Magnetism and magnetism fields – 2022 June O Level 5054

1. June/2022/Paper_22/No.6

(a) Fig. 6.1 shows part of a toy which contains two ring-shaped, permanent magnets. A plastic rod passes through the centre of both magnets.

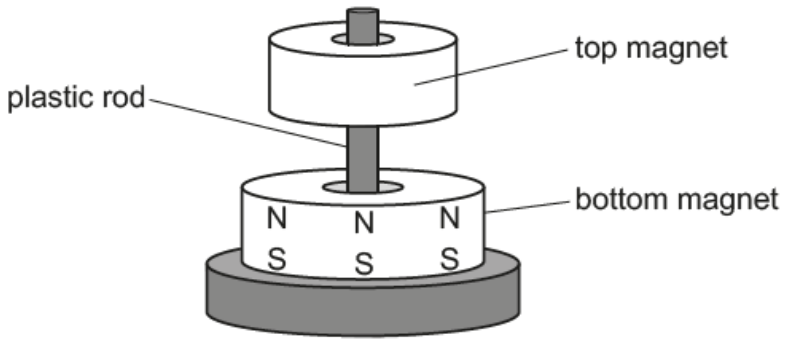

Fig. 6.1

The top magnet can move up and down freely around the plastic rod.

The magnetic poles on the bottom magnet are shown in Fig. 6.1.

(i) The top magnet floats in the air above the bottom magnet.

On Fig. 6.1, mark the poles on the top magnet and explain why it floats in the air above the bottom magnet.

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(ii) The top magnet is replaced with a ring made of iron.

Explain why the iron ring sticks to the bottom magnet.

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(b) A wire carrying a current passes at right angles through a piece of paper.

Fig. 6.2 shows a cross and circle where the current in the wire passes into the plane of the paper.

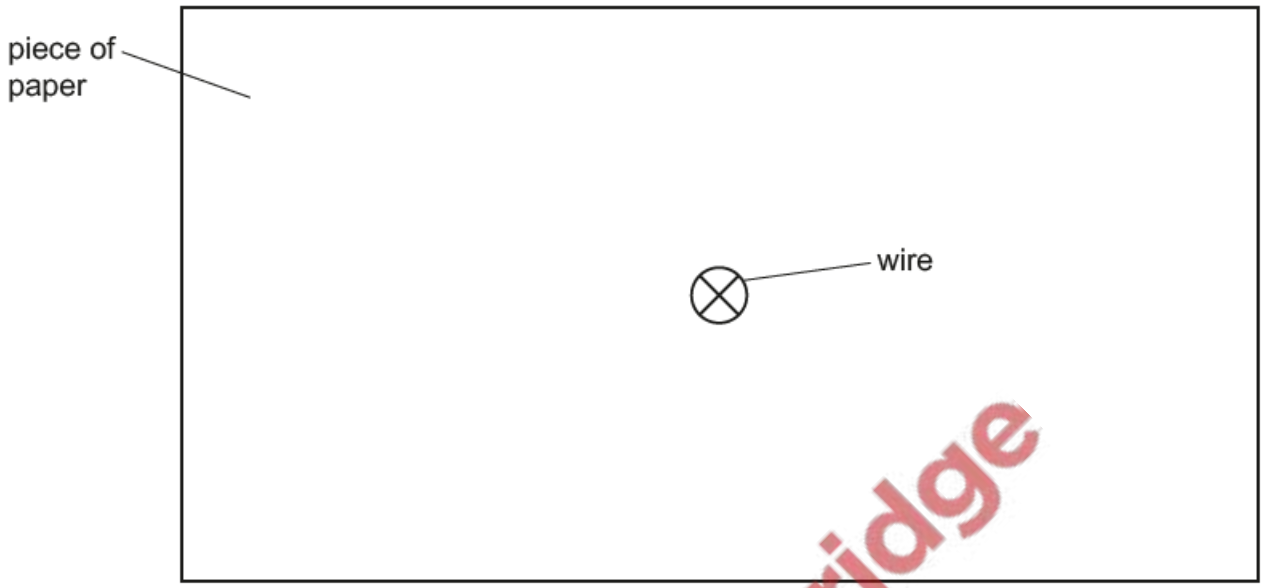

Fig. 6.2

On Fig. 6.2, sketch **three** magnetic field lines to show the magnetic field pattern around the wire.

Show the direction of the field on your sketch. [2]

[Total: 6]