VIDYA BHAVAN, BALIKA VIDYAPEETH

SHAKTI UTTHAN ASHRAM, LAKHISARAI, PIN:-811311

SUBJECT:- PHYSICS CLASS:- XTH DATE:13/09/XX

SUBJECT TEACHER:- MR. NEEL NIRANJAN

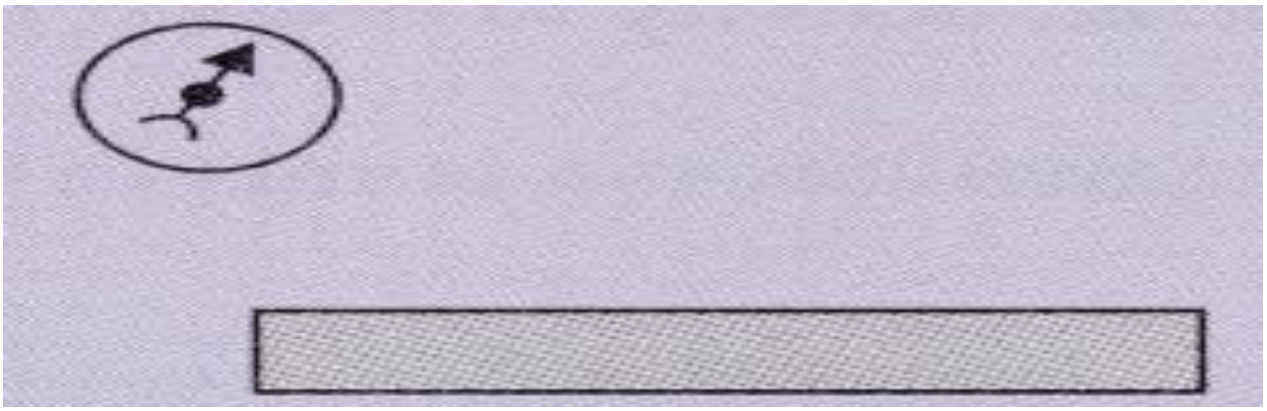
CHAPTER 2. (MAGNETIC EFFECTS OF AN ELECTRIC CURRENT) (BASED ON NCERT PATTERN)

(REVISION)

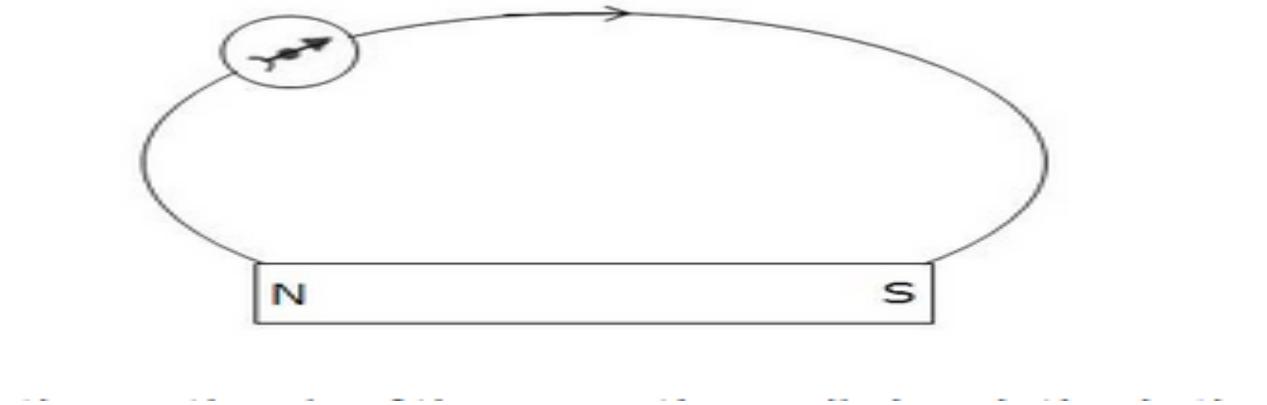
Question 1:
(a) Define magnetic field lines. Describe an activity to draw a magnetic field line outside a bar magnet from one pole to another pole.
(b) Explain why, a freely suspended magnet always points in the north-south direction.
Solution :
(a) The magnetic field lines are the lines drawn in a magnetic field along which a north magnetic pole would move. The magnetic field lines are also known as magnetic lines of forces.
Activity to draw a magnetic field line outside a bar magnet from one pole to another pole:
(i) Take a small compass and a bar magnet.
(ii) Place the magnet on a sheet of white paper fixed on a drawing board, using some adhesive material.
(iii)Mark the boundary of the magnet.
(iv) Place the compass near the north pole of the magnet. The south pole of the needle points towards the north pole of the magnet. The north pole of the compass is directed away from the north pole of the magnet.
(v)Mark the position of two ends of the needle.
Now move the needle to a new position such that its south pole occupies the position previously occupied by its north pole.
In this way, proceed step by step till you reach the south pole of the magnet .
(vi)Join the points marked on the paper by a smooth curve. This curve represents a magnetic field line.

(b) A freely suspended magnet points in the north-south direction because earth behaves as a magnet with its south pole in the geographical north and the north pole in the geographical south.

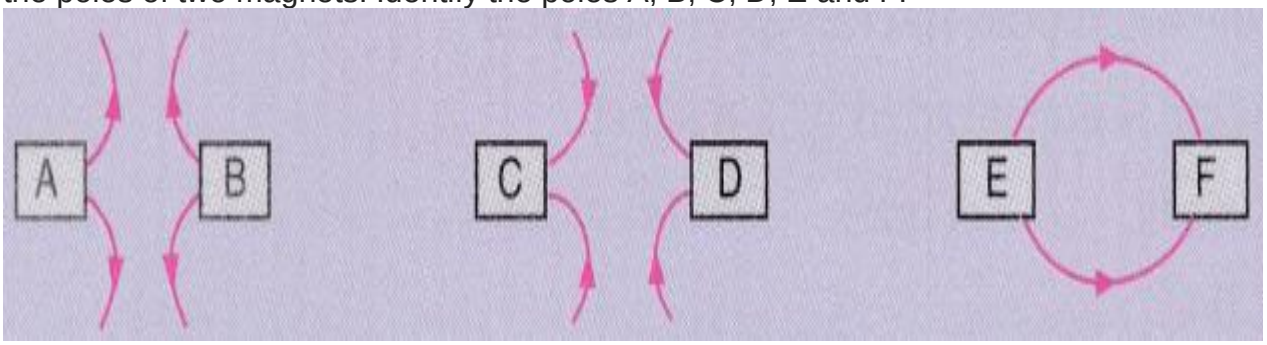
Question 2:
Copy the figure given below which shows a plotting compass and a magnet. Label the N pole of the magnet and draw the field line on which the compass lies.



Solution : As the north pole of the magnetic needle is pointing in the opposite direction, so the nearer end of the magnet will be north pole.



Question 3:
The three diagrams in the following figure show the lines of force (field lines) between the poles of two magnets. Identify the poles A, B, C, D, E and F.



Solution:
A=N; B=N; C=S; D=S; E=N; F=S