

REVISION: HUMAN NERVOUS SYSTEM

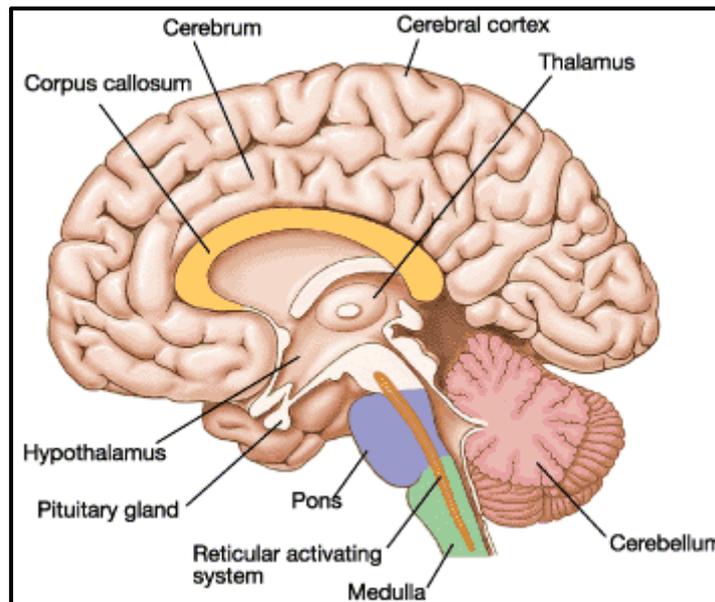
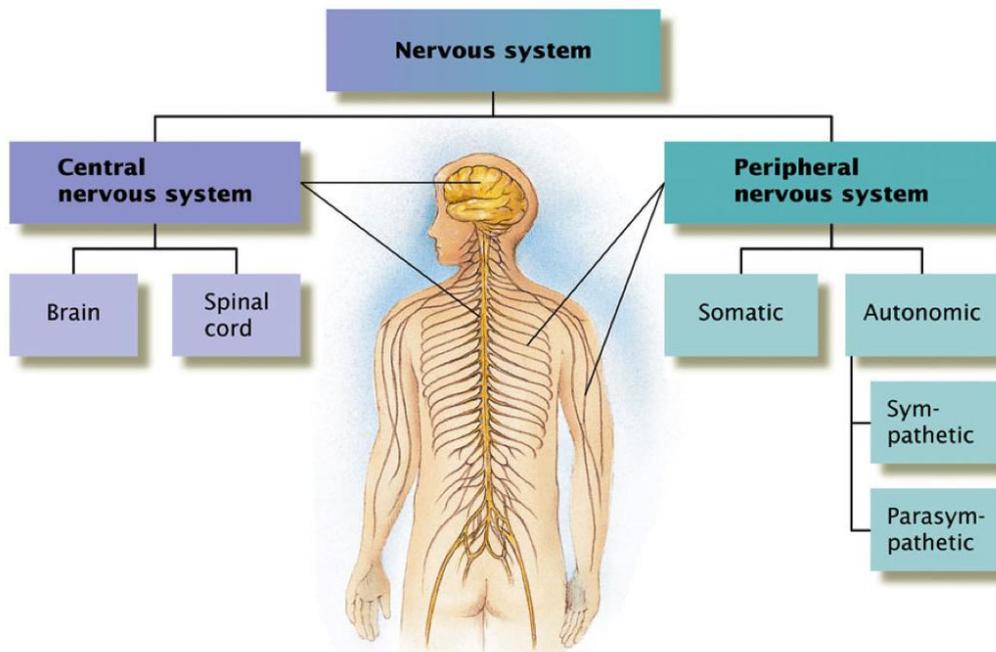
18 JUNE 2014

Lesson Description

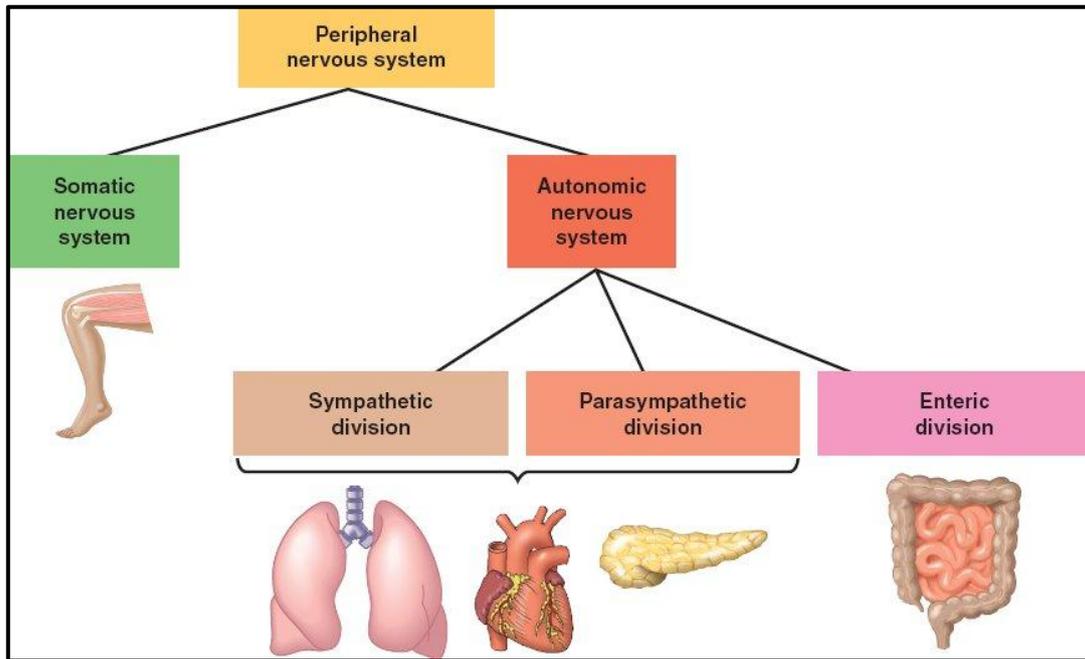
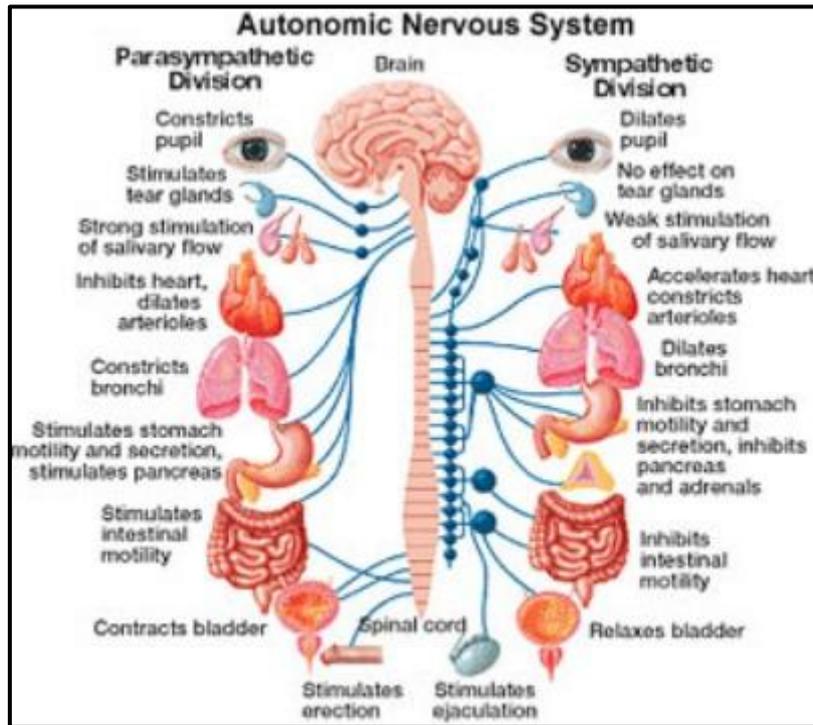
In this lesson we revise:

- The structure and functions of the human nervous system
- The structure and function of the human ear and eye

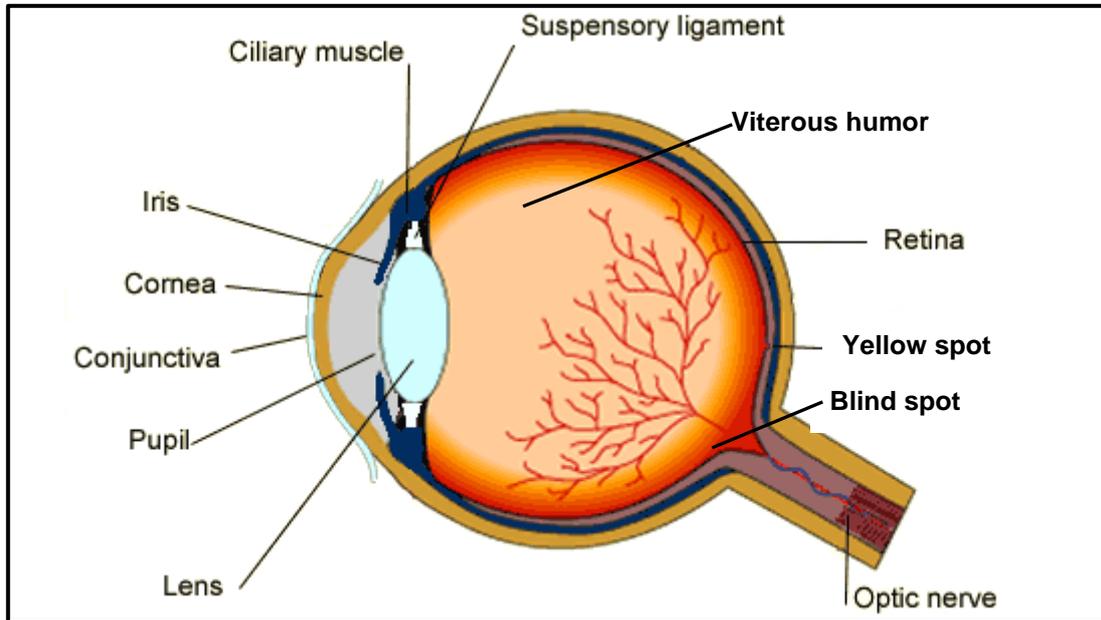
Summary



Left-hand side - Brain



The Human Eye

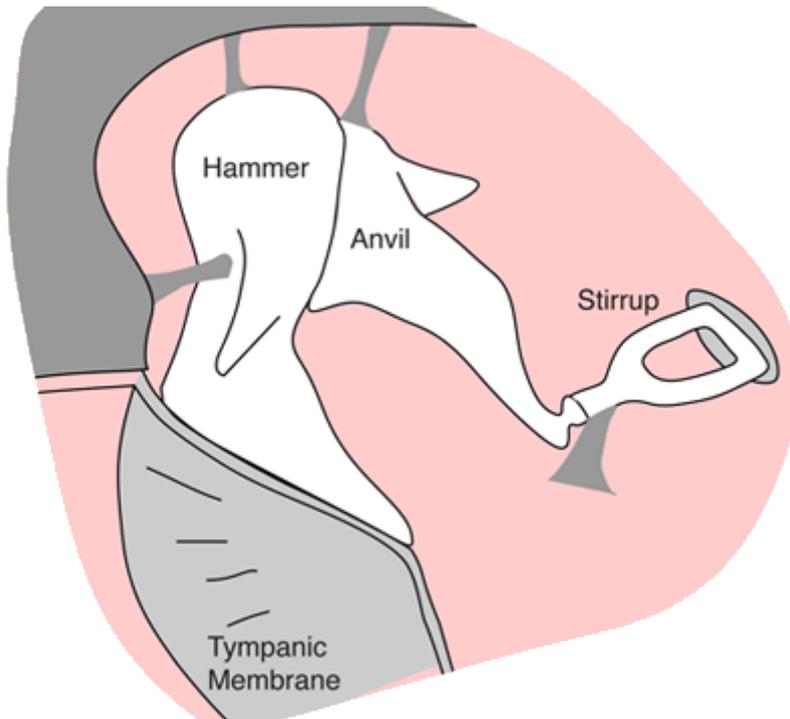
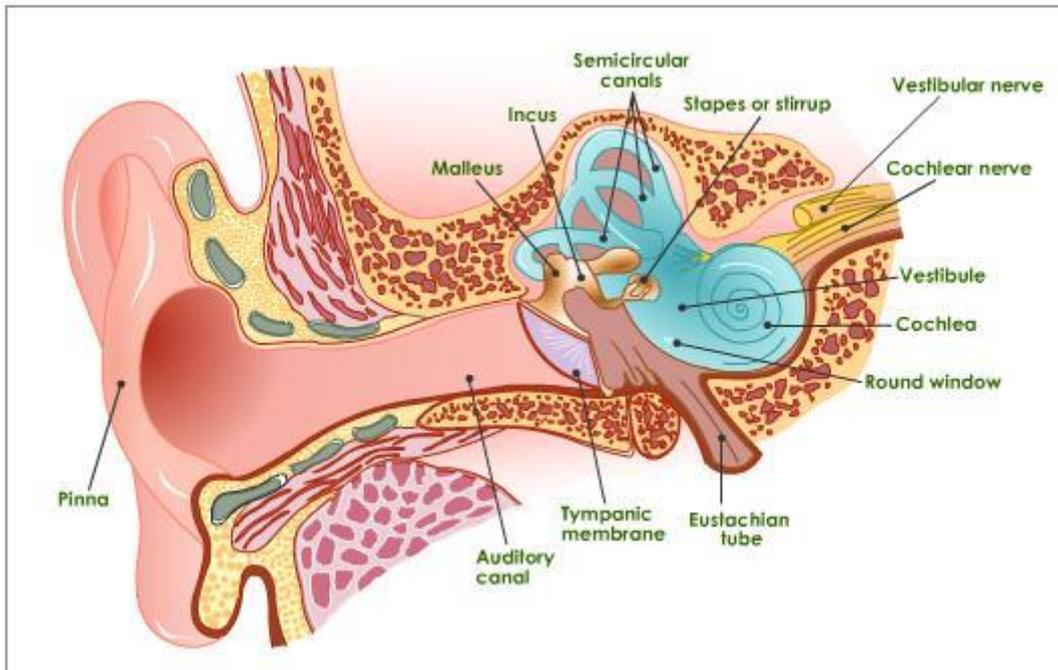


L/s Human Eye

Part	Function
Conjunctiva	Protection, refraction
Cornea	Refracts light - bends it as it enters the eye
Iris	Controls how much light enters the pupil
Pupil	Allows light to pass through
Lens	Focuses light onto the retina
Suspensory Ligaments	Holds lens in position/accommodation
Ciliary muscle and body	Accommodation
Retina	Contains the light receptors
Choroid	Prevents reflection of light/nourishment of the eye
Sclera	Protection/attachment of muscles
Optic nerve	carries impulses from the eye to the brain

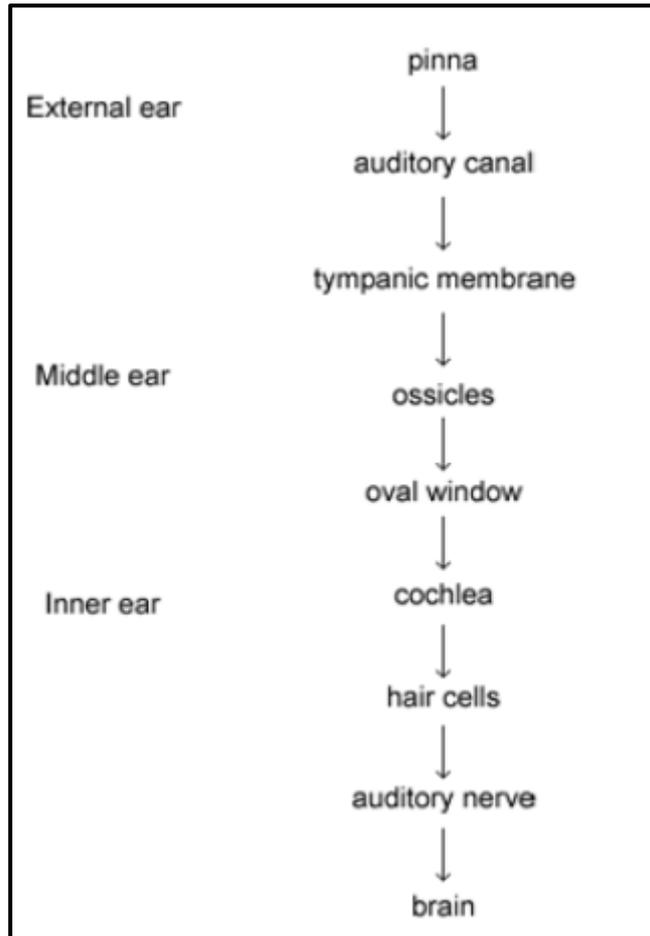
notes for...

The Human Ear



How do we hear?

notes for...





Improve your Skills

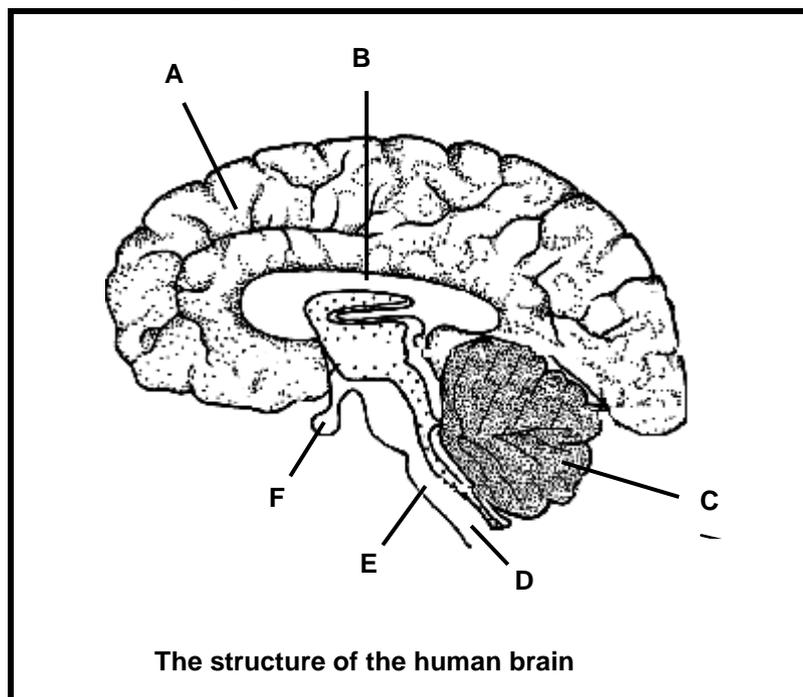
The Human Nervous System

Question 1

- 1.1 Name the part of the nervous system that connects the organs of the body to the CNS.
- 1.2 Name the two parts of the Autonomic Nervous System
- 1.3 List the functions of the sympathetic nervous system.

Question 2

Study the diagram representing the structure of the human brain below.



- 2.1 Is the above a cross section or a longitudinal section of the brain? (1)
- 2.2 Identify the parts labelled:
 - a) B (2)
 - b) A (2)
- 2.3 Write down the LETTER (A to F) of the part which controls the breathing rate. (2)
- 2.4 Explain how part A and C are related in function.
- 2.5 List the functions of part labelled D.
- 2.6 Listed below are characteristics and functions of parts of the central nervous system of humans:
 - A – perceives sensations
 - B – regulates heartbeat
 - C – co-ordinates skeletal muscular movement
 - D – white matter on the outside and grey matter on the inside
 - E – grey matter on the outside and white matter on the inside
 - F – connects the two cerebral hemispheres

- G – responsible for breathing rate
- H – allows one to remember information
- I – is protected by the vertebral column

From the list above choose and write down ONLY the letter/s which refer to:

- i) The cerebrum
- ii) The cerebellum
- iii) The spinal cord
- iv) The corpus callosum
- v) Medulla oblongata

The Human Eye

Question 1

- 1.4 List FOUR different stimuli that the body responds to.
- 1.5 Explain what binocular vision means.
- 1.6 Distinguish between the following disorders of the eye with regards to the nature, causes and possible treatment:
 - a) Cataracts
 - b) Hypermetropia

Question 2

The following diagrams, I and II, show a section through a portion of a human eye and illustrate how the lens changes its shape when the eye focuses on an object.

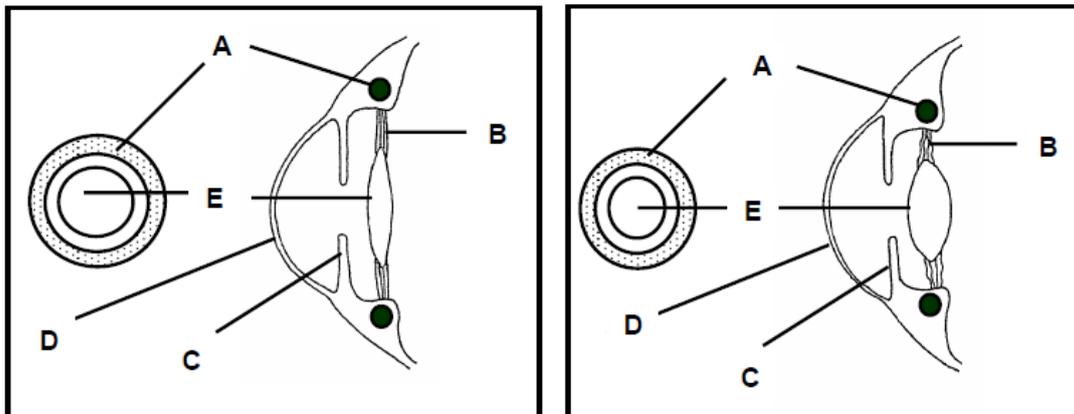


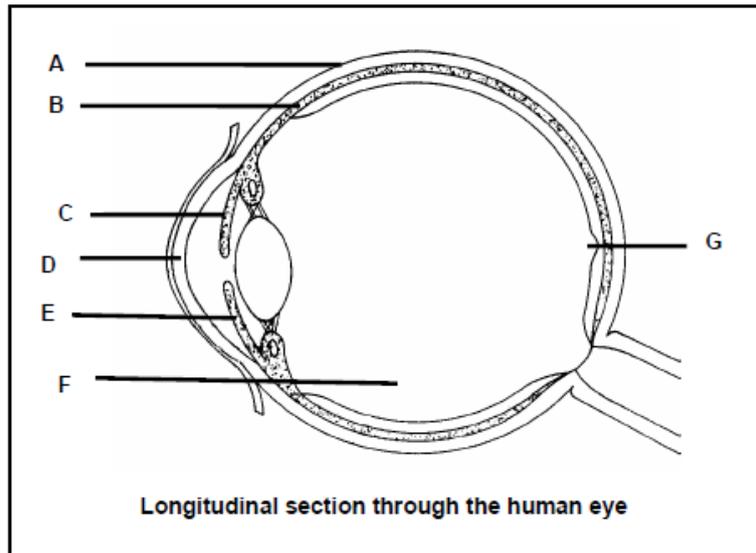
Diagram I

Diagram II

- 2.1. Provide labels for parts A TO E. (5)
- 2.2 List the functions of parts B, C and D. (3)
- 2.3 Name the process that accounts for the change from Diagram I to Diagram II. (1)
- 2.4 Using **letters** and **names** of the parts labelled A to E, describe **THREE** changes that occur during the process named in QUESTION 2.3 (9)
- 2.5 Which diagram (I or II) represents the state of the eye when a person is reading a book? (1)

Question 3

Study the diagram below and answer the questions that follow.

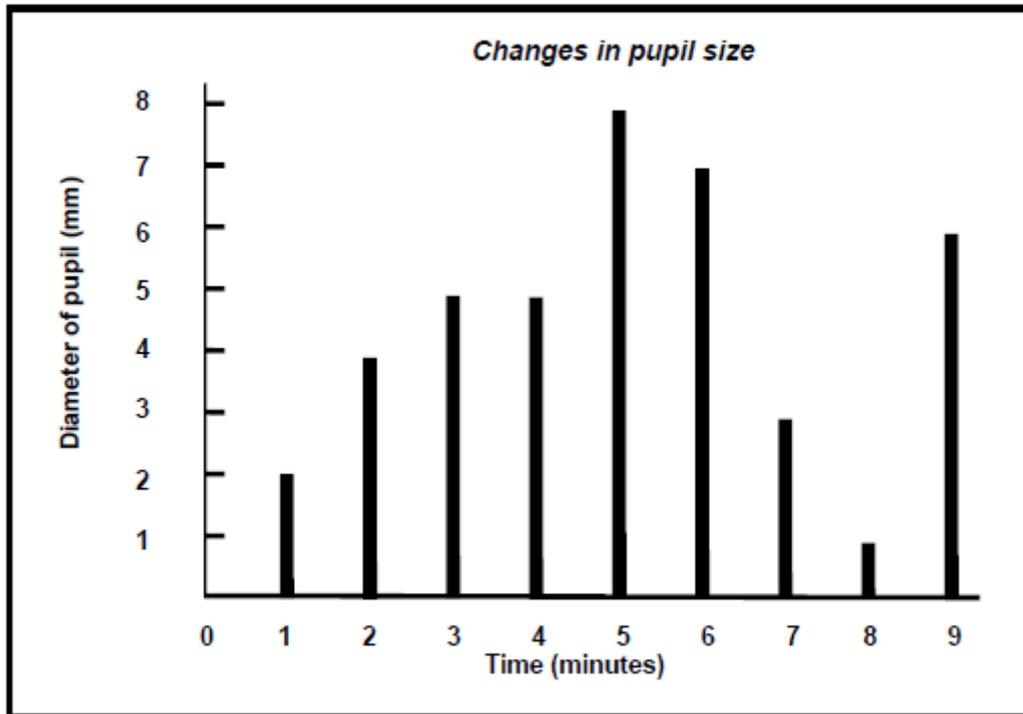


- 3.1 Write down the letter of the part (A–G):
 - (a) At which the clearest image is formed
 - (b) That is responsible for maintaining the shape of the eyeball
 - (c) That is responsible for the nutrition of the eye
- 3.2 State the function of part F. (2)
- 3.3 Explain how part E functions in dim light. (4)

Question 4

A person sitting in a darkened room covers one eye. A dim electric bulb, positioned at varying distances from the person is switched on and off at one minute intervals for a period of 10 seconds. During this period the diameter of the pupil of the eye is measured. The results obtained are shown in the graph on the next page. Refer to the graph when answering the following questions:

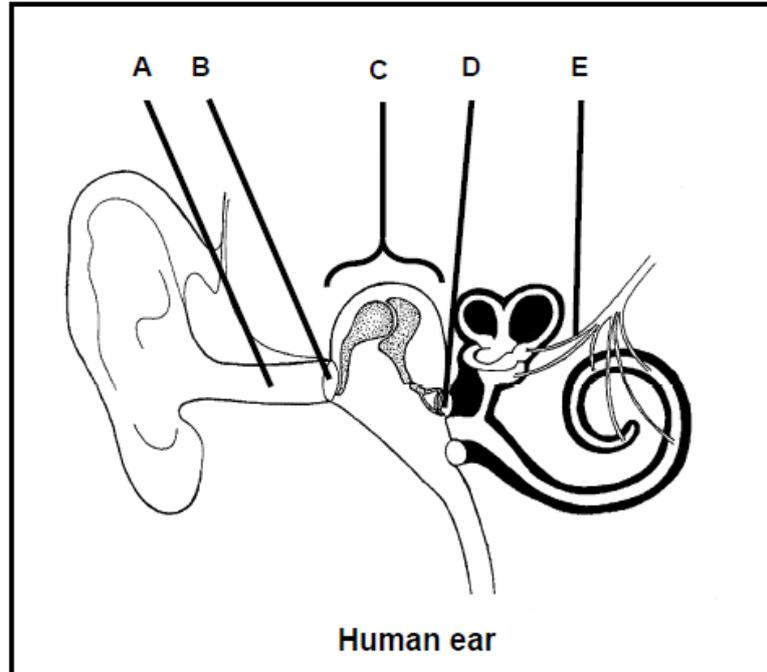
- 4.1 Which structure in the eye controls the size of the pupil? (1)
- 4.2 Between which TWO consecutive time intervals did the following changes in the diameter of the pupil occur:
 - (a) Smallest increase
 - (b) Biggest decrease
- 4.3 Why did the diameter of the pupil remain the same during the third and fourth time interval? (1)
- 4.4 At which time interval was the electric bulb the greatest distance away from the person? Explain your answer. (4)
- 4.5 Explain the pupillary mechanism for the period between the 8th and 9th minute. (4)
- 4.5 Provide a possible hypothesis for this investigation.
- 4.6 Explain how you would improve the reliability of this investigation.
- 4.7 List two factors, apart from environmental factors, which you would have to keep constant to ensure the results are valid.



The Human Eye

Question 1

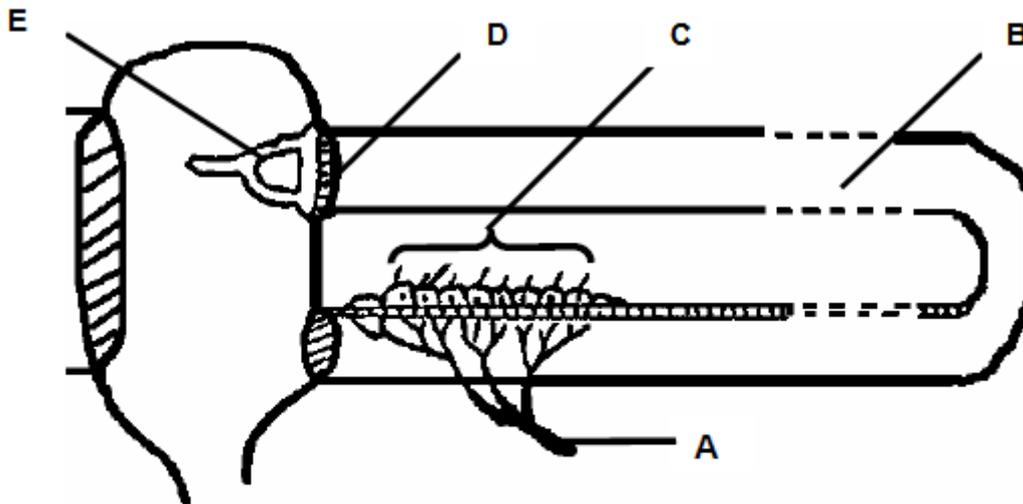
Study the diagram of the human ear below and answer the questions that follow.



- 1.1 Label parts labelled A, B, C, D and E. (5)
- 1.2 Provide the function/s of parts labelled A, C and E. (3)
- 1.3 Will sound waves reach part D if part C was removed? Give a reason for your answer. (3)
- 1.4 How is the structure drawn above suited to its functions? (4)

Question 2

Study the diagram below and answer the questions that follow.



Schematic representation of a part of the human ear

- 2.1 Identify parts labelled A, D, E and liquid B.
- 2.2 Part labelled C is labelled the organ of Corti. What is its role in the hearing process?
- 2.3 Is part C found in the middle ear or the inner ear?
- 2.4 Explain how the process of hearing may be affected if part A is damaged.