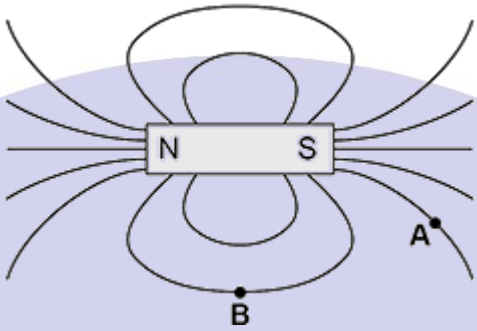
Q1.

Figure 1 shows the magnetic field pattern around a bar magnet.

Figure 1



(a) A bar magnet produces its own magnetic field.

Complete the sentence.

Choose the answer from the box.

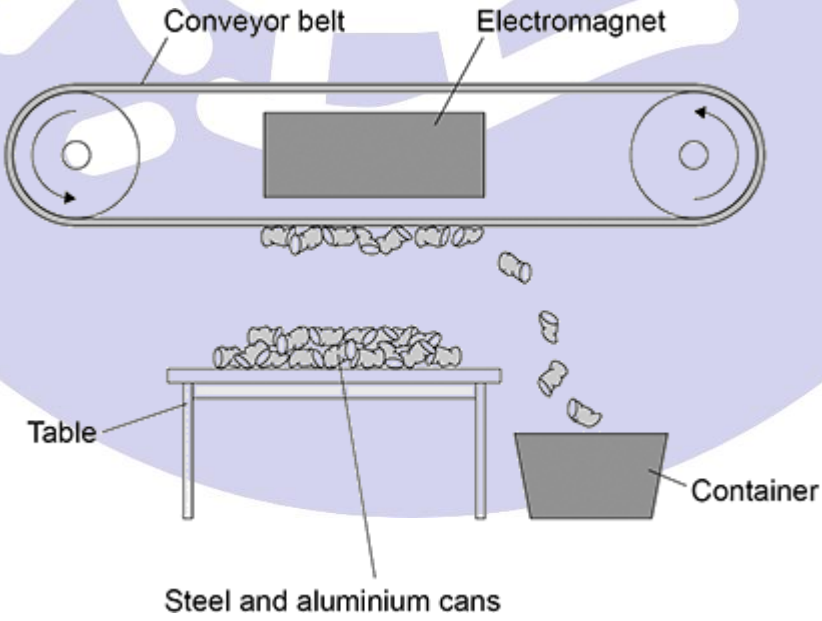
an electromagnet	**an induced magnet**	**a permanent magnet**

A bar magnet is an example of _____.

(1)

Figure 2 shows an electromagnet being used to separate aluminium cans from steel cans.

Figure 2



(b) Explain how the electromagnet and conveyor belt are used to separate the steel cans from the aluminium cans.

_____

_____

_____

_____

(2)

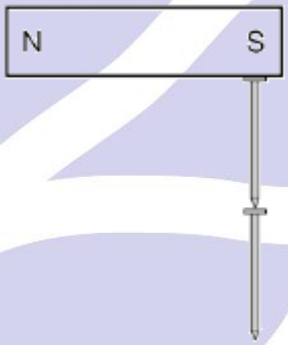
(Total 13 marks)

Q2.

Figure 1 shows two iron nails hanging from a bar magnet.

The iron nails which were unmagnetised are now magnetised.

Figure 1



(a) Complete the sentence.

Use a word from the box.

forced	**induced**	**permanent**

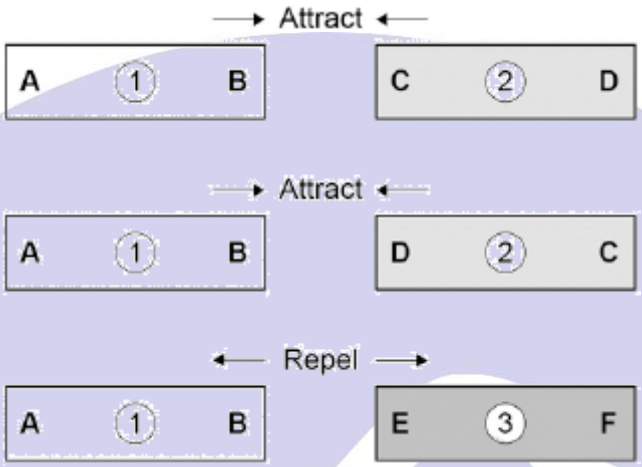
The iron nails have become _____ magnets.

(1)

(b) Each of the three metal bars in **Figure 2** is either a bar magnet or a piece of unmagnetised iron.

The forces that act between the bars when different ends are placed close together are shown by the arrows.

Figure 2



Which **one** of the metal bars is a piece of unmagnetised iron?

Tick **one** box.

Bar 1 ☐

Bar 2 ☐

Bar 3 ☐

Give the reason for your answer.

_____

_____

(2)

(Total 3 marks)

Q3.

When two magnets are close together they exert a force on each other.

(a) Complete table below to show if the magnets would attract or repel.

Tick (✓) **one** box in **each** row.

	Attract	Repel
		
		
		
		

(2)

(Total 2 marks)

Q4.

Some metals are magnetic and others are non-magnetic.

(a) Which of the following metals is magnetic?

Tick (✓) **one** box.

Aluminium ☐

Cobalt ☐

Copper ☐

Zinc ☐

(1)

(Total 1 marks)

Q5.

(b) **Figure 2** shows part of a coat.

The coat has two magnets hidden inside the material.

Figure 3 shows how the magnets are used to fasten the coat.

Figure 2

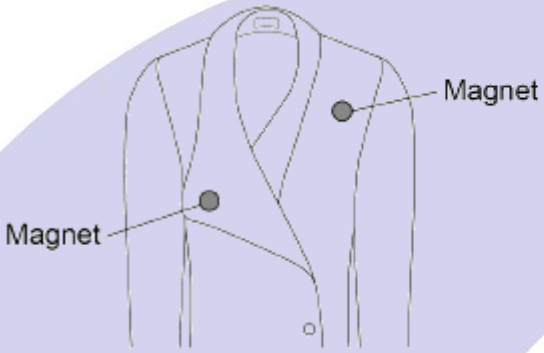


Figure 3

Explain why the magnets inside the coat must **not** have two south poles facing each other.

_____

_____

_____

_____

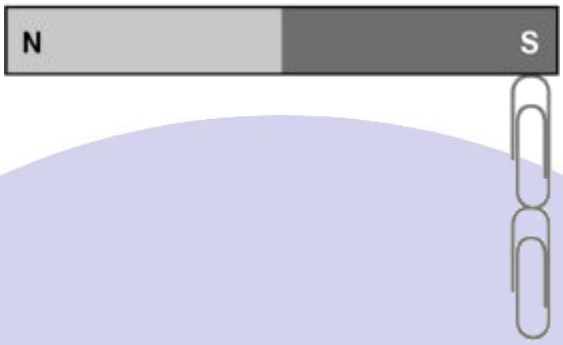
(2)

(Total 2 marks)

Q6.

Figure 1 shows two paper clips hanging from a bar magnet.

Figure 1



The paper clips have become magnetised.

(a) Label the north and south poles of both paper clips.

(1)

(Total 1 marks)

Q7.

(a) **Diagram 1** shows a magnetic closure box when open and shut. It is a box that stays shut, when it is closed, due to the force between two small magnets.

These boxes are often used for jewellery.

Diagram 1

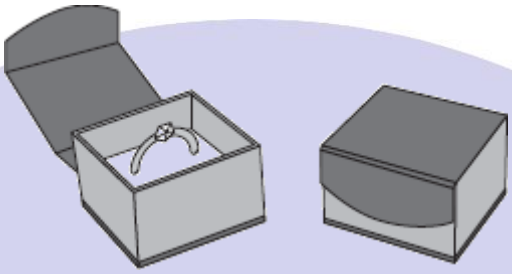
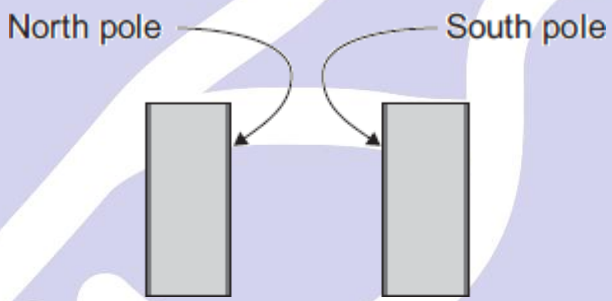


Diagram 2 shows the two magnets. The poles of the magnets are on the longer faces.

Diagram 2



(ii) The magnets in the magnetic closure box must **not** have two North poles facing each other.

Explain why.

_____

_____

_____

_____

(2)

(Total 2 marks)