



Magnetism and Matter

Q.No.1:

The susceptibility of a magnetic material is -2.6×10^{-5} . Identify the type of magnetic material and state its two properties.

CBSE Board Paper 2012

Q.No.2: Out of the two magnetic materials, 'A' has relative permeability slightly greater than unity while 'B' has less than unity. Identify the nature of the materials 'A' and 'B'. Will their susceptibilities be positive or negative?

CBSE Board Paper 2014

Q.No.3:

- (a) State Gauss's law for magnetism. Explain its significance.
- (b) Write the four important properties of the magnetic field lines due to a bar magnet.

OR

Write three points of differences between para-, dia- and ferro- magnetic materials, giving one example for each.

CBSE Board Paper 2019

Q.No.4: A constant current is flowing through a solenoid. An iron rod is inserted in the solenoid along its axis. Which of the following quantities will not increase?

- (a) The magnetic field at the centre
- (b) The magnetic flux linked with the solenoid
- (c) The rate of heating
- (d) The self-inductance of the solenoid

CBSE Board Paper 2021

Q.No.5: Which of the following statements is correct ?

- (a) Magnetic field lines do not form closed loops.
- (b) Magnetic field lines start from north pole and end at south pole of a magnet.
- (c) The tangent at a point on a magnetic field line represents the direction of

the magnetic field at that point.

(d) Two magnetic field lines may intersect each other. **CBSE Board Paper 2021**

Q.No.6: A bar magnet has magnetic dipole moment \vec{M} . Its initial position is parallel to the direction of uniform magnetic field \vec{B} . In this position, the magnitudes of torque and force acting on it respectively are –

(a) 0 and MB

(b) MB and MB

(c) 0 and 0

(d) $\left| \vec{M} \times \vec{B} \right|$ and 0

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Q.No.7: The question consists of two statements – **Assertion (A)** and **Reason (R)**.

Assertion (A): The poles of a magnet cannot be separated.

Reason (R): Magnetic monopoles do not exist.

Select the appropriate option given below:

(a) Both (A) & (R) are true and (R) is correct explanation of (A).

(b) Both (A) & (R) are true, and (R) is not correct explanation of (A).

(c) (A) is true, but (R) is false.

(d) (A) is false and (R) is also false.

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Q.No.8: Let N_1 be the number of electric field lines going out of an imaginary cube of side a that encloses an isolated point charge $2q$ and N_2 be the corresponding number for an imaginary sphere of radius a that encloses an isolated point charge $3q$. Then (N_1/N_2) is :

(a) $\frac{1}{\pi}$

(b) $\frac{2}{3}$

(c) $\frac{9}{4}$

(d) π

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Q.No.9: The question consists of two statements – **Assertion (A)** and **Reason (R)**.

Assertion (A): A bar magnet experiences a torque when placed in a magnetic field.

Reason (R): A bar magnet exerts a torque on itself due to its own magnetic

field.

Select the appropriate option given below:

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- (b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
- (c) Assertion (A) is true, but Reason (R) is false.
- (d) Assertion (A) is false, but Reason (R) is true.

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Q.No.10: Which of the following has its permeability less than that of free space?

- (A) Copper
- (B) Aluminium
- (C) Copper chloride
- (D) Nickel

CBSE Board Paper 2023

Q.No.11: Which of the following cannot modify an external magnetic field as shown in the figure 3?



- (a) Nickel
- (b) Silicon
- (c) Sodium Chloride
- (d) Copper

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