Magnetism and Matter

1. The earth behaves as a magnet with magnetic field pointing approximately from the geographic
(a) North to South
(b) South to North
(c) East to West
(d) West to East

▼ **Answer**

Answer: b

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2. The strength of the earth's magnetic field is
(a) constant everywhere.
(b) zero everywhere.
(c) having very high value.
(d) vary from place to place on the earths surface.

▼ **Answer**

Answer: d

3. Which of the following is responsible for the earth's magnetic field?
(a) Convective currents in earth's core
(б) Diversive current in earth's core.
(c) Rotational motion of earth.
(d) Translational motion of earth.

▼ **Answer**

Answer: a

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4. Which of the following independent quantities is not used to specify the earth's magnetic field?
(a) Magnetic declination (θ).
(b) Magnetic dip (δ).
(c) Horizontal component of earth's field (B_H).
(d) Vertical component of earth's field (B_V).

▼ **Answer**

Answer: d

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5. Let the magnetic field on earth be modelled by that of a point magnetic dipole at the centre of earth. The angle of dip at a point on the geographical equator is
(a) always zero
(b) positive, negative or zero
(c) unbounded
(d) always negative

▼ **Answer**

Answer: b

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6. The angle of dip at a certain place where the horizontal and vertical components of the earth's magnetic field are equal is
(a) 30°
(b) 75°
(c) 60°
(d) 45°

▼ **Answer**

Answer: d

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7. The vertical component of earth's magnetic field . at a place is √3 times the horizontal component the value of angle of dip at this place is
(a) 30°

(b) 45°
(c) 60°
(d) 90°

▼ **Answer**

Answer: c

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8. At a given place on earth's surface the horizontal component of earth's magnetic field is $2 \times 10^{3-5}$ T and resultant magnetic field is $4 \times 10^{3-5}$ T. The angle of dip at this place is
(a) 30°
(b) 60°
(c) 90°
(d) 45°

▼ **Answer**

Answer: b

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9. Which of the following property shows the property of ferromagnetic substances?
(a) The ferromagnetic property depends on tem-perature. ‘
(b) The ferromagnetic property does not depend on temperature.
(c) At high enough temperature ferromagnet becomes a diamagnet.
(d) At low temperature ferromagnet becomes a paramagnet.

▼ **Answer**

Answer: a

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10. The primary origin of magnetism lies in
(a) atomic current and intrinsic spin of electrons.
(b) polar and non polar nature of molecules.
(c) pauli exclusion principle.
(d) electronegative nature of materials.

▼ **Answer**

Answer: a

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11. Magnetic moment for solenoid and corresponding bar magnet is
(a) equal for both
(b) more for solenoid
(c) more for bar magnet
(d) none of these

▼ **Answer**

Answer: a

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12. Which of the following is correct about magnetic monopole?
(a) Magnetic monopole exist.
(b) Magnetic monopole does not exist.
(c) Magnetic monopole have constant value of monopole momentum.
(d) The monopole momentum increase due to increase at its distance from the field.

▼ **Answer**

Answer: b

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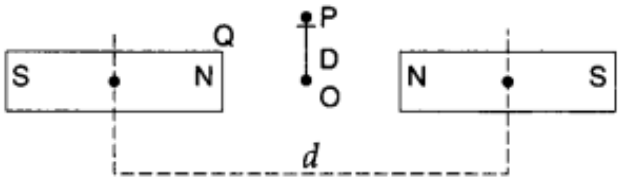
13. Two identical bar magnets are fixed with their centres at a distance d apart. A stationary charge Q is placed at P in between the gap of the two magnets at a distance D from the centre O as shown in the figure. The force on the charge Q is



(a) zero
(b) directed along OP
(c) directed along PO
(d) directed perpendicular to the plane of paper

▼ **Answer**

Answer: a

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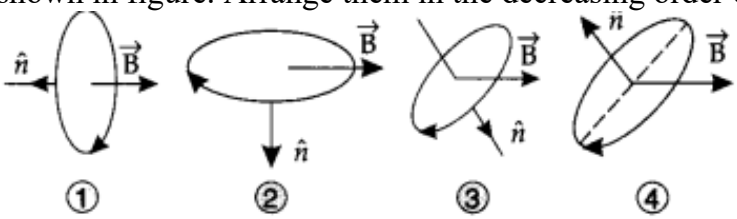
14. A current carrying loop is placed in a uniform magnetic field in four different orientations as shown in figure. Arrange them in the decreasing order of potential energy.



(a) 4, 2, 3,1
(b) 1, 4, 2, 3
(c) 4, 3, 2,1
(d) 1, 2, 3, 4

▼ **Answer**

Answer: b

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15. Which of the following is not showing the essential difference between electrostatic shielding by a conducting shell and magnetostatic shielding?
(a) Electrostatic field lines can end on charges and conductors have free charges.
(b) Magnetic field lines can end but conductors cannot end them.
(c) Lines of magentic field cannot end on any material and perfect shielding is not possible.
(d) Shells of high permeability materials can be used to divert lines of magnetic field from the interior region.

▼ **Answer**

Answer: b

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16. The net magnetic flux through any closed surface, kept in a magnetic field is
(a) zero
(b) $\frac{\mu_0}{4\pi}$
(c) $4\pi\mu_0$
(d) $\frac{4\mu_0}{\pi}$

▼ **Answer**

Answer: a

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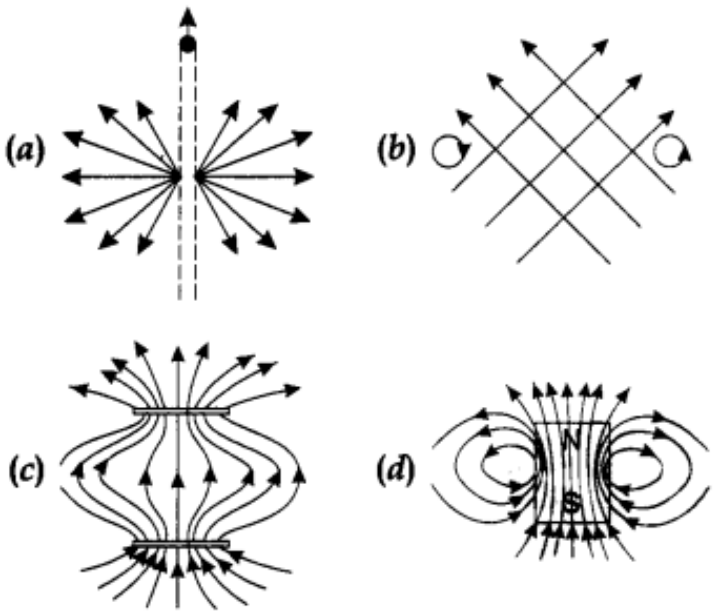
17. Point out the correct direction of magnetic field in the given figures.



▼ **Answer**

Answer: d
