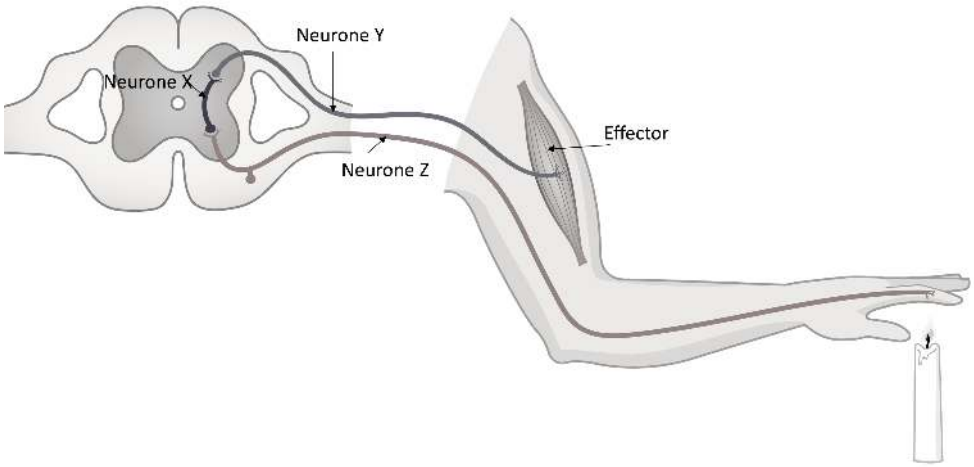
0 1 **Figure 1** shows a reflex arc

Figure 1



0 1 . 1 What type of neurone is neurone X?

Tick **one** box.

a sensory neurone ☐

a relay neurone ☐

a motor neurone ☐

0 1 . 2 There is a gap between each neurone. Which word best describes this gap?

Tick **one** box.

an effector ☐

a synapse ☐

a stimulus ☐

0 1 . 3 Describe how information travels across this gap

_____

_____ **[2 marks]**

0 2 . 1 A response is formed when information in the nervous system reaches an effector

There are 2 different types of effector

Complete the table to show

* the 2 different types of effector
* the response of each type of effector

Effector	Response
1. _____	_____ _____
2. _____	_____ _____

[4 marks]

0 2 . 2 *In this question you will be assessed on using good English, organising information clearly and using specialist terms where appropriate.*

A reflex action helps the body to protect itself from damage.

A person accidentally touches a very hot object. This starts a reflex action.

Describe as fully as you can, how a reflex action occurs.

_____

_____

_____

_____

_____

_____

_____

_____ **[6 marks]**

0 3 .

A student carried out an investigation to compare their reaction time with and without caffeine. ***[this is similar to one of the required practicals]***

With the forearm of their weaker hand resting on the end of a table and a 30cm ruler held vertically with the 0 cm mark in between the student's thumb and forefinger, another student, without warning would drop the ruler.

Where the ruler was caught during its fall would be read just below the thumb
of the student who caught the ruler. This was repeated a further 4 times and an average was calculated. This was then repeated 30 minutes after drinking a caffeinated drink. The results of this investigation can be seen in the table below:

Test number	Distance a ruler dropped (cm)	
	before caffeine	after caffeine
1	11	6
2	12	5
3	10	5
4	9	4
5	9	15
Mean	10	X

0 3 . 1 From the data above, identify the anomalous result and give a reason for choosing this answer

[2 marks]

0 3 . 2 Calculate an accurate value for X in the table, show your working

[2 marks]

0 3 . 3 State 2 control variables from the method

[2 marks]

0 3 . 4 Give one conclusion about the effect of caffeine on reactions

[1 mark]

0 3 . 5 Suggest how the student could confirm the reproducibility of this investigation

[2 marks]