

Questions are for both separate science and combined science students

Q1.

Many human actions are reflexes.

(a) Which statement describes a reflex action?

Tick (✓) **one** box.

A reflex action does not need a sense organ.

☐

A reflex action is a slow action.

☐

A reflex action is automatic.

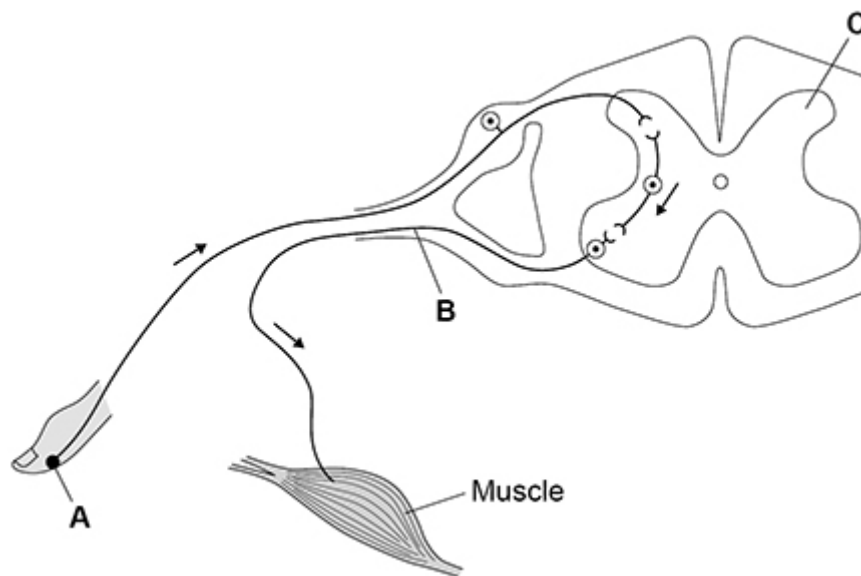
☐

(1)

Figure 1 shows the nerve pathway for a reflex action.

The arrows show the direction of the nerve impulse.

Figure 1



- (b) Draw **one** line from each part of the nerve pathway to the name of that part.

Use **Figure 1**.

Part of nerve pathway	Name of part
A	Motor neurone
B	Receptor
C	Relay neurone
	Spinal cord

(3)

- (c) Which **two** human actions are reflexes?

Tick (✓) **two** boxes.

Blinking when an insect flies into the eye

☐

Catching a ball in a playground game

☐

Playing a musical instrument

☐

Removing the hand from a hot object

☐

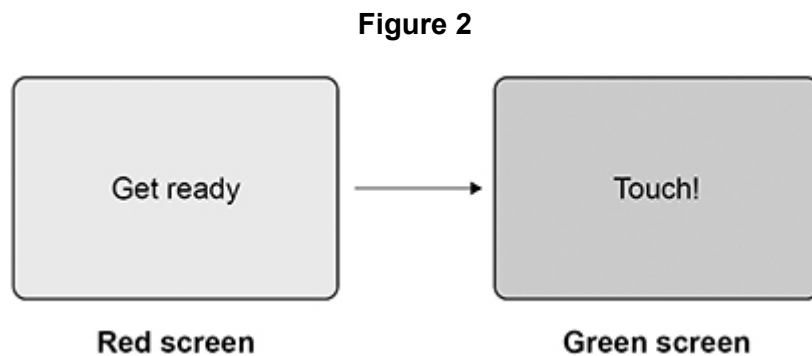
Writing a message to a friend

☐

(2)

Students investigated their reaction times using a computer program.

Figure 2 shows a sequence of two screens in the computer program.



This is the method used.

1. Open the reaction time program.
2. When the screen turns from red to green, touch the screen as quickly as possible.
3. Record the reaction time shown on the screen.
4. Re-set to the red screen.
5. Repeat steps 2 to 4 four more times.
6. Repeat steps 1 to 5 for each student.

The table below shows the results.

Test	Reaction time in milliseconds			
	Student P	Student Q	Student R	Student S
1	317	310	367	320
2	309	293	352	304
3	290	312	350	315
4	333	307	359	308
5	328	312	635	313
Mean	315	307	357	X

- (d) Calculate mean value **X** in above table.

X = _____ milliseconds

(2)

- (e) There is an anomalous result for student **R**.

Draw a ring around the anomalous result in the table above.

(1)

- (f) Give **two** factors that might affect a person's reaction time.

1 _____

2 _____

(2)

(Total 11 marks)