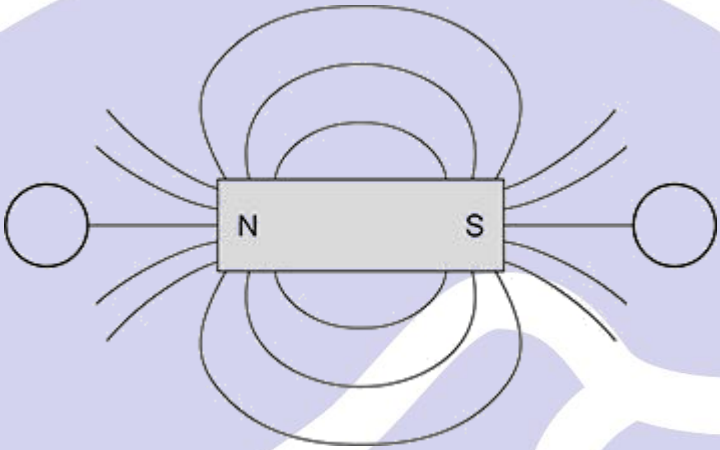
Q1.

Some metals are magnetic and others are non-magnetic.

(a) **Figure 1** shows magnetic field lines around a bar magnet.

The circles represent plotting compasses.

Figure 1

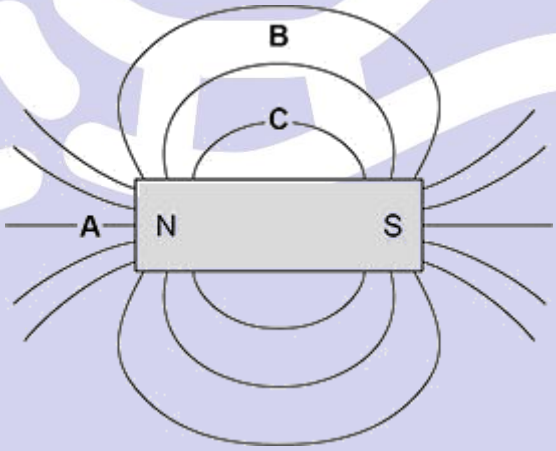


Draw **one** arrow in each circle on **Figure 1** to show the direction of the magnetic field at each place.

(2)

(b) **Figure 2** shows magnetic field lines around a bar magnet.

Figure 2



Which letter shows where the magnetic field is strongest?

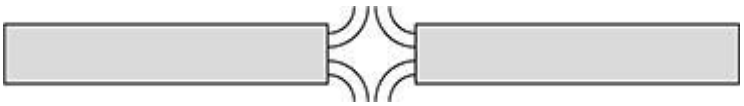
Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐

(1)

(c) **Figure 3** shows the magnetic field lines between two bar magnets.

Figure 3



Which diagram shows how the magnets are arranged in **Figure 3**?

Tick (✓) **one** box.

S	N	☐
S	S	☐
N	S	☐

(1)

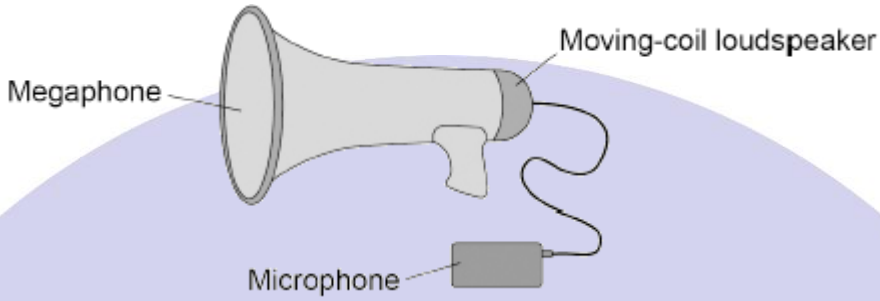
(Total 4 marks)

Q2.

A megaphone uses a loudspeaker to amplify sounds that are detected by a microphone.

Figure 1 shows a megaphone and microphone.

Figure 1



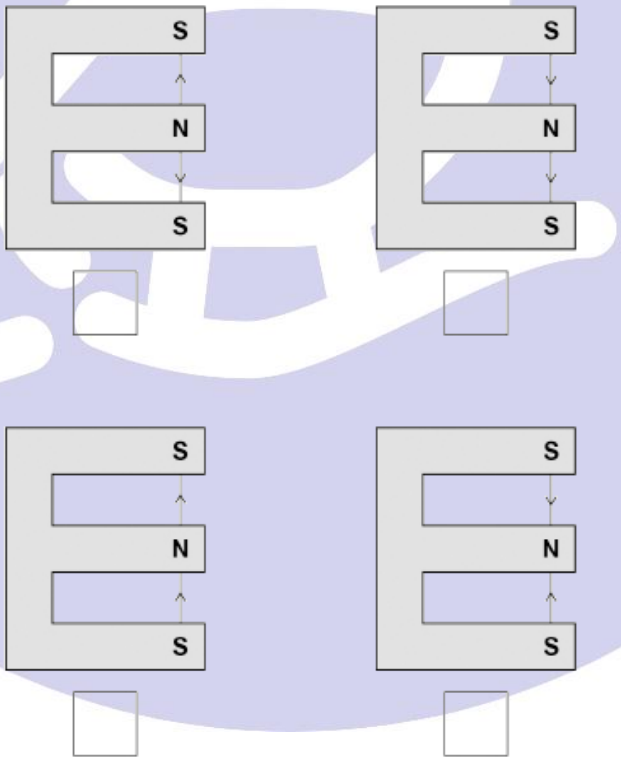
(a) The loudspeaker contains a permanent magnet.

Which diagram in **Figure 2** shows the direction of the magnetic field between the north pole and the south pole of the magnet?

The magnets are shown in cross-section.

Tick (✓) **one** box.

Figure 2



(1)

(Total 1 marks)

Q3.

(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

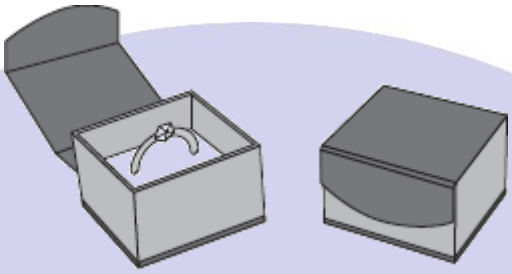
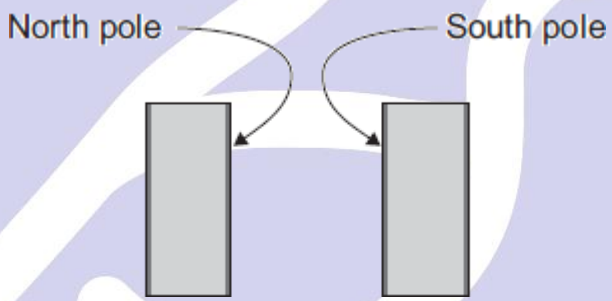


Diagram 2 shows the two magnets. The poles of the magnets are on the longer faces.

Diagram 2



(i) Draw, on **Diagram 2**, the magnetic field pattern between the two facing poles.

(2)

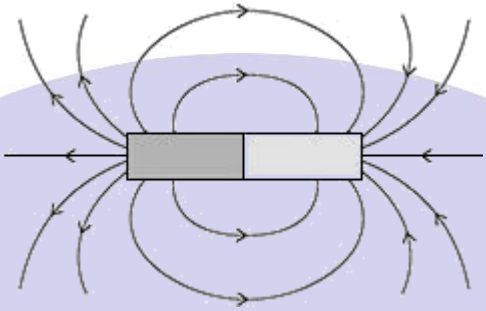
(Total 2 marks)

Q4.

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

(a) **Figure 1** shows the magnetic field around a bar magnet.

Figure 1



Which statements are true for the magnetic field shown in **Figure 1**?

Tick (✓) **two** boxes.

- The magnetic field gets weaker further from the magnet. ☐
- The magnetic field is strongest at the poles. ☐
- The magnetic field is uniform away from the poles. ☐
- The magnetic field lines all meet at a single point. ☐
- The magnetic field lines point from south to north. ☐

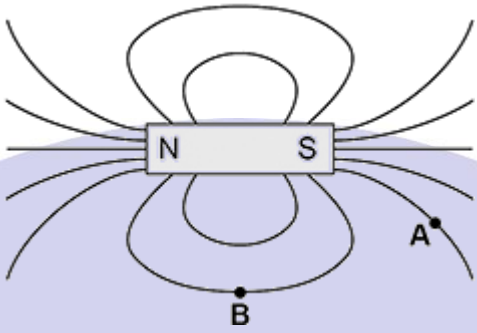
(2)

(Total 2 marks)

Q5.

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

Figure 1



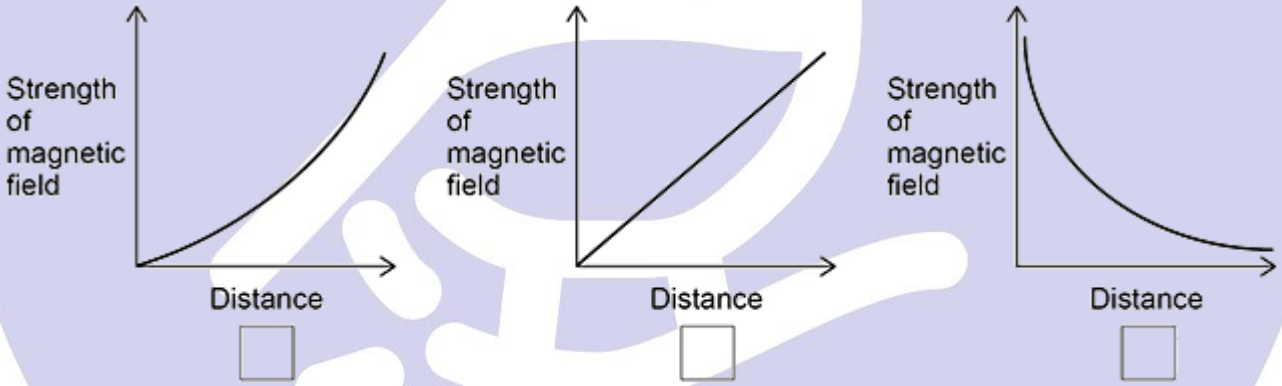
(a) Draw an arrow at point **A** and point **B** to show the direction of the magnetic field at each point.

(1)

(b) Which graph shows how the strength of the magnetic field varies with distance from the bar magnet?

Give a reason for your answer.

Tick (✓) **one** box.



Reason _____

_____

(2)

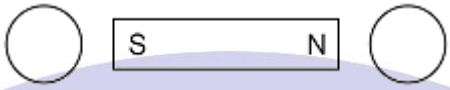
(Total 3 marks)

Q6.

(a) **Figure 1** shows a bar magnet.

Each circle represents a compass.

Figure 1



Draw an arrow inside each circle to show the direction that each compass would point.

(1)

(Total 1 marks)