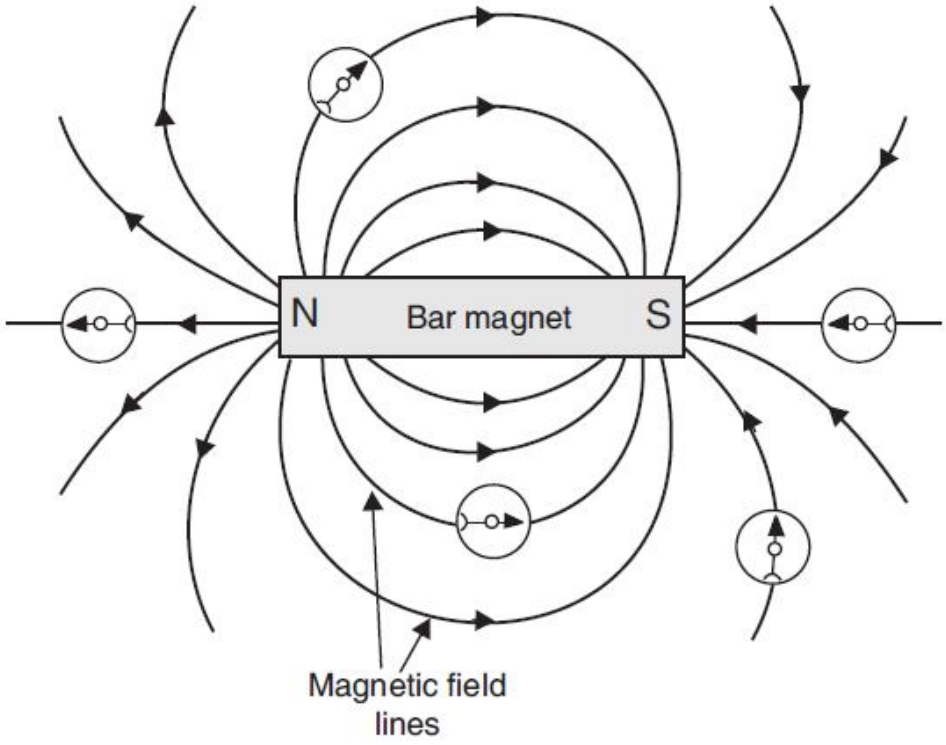
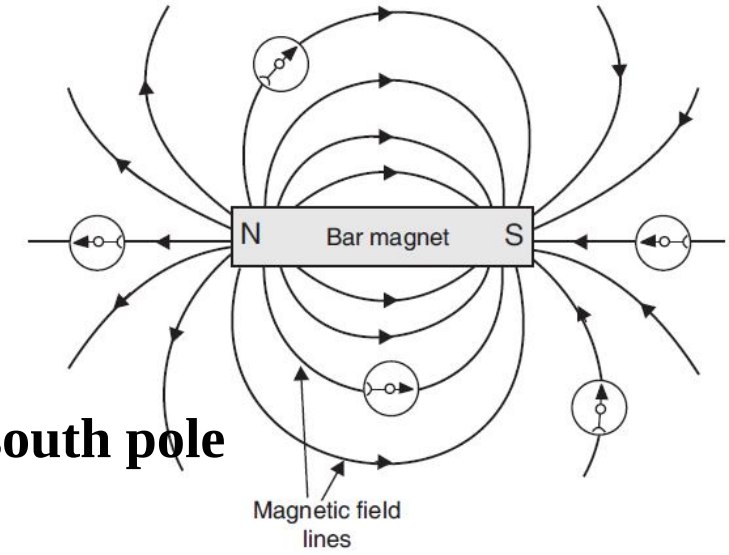
CASE STUDY QUESTION 29

Read the following and answer any four questions from (i) to (v)

The magnetic field pattern around a bar magnet is shown in adjoining Figure. This has been traced by using a plotting compass. The magnetic field lines leave the north pole of a magnet and enter its south pole. In other words, each magnetic field line is directed from the north pole of a magnet to its south pole. Each field line indicates, at every point on it, the direction of magnetic force that would act on a north pole if it were placed at that point. ***The strength of magnetic field is indicated by the degree of closeness of the field lines. Where the field lines are closest together, the magnetic field is the strongest.***



(i) The magnetic field lines produced by a bar magnet :
(a) originate from the south pole and end at its north pole
(b) originate from the north pole and end at its east pole
(c) originate from the north pole and end at its south pole
(d) originate from the south pole and end at its west pole



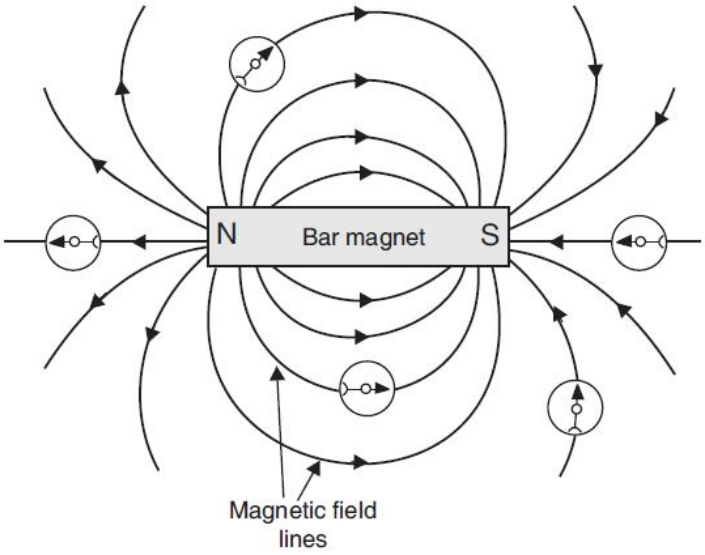
Ans: (c) originate from the north pole and end at its south pole

(ii) The magnetic field lines :
(a) intersect at right angles to one another
(b) intersect at an angle of 45° to each other
(c) do not cross one another
(d) cross at an angle of 60° to one another

Ans: (c) do not cross one another

(iii) The north pole of earth's magnet is in the :
(a) geographical south (b) geographical east
(c) geographical west (d) geographical north

Ans: (a) geographical south



(iv) A plotting compass is placed near the south pole of a bar magnet. The pointer of plotting compass will :
(a) point away from the south pole (b) point parallel to the south pole
(c) point towards the south pole (d) point at right angles to the south pole

Ans: (c) point towards the south pole

(v) Which of the following statements is incorrect regarding magnetic field lines ?

(a) The direction of magnetic field at a point is taken to be the direction in which the north pole of a magnetic compass needle points.

(b) Magnetic field lines are closed curves

(c) If magnetic field lines are parallel and equidistant, they represent zero field strength

(d) Relative strength of magnetic field is shown by the degree of closeness of the field lines

Ans: (c) If magnetic field lines are parallel and equidistant, they represent zero field strength