2025 Sec 4 Physics Chapter 17

Magnetism- ANSWERS

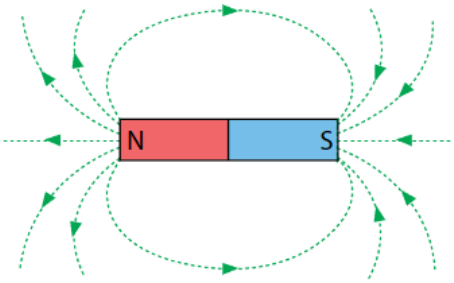
Example 1

Steel is a magnetic material. The two needles will be induced with unlike poles at its ends further from the magnet's poles.

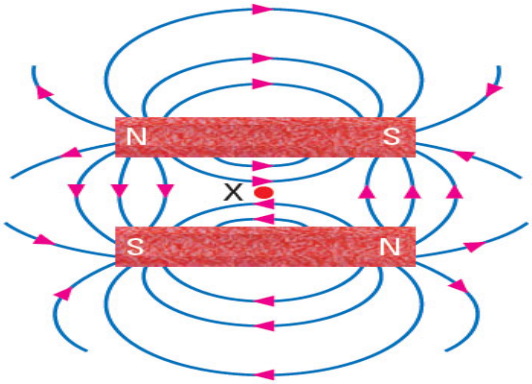
Since unlike poles attract, the ends will be attracted to each other.

Example 2

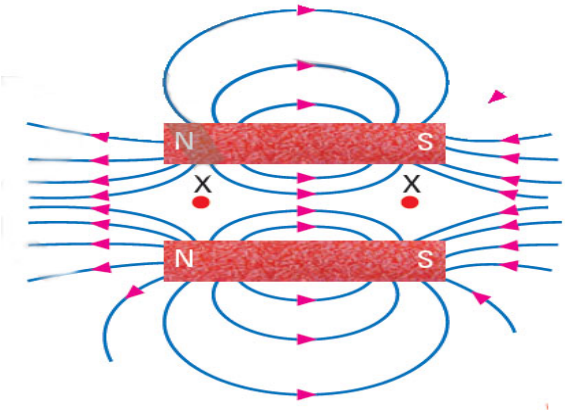
(a)



(b) *Note: X is a neutral point*



(c)



Example 3

(a)

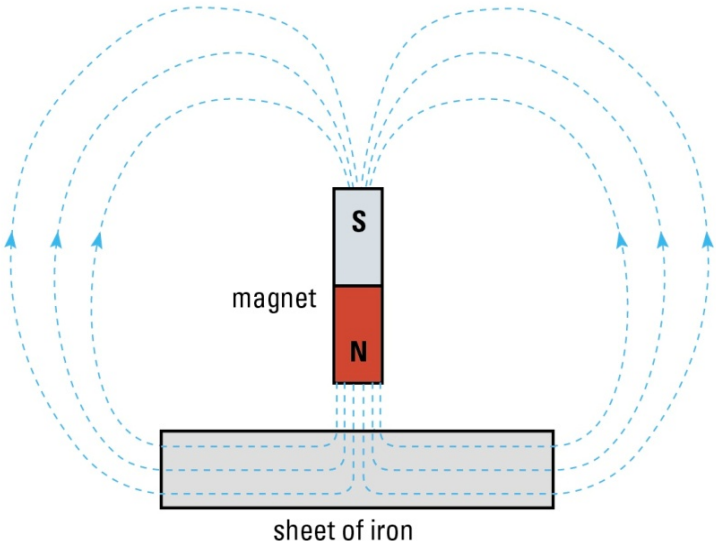
(b) At the position of the compass needle, the magnetic field due to the bar magnet is much stronger than the Earth's. The compass needle changes its direction since unlike poles attract and its south pole is attracted to the north pole of the magnet.

(c) As the bar magnet moves away from the compass, the compass needle gradually rotates clockwise till it is in the position shown in Fig. 3a. This is because the strength of the magnetic field due to the bar magnet decreases as it moves further away from the compass until the compass is only influenced only by the Earth's field.

Example 4

Note:

- *The magnetic field lines have to be drawn as continuous lines.*
- *A compass placed below the sheet of iron will not detect any magnetic field line from the North pole of the bar magnet now.*



Q: The field would be the same as shown in Example 2(a).

Exercises

1 D
2 C
3 B
4 D
5 C
6 B
7 C