

The Nervous System (F)

1. Anaesthetics used during operations slow down breathing and heart rate.

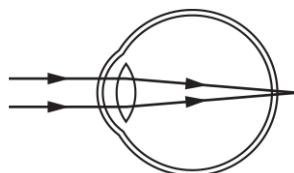
Which part of the brain do anaesthetics act on to do this?

- A Cerebrum
- B Cerebellum
- C Medulla
- D Pituitary

Your answer

[1]

2. Look at the diagram showing an eye defect.



What is the defect and which lens could be used to correct it?

- A Long-sightedness, corrected with a concave lens
- B Long-sightedness, corrected with a convex lens
- C Short-sightedness, corrected with a concave lens
- D Short-sightedness, corrected with a convex lens

Your answer

[1]

3. Which part of the brain controls the heartbeat and breathing?

- A Cerebrum
- B Hypothalamus
- C Medulla
- D Pituitary

Your answer

[1]

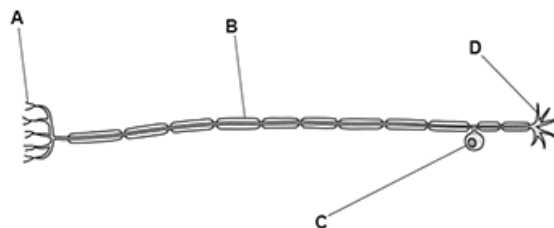
4. Which part of the eye does not function correctly in colour blindness?

- A Cornea
- B Iris
- C Lens
- D Retina

Your answer

[1]

5. Which label is pointing to the myelin sheath in a motor neurone?



Your answer

[1]

6. What is the name of the gap between two neurones?

- A Axon
- B Dendrite
- C Lumen
- D Synapse

Your answer

[1]

7. Light travels through different parts to reach the back of the eye.

Which structure does light pass through first when it enters the eye?

- A Cornea
- B Lens
- C Pupil
- D Retina

Your answer

[1]

8. Fig. 20.1 shows a section through the skin on the back of the hand.

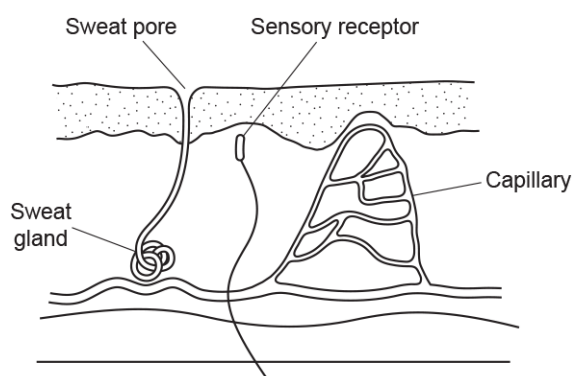


Fig. 20.1

i. Which part of the skin detects something touching the back of the hand?

----- [1]

- ii. The body responds when something touches the back of the hand.

Complete the sentences to explain how this happens.

The receives impulses from the skin along sensory neurones.

These impulses are processed and other impulses are sent along
..... neurones to bring about responses.

[2]

9. Retinitis pigmentosa is a genetic condition.

It is caused by a mutation to a gene. This mutation produces a recessive allele.

If people have retinitis pigmentosa then the cells in their retina are damaged.

If a person has two alleles for retinitis pigmentosa, they will not be able to see properly.

- i. Why does a person need two affected alleles to have the condition?

.....
..... [1]

- ii. Why does the condition affect the ability to see properly?

.....
..... [1]

- 10 (a). A girl walks from a sunny beach into a dark café

Diagram A shows the girl's left eye on the beach.



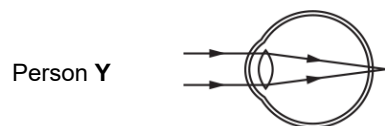
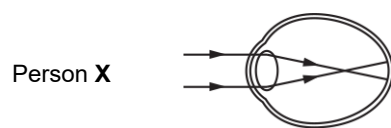
Diagram B shows the girl's left eye after she enters the café.

Explain how you can tell this and how this change happens.

.....
.....
.....
.....
..... [3]

(b). Look at the diagrams.

They show how light is focused in people with different eye defects.



i. Name the eye defect in each person.

Person X

Person Y

[2]

ii. Identify the type of corrective lens needed by person X and Y and explain how the lenses work.

[3]

11.

Finish these sentences to explain what is happening in the body of a female during the menstrual cycle.

The pituitary gland in the _____ releases the hormone FSH.

FSH causes an _____ releases the hormone FSH.

FSH also causes the follicle to release the hormone _____

After ovulation, the empty follicle releases another hormone called _____

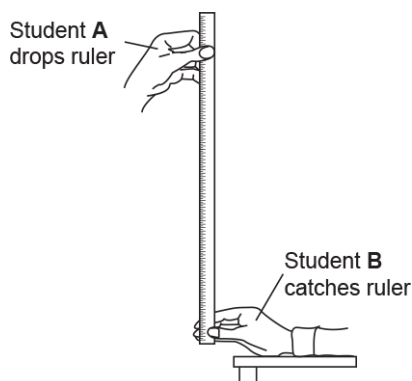
[4]

12 (a). A class of students investigate reaction time.

Student **A** drops a ruler while student **B** catches it.

They then measure the position of student **B**'s thumb on the ruler, this is the drop distance.

The diagram shows how the measurements were taken.



The drop distance is converted into a reaction time. The reaction time in seconds for each hand is recorded.

The table shows the results for ten **right-handed** students in the class.

Reaction time(s)	
Left non-dominant hand	Right dominant hand
0.22	0.28
0.23	0.25
0.27	0.23
0.24	0.24
0.25	0.24
0.25	0.25

0.25	0.26
0.25	0.26
0.25	0.26
0.27	0.23
Mean = 0.25	Mean = 0.25

The reaction in the experiment involves a **stimulus**.

What is the stimulus in the reaction involving catching the ruler?

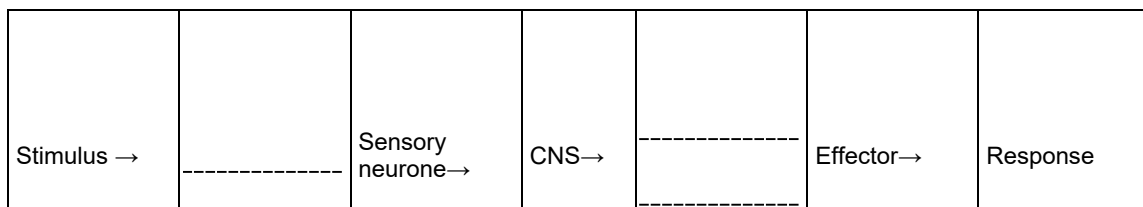
..... [1]

(b). The students want to investigate reaction times to see if left-handed people are faster than right-handed people.

How could they develop the experiment to test this?

..... [3]

(c). Complete the sequence of a reflex arc.



[2]

(b). The table shows information about different types of neurons.

Type of neurone	Diameter ($\times 10^{-3}$ mm)	Is myelin sheath present?	Speed of impulse (m/s)
A	13-20	yes	80-120
B	6-12	yes	33-75
C	5-8	yes	4-24
D	1-5	yes	3-15
E	0.2-1.5	no	0.5-20

i. Discuss the effect of diameter on the speed of impulse.

[2]

ii. Explain how strong a conclusion, if any, you can make from the data about the effect of the myelin sheath on the speed of impulse.

[2]

14. Which eye defect can be overcome by using spectacles containing concave lenses?

- A. colour blindness
- B. eye ball too short
- C. long sight
- D. short sight

Your answer

[1]

15. Which part of the brain automatically controls heart rate and breathing rate?

- A. cerebellum
- B. cerebrum
- C. hypothalamus
- D. medulla

Your answer

[1]

16 (a). A boy picks up a hot plate and quickly drops it.

This is a reflex action.

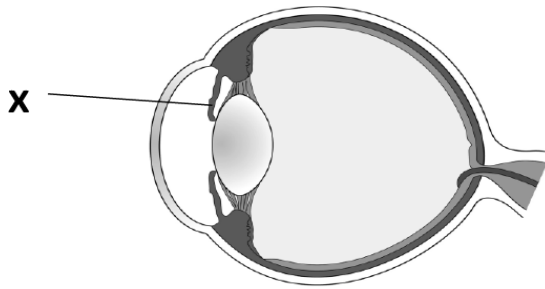
Describe the sequence of events that happens in his nervous system during this reflex action.

[5]

(b). Explain why it is important that this response is a reflex and **not** controlled consciously by the brain.

[3]

17. The diagram shows the eye.
What is the name of part X?

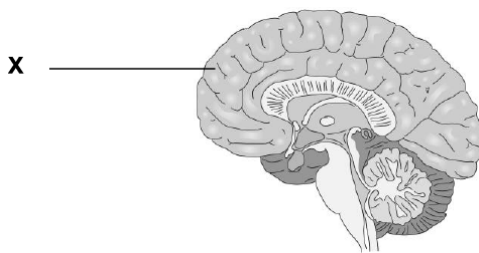


- A. cornea
- B. iris
- C. lens
- D. pupil

Your answer

[1]

18. The diagram shows the brain.
What is the name of part X?



- A. cerebellum
- B. cerebrum
- C. hypothalamus
- D. medulla

Your answer

[1]

END OF QUESTION PAPER