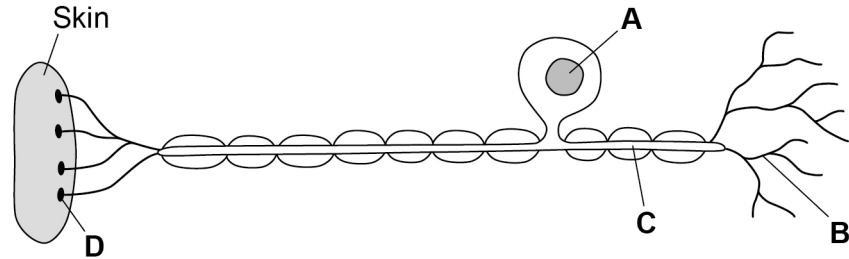


0 3

This question is about coordination in the human body.

Figure 2 shows a sensory neurone (nerve cell).

Figure 2



0 3 . 1

Which label is the cell nucleus?

[1 mark]

Tick **one** box.

A B C D

0 3 . 2

Which label is the receptor?

[1 mark]

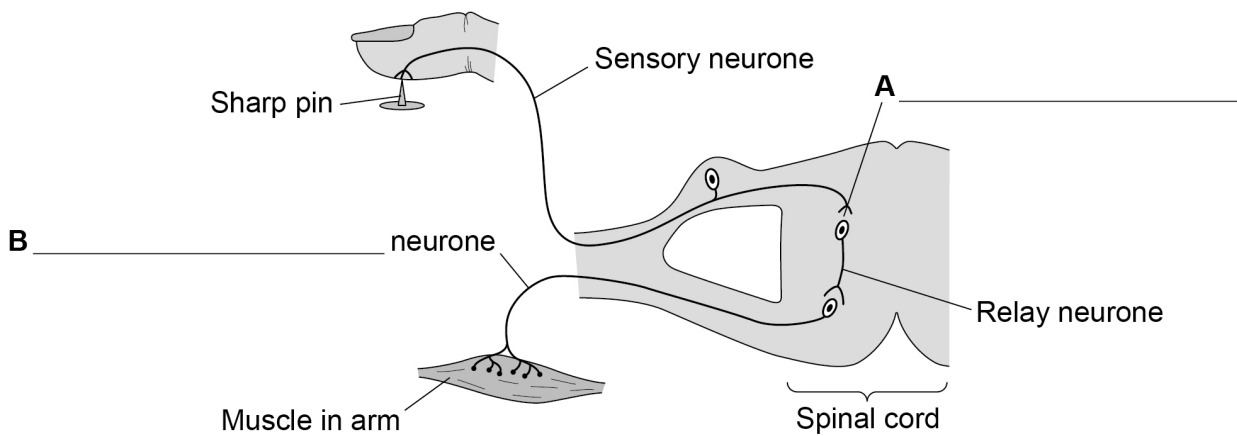
Tick **one** box.

A B C D

0 3 . 3

Figure 3 shows the nerve pathway when a person touches a sharp pin.

Figure 3



Name structures **A** and **B** on Figure 3

[2 marks]



0 3 . 4 When the finger touches the sharp pin, the muscle in the arm contracts to pull the arm away.

What type of action is this?

[1 mark]

Tick **one** box.

A conscious action

A delayed action

A reflex action

0 3 . 5 Doctors tested people of different ages to time how long it took between touching a sharp pin and the arm muscle contracting.

At each age they tested five men and calculated a mean value for the time.

Table 1 shows the results.

Table 1

Age in years	Mean time for muscle to contract in milliseconds
20	18
40	20
60	23
80	30

How much longer does it take for the muscle to contract at 80 years of age compared to at 20 years of age?

Give your answer in seconds.

[2 marks]

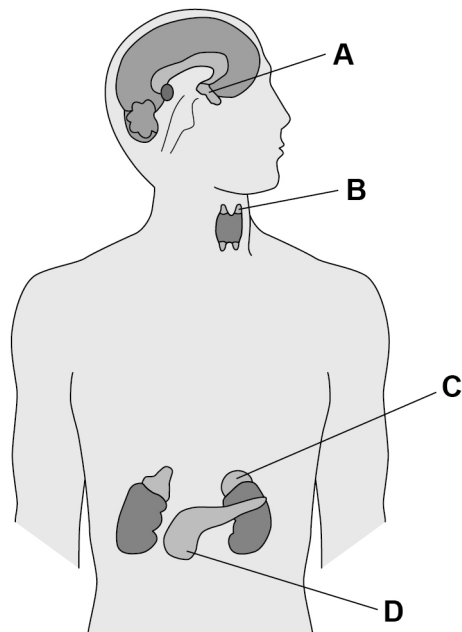
Time = _____ s

Turn over ►



0 3 . 6 Figure 4 shows the position of some of the glands which release hormones.

Figure 4



Which label on **Figure 4** shows the position of the pituitary gland?

[1 mark]

Tick **one** box.

A B C D

0 3 . 7 Luteinising hormone (LH) is a hormone released by the pituitary gland.

What is the function of LH?

[1 mark]

Tick **one** box.

Controls blood glucose concentration	<input type="checkbox"/>
Controls the formation of sperm	<input type="checkbox"/>
Controls the growth of muscles	<input type="checkbox"/>
Controls the release of an egg	<input type="checkbox"/>



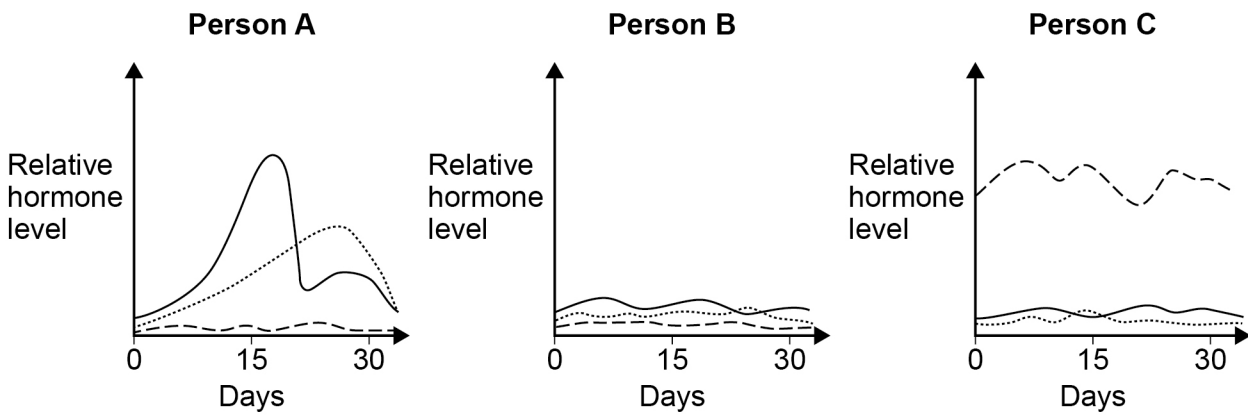
0 3 . 8 How does LH travel from the pituitary gland to its target organ?

[1 mark]

0 3 . 9 **Figure 5** shows the relative levels of sex hormones of three young people over 30 days.

One person is an 8-year-old girl, one is an 18-year-old boy and the other is an 18-year-old girl.

Figure 5



Key

- Oestrogen
- Progesterone
- - - Testosterone

Which person is the 18-year-old boy?

Give **one** reason for your answer.

[2 marks]

Person _____

Reason _____

12

Turn over for the next question

Turn over ►



Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.1	A		1	AO1 4.5.2 4.1.1.3
03.2	D		1	AO2 4.5.2 4.1.1.3
03.3	A = synapse B = motor (neurone)	in this order only	1 1	AO1 4.5.2
03.4	a reflex action		1	AO1 4.5.2
03.5	12 (ms) 0.012 (s)	an answer of 0.012 (s) scores 2 marks	1 1	AO2 4.5.2
03.6	A		1	AO1 4.5.3.1
03.7	controls the release of an egg		1	AO1 4.5.3.3
03.8	in the blood(stream)	allow in the plasma / blood vessels do not accept in blood cells / platelets	1	AO1 4.5.3.1

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.9	(person) C any one from: <ul style="list-style-type: none"> • the testosterone level is high(er) • the oestrogen and / or progesterone levels are low • the oestrogen and progesterone levels do not rise and fall as they do in a menstrual cycle 	no marks if A or B given allow testosterone is the main male (sex) hormone allow there is no menstrual cycle	1 1	AO3 4.5.3.3
Total			12	