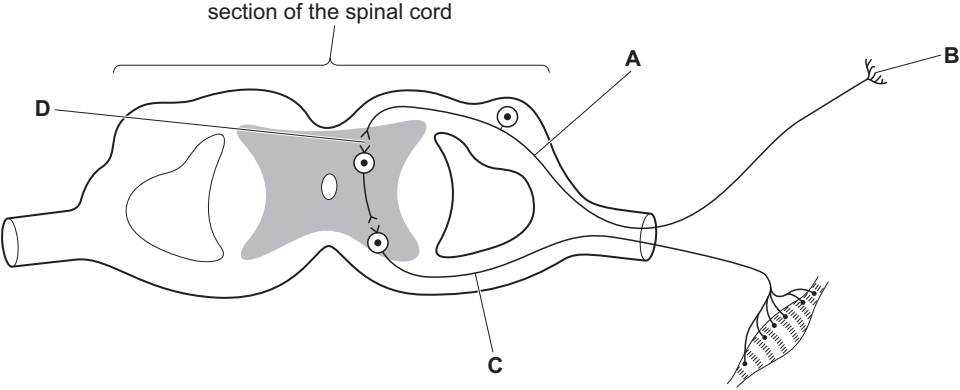


18 The diagram shows the parts of the nervous system involved in a reflex arc.

Which letter identifies a synapse?



21 Events that occur at a synapse are listed.

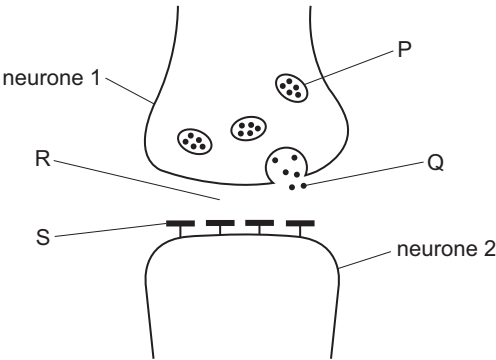
They are **not** in the correct order.

- 1 An impulse is stimulated in the next neurone.
- 2 An impulse stimulates the release of neurotransmitter molecules from vesicles into the synaptic gap.
- 3 Neurotransmitter molecules bind with receptor proteins on the next neurone.
- 4 The neurotransmitter molecules diffuse across the gap.

What is the actual sequence of events?

- A 2 → 4 → 1 → 3
- B 2 → 4 → 3 → 1
- C 4 → 2 → 1 → 3
- D 4 → 2 → 3 → 1

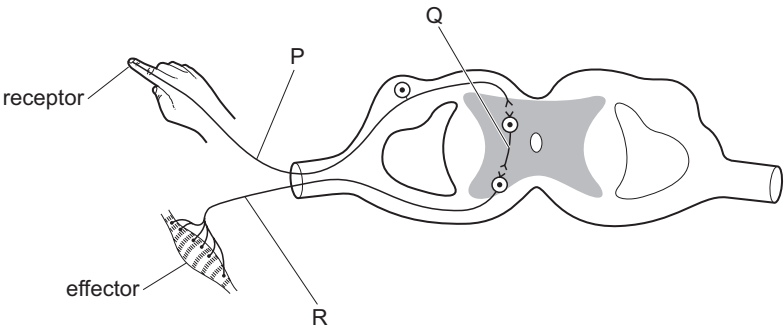
21 The diagram shows a synapse.



What are the labelled parts?

	P	Q	R	S
A	synaptic gap	neurotransmitter	vesicle	receptor
B	synaptic gap	receptor	vesicle	neurotransmitter
C	vesicle	neurotransmitter	synaptic gap	receptor
D	vesicle	receptor	synaptic gap	neurotransmitter

23 The diagram shows a simple reflex arc.



What are the names of the structures labelled P, Q and R?

	P	Q	R
A	motor neurone	relay neurone	sensory neurone
B	motor neurone	sensory neurone	relay neurone
C	sensory neurone	motor neurone	relay neurone
D	sensory neurone	relay neurone	motor neurone

2 (a) The human retina contains receptor cells called rods and cones.

Fig. 2.1 shows the distribution of receptor cells in a human retina.

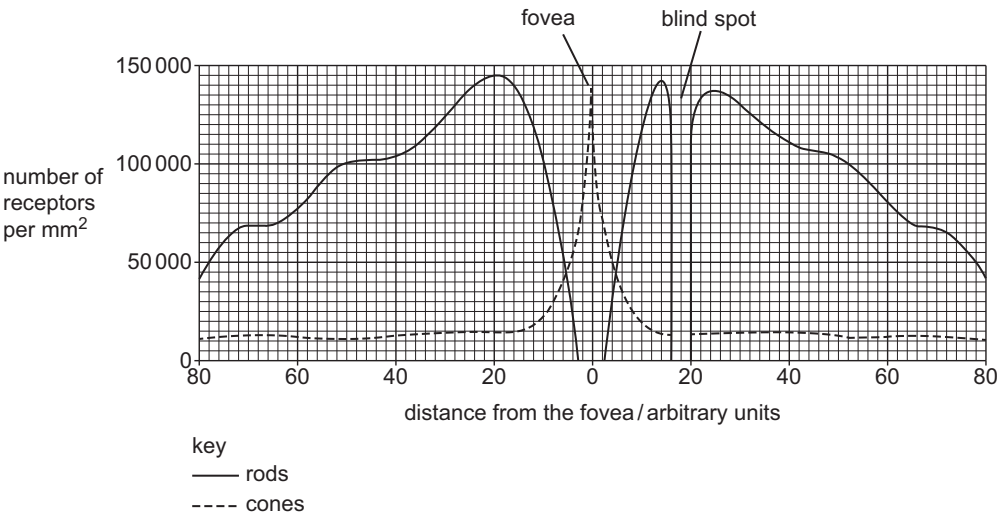


Fig. 2.1

Using the information in Fig. 2.1, describe the differences in the distribution of rods and cones.

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..... [4]

- (b) Nocturnal animals are active at night.

Suggest how the number of receptor cells in the retina of a nocturnal animal differs from those in the retina of an animal that is active in the day.

Explain your suggestion.

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.....

..... [2]

- (c) In humans, the size of the iris increases in bright light conditions.

During this response one effector in the iris contracts and one effector relaxes.

- (i) State the name of this response.

..... [1]

- (ii) State the name of the effector that contracts in this response.

..... [1]

- (iii) State the name of the type of action shown by the paired effectors during this response.

..... [1]

- (d) The optic nerve contains many neurones.

Fig. 2.2 shows a synapse between two neurones.

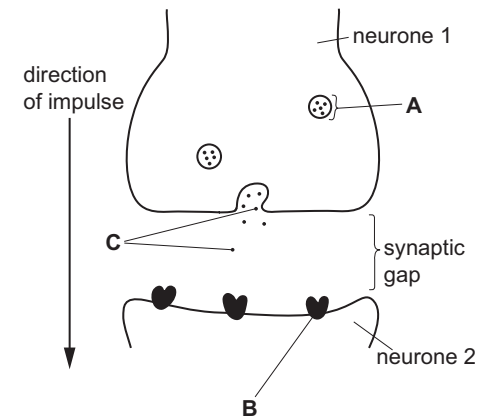


Fig. 2.2

- (i) State the names of the parts labelled A, B and C in Fig. 2.2.

A

B

C

[3]

- (ii) Explain how part C in Fig. 2.2 moves across the synaptic gap.

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..... [2]

[Total: 14]