Chapter 5

Magnetism and Matter

(Assertion and Reason Questions)

Directions: These questions consist of two statements, each printed as Assertion and Reason. While answering these questions, you are required to choose any one of the following four responses.

(a) If both Assertion and Reason are correct and the Reason is a correct explanation of the Assertion.

(b) If both Assertion and Reason are correct but Reason is not a correct explanation of the Assertion.

(c) If the Assertion is correct but Reason is incorrect.

(d) If both the Assertion and Reason are incorrect.

Q.1. Assertion: We cannot think of a magnetic field configuration with three poles
Reason: A bar magnet does exert a torque on itself due to its own field.

Q.2. Assertion: In high latitudes one sees colourful curtains of light hanging down from high altitudes
Reason: The high energy charged particles from the sun are deflected to polar regions by the magnetic field of the earth.

Q.3. Assertion: The true geographic north direction is found by using a compass needle.
Reason: The magnetic meridian of the earth is along the axis of rotation of the earth.

Q.4. Assertion: A disc-shaped magnet is deviated above a superconducting material that has been cooled by liquid nitrogen.
Reason: Superconductors repel a magnet.

Q.5. Assertion: Magnetic Resonance Imaging (MRI) is a useful diagnostic tool for producing images of various parts of human body.
Reason: Protons of various tissues of the human body play a role in MRI.

Q.6. Assertion: Diamagnetic materials can exhibit magnetism.
Reason: Diamagnetic materials have permanent magnetic dipole moment.

Q.7. Assertion: Ferro-magnetic substances become paramagnetic above Curie temp.
Reason: Domains are destroyed at high temperature.

Q.8. Assertion: If a compass needle be kept at magnetic north pole of the earth the compass needle may stay in any direction.
Reason: Dip needle will stay vertical at the north pole of earth

Q.9. Assertion: The ferromagnetic substance do not obey Curie's law.
Reason: At Curie point a ferromagnetic substance start behaving as a paramagnetic substance.

Q.10. Assertion: The ferromagnetic substance do not obey Curie's law.
Reason: At Curie point a ferromagnetic substance start behaving as a paramagnetic substance.

Q.11. Assertion: A paramagnetic sample display greater magnetisation (for the same magnetic field) when cooled.
Reason: The magnetisation does not depend on temperature.

Q.12. Assertion: Electromagnetic are made of soft iron.
Reason: Coercivity of soft iron is small.

Q.13. Assertion: The sensitivity of a moving coil galvanometer is increased by placing a suitable magnetic material as a core inside the coil.
Reason: Soft iron has high magnetic permeability and cannot be easily magnetized or demagnetized.

Q.14. Assertion: The poles of magnet can not be separated by breaking into two pieces.
Reason: The magnetic moment will be reduced to half when a magnet is broken into two equal pieces.

-x-x-x-

ANSWER KEY

Q.1 : (d)	**Q.2 :** (a)	**Q.3 :** (d)	**Q.4 :** (a)
Q.5 : (a)	**Q.6 :** (c)	**Q.7 :** (a)	**Q.8 :** (b)
Q.9 : (b)	**Q.10 :** (c)	**Q.11 :** (d)	**Q.12 :** (b)
Q.13 : (c)	**Q.14 :** (b)		