

Communication

Q 28

a) i) The function of the Organ of Corti in hearing is that it contains ~~a~~ hair cells which are attached to nerve endings. These hair cells move with the pressure waves of the sound and trigger ~~an~~ an electrical impulse on the nerves which then through auditory nerve transport message to the brain.

ii) The wavelength, frequency and pitch of a sound are all related. The wavelength determines the frequency which in turn determines the pitch. eg. if the wavelength is short, thus the frequency fast and thus the pitch is high. If the wavelength is long, thus the frequency is ~~fast~~ ^{slow} and thus the pitch is low.



ii) ~~ATV ATV ATV ATV~~

A grasshopper produces sound by rubbing its hind legs together. Whereas a dolphin use its tongue and throat to produce clicks and whistles. These two different animals use very different methods to produce sound.

b)

i) Structure features of:

- * cerebrum = * makes up to majority of the brain
 - * soft spongy like material
 - * pinky-grey in colour

- * cerebellum = * small part at the rear of the brain
 - * similar to cerebrum but darker in colour
 - * texture is soft and is more detailed sponge like material

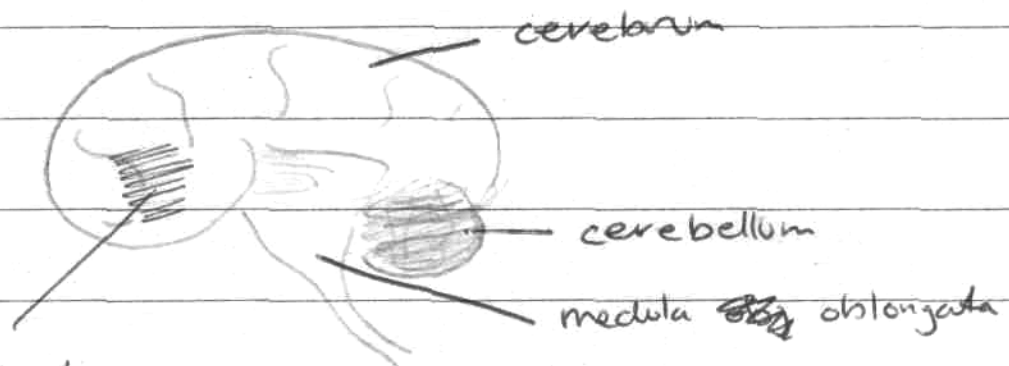
medulla oblongata

* medulla oblongata = * ~~attached to spine~~
links spinal chord +
brain

* long, white-yellow
similar to a
* nerve

* it is just below the
cerebrum in the centre
of the brain.

ii)



area is used

for speech.

i) Graph.

c) ii) as the lens thickness increase, the focal length decreases.

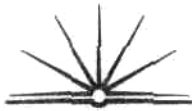
iii) This graph is able to show how human eyes can focus on objects at different distances.

The accommodation of the eye.

In the human eye, as the object being viewed gets closer the lens thickens in order to accommodate the bending of light.

As an object gets closer the need for refraction is greater and hence the lens becomes short and fat.

~~As an object~~ If an object is further away, less refractive power is needed and hence the lens is long and thin. The further the focal length the thinner the lens.



d)

The eye is a sensory organ.

Within the eye is the retina. The retina is a thin membrane, at the back of the eye, that contains photoreceptors. These photoreceptors are rods and cones. These rods and cones transform light energy into electrochemical signals, which ~~can~~ then are interpreted by the brain.

The stimuli, light, is detected and absorbed by the rods and cones. Cones work in bright light and detect colour and visual acuity.

Rods, however, ~~detect~~ work in dim light detecting movement, shape and differentiate between

light and dark. These photoreceptors ^{are responsible for the} transformation ~~the~~ of light energy into electrochemical energy.

Rods + cones both

~~They both~~ contain the chemical rhodopsin,

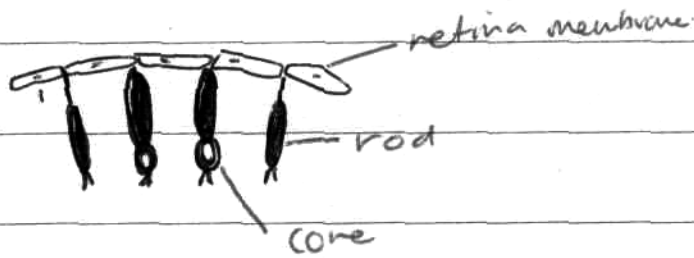
this is sensitive to light and changes the light energy into electrochemical energy. The

rods and cones are connected to nerve endings, here is where the message is

~~transferred~~ transported to the optic nerve



and then onto the back of the brain where
'visual' messages are interpreted.



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Biology

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This page is to be detached, completed and attached to the inside front cover of your writing booklet for the option question you have attempted.

Focal length vs. Thickness of lens.

