human ear hears we can detect sound from: 20 - 20,000 hertz.

iii) echolocation - is a sound produced by animals such as dolphins & bats, bats produce the sound through their vocal cords.

fish - fish can produce sound by rubbing of their gills & vibrating

their swim bladder, rather than using a vocal system eg voice box like mammals.

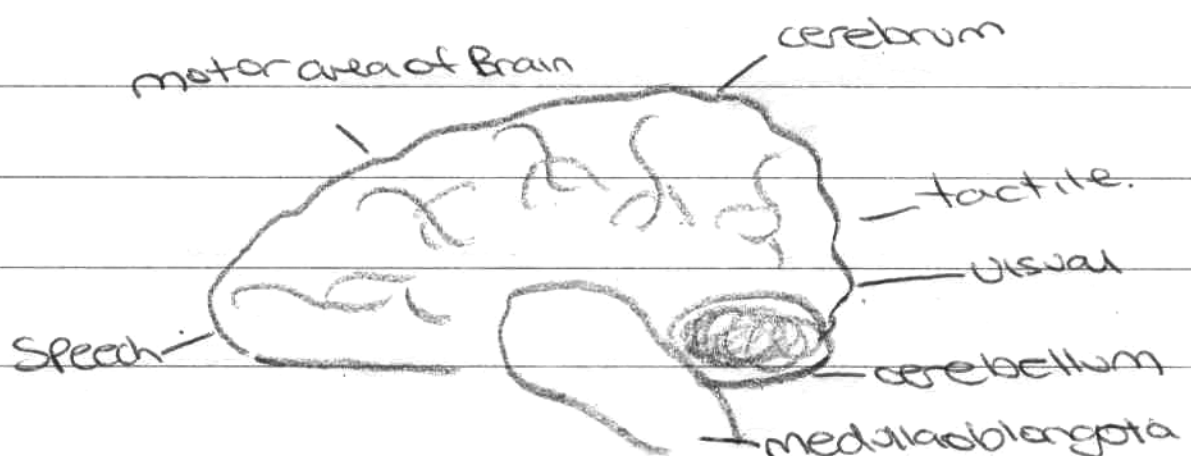
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Bi) - cerebrum - is the highly folded part of the brain the cerebral cortex is the surface of the cerebrum.

- cerebellum is located towards the bottom of the brain ~~at~~ under the cerebrum & next to the medulla oblongata it is a darker ^{in colour.} region of the brain.

- medulla oblongata is situated at the ~~bottom~~ of the brain. It is quite long in shape & is ~~next~~ ^{next} to the cerebellum.

ii)



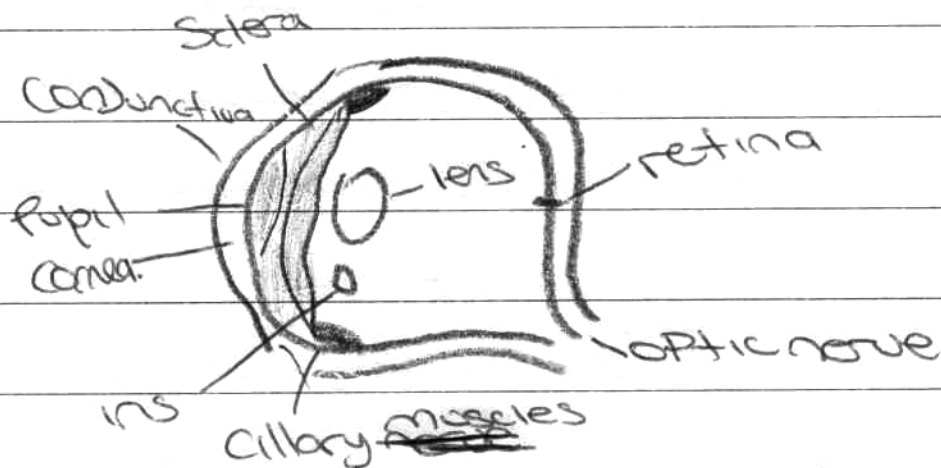
i) on graph paper

ii). as the thickness of the lens increases the focal length decreases. when thickness ~~decreases~~ focal length ~~decreases~~ increases.

iii). Through the use of the retina the iris & the pupil the human eye has the ability to focus on objects from different distances. ~~to the iris~~ By letting ~~the~~ pupil dilating humans are able to focus on objects at a distance.

d). Through the use of Rods & cones, the Pupil & the iris the human eye has ability to transform light into electrochemical signals. rods which are situated at the retina have the ability to absorb light and split it. the iris is ~~the~~ a key factor for ~~the~~ the rods, cones, retina

~~to focus~~ transforming light into electro-magnetic signals.



The iris allows light into the eye which allows the retina to focus image, distinguish movement & shape. The pupil also is able to dilate/shrink to control light absorption. After the light is let in & past through the cornea & the lens, the retina & the rods the image is then sent to the optic nerve. The optic nerve is able to send the image/light/electrochemical signals to the brain to be determined & analysed.



Other parts of the eye also help in the formation of the electrochemical images.

Sclera - is the white of the eye, it protects the eyeball itself & without it the eye would be extremely vulnerable.

Conjunctiva - thin membrane at front of the eye, it is the 1st line of defence that protects against scratches & damage to the cornea, the conjunctiva is also the first thing light/images pass through.

lens - focuses the image before passing it through the ~~retina~~ ^{retina}.

Other parts of the eye have been ~~explained~~ ^{explained} during question 7. Through the use of the eye allows humans the ability to see & comprehend images/objects.

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Biology

COMMUNICATION

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