



# PHYSICS

## BOOKS - NEET PREVIOUS YEAR (YEARWISE + CHAPTERWISE)

### MAGNETISM

#### Others

1. If  $\theta_1$  and  $\theta_2$  be the apparent angles of dip observed in two vertical planes at right angles

to each other, then the true angle of dip  $\theta$  is given by

A.  $\cot^2 \theta = \cot^2 \theta_1 + \cot^2 \theta_2$

B.  $\tan^2 \theta = \tan^2 \theta_1 + \tan^2 \theta_2$

C.  $\cot^2 \theta = \cot^2 \theta_1 - \cot^2 \theta_2$

D.  $\tan^2 \theta = \tan^2 \theta_1 - \tan^2 \theta_2$

**Answer: A**



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2. The magnetic susceptibility is negative for

A. paramagnetic material only

B. ferromagnetic material only

C. paramagnetic and ferromagnetic materials

D. diamagnetic material only

**Answer: D**



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3. A bar magnet is hung by a thin cotton thread in a uniform horizontal magnetic field and is in equilibrium state. The energy required to rotate it by  $60^\circ$  is  $W$ . Now the torque required to keep the magnet in this new position is

A.  $\frac{W}{\sqrt{3}}$

B.  $\sqrt{3}W$

C.  $\frac{\sqrt{3}W}{2}$

D.  $\frac{2W}{\sqrt{3}}$

**Answer: B**



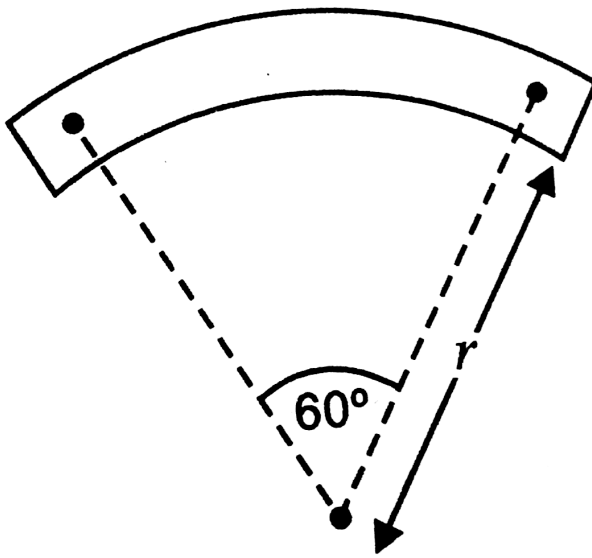
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4. Following figures show the arrangement of bar magnets in different configurations. Each magnet has magnetic dipole moment ( $m$ ). Which configuration has highest value of magnetic dipole moment?



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5. A bar magnet of length  $l$  and magnetic dipole moment 'M' is bent in the form of an arc as shown in figure. The new magnetic dipole moment will be



A.  $m$

B.  $\frac{3}{\pi}M$

C.  $\frac{2}{\pi}M$

D.  $\frac{M}{2}$

**Answer: B**



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**6.** A compass needle which is allowed to move in a horizontal plane is taken to a geomagnetic pole. It

A. will become rigid showing no movement

B. will stay in any position

C. will stay in North -South direction only

D. will stay in East -West direction only

**Answer: C**



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7. There are four light-weight-rod sample A, B, C, D separately suspended by threads. A bar magnet is slowly brought near each sample



and the following observations are noted

- (i) A is feebly repelled
- (ii) B is feebly attracted
- (iii) C is strongly attracted
- (iv) D remains unaffected

Which one of the following is true?

- A. A is feebly repelled
- B. B is feebly attracted
- C. C is strongly attracted
- D. D remains unaffected

**Answer: D**



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8. A vibration magnetometer placed in magnetic meridian has a small bar magnet. The magnet executes oscillations with a time period of 2 sec in earth's horizontal magnetic field of 24 microtesla. When a horizontal field of 18 microtesla is produced opposite to the earth's field by placing a current carrying wire, the new time period of magnet will be

A. 1 s

B. 2 s

C. 3 s

D. 4 s

**Answer: B**



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9. A bar magnet having a magnetic moment of  $2 \times 10^4 JT^{-1}$  is free to rotate in a horizontal plane. A horizontal magnetic field  $B = 6 \times 10^{-4} T$  exists in the space. The work

done in taking the magnet slowly from a direction parallel to the field to a direction  $60^\circ$  from the field is

A. 0.6 J

B. 12 J

C. 6 J

D. 2 J

**Answer: C**



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**10.** If a diamagnetic substance is brought near north or south pole of a bar magnet, it is

A. repelled by both the poles

B. repelled by the North pole and attracted  
by the South pole

C. attracted by the North pole and repelled  
by the South pole

D. attracted by both the poles

**Answer: A**



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11. Nickel shows ferromagnetic property at room temperature. If the temperature is increased beyond curie temperature, then it will show

- A. paramagnetism
- B. anti-ferromagnetism
- C. no magnetic property
- D. diamagnetism

**Answer: A**



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**12.** Assertion: Above Curie temperature, a ferromagnetic material becomes paramagnetic.

Reason: When a magnetic material is heated to very high temperature, it loses its magnetic properties.

A. a ferromagnetic substance becomes paramagnetic

B. a paramagnetic substance becomes diamagnetic

C. a diamagnetic substance becomes paramagnetic

D. a paramagnetic substance becomes ferromagnetic

**Answer: A**



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13. If the magnetic dipole moment of an atom of diamagnetic material, paramagnetic material and ferromagnetic material are denoted by  $\mu_d$ ,  $\mu_p$  and  $\mu_f$  respectively, then:

A.  $\mu_d \neq 0$  and  $\mu_f \neq 0$

B.  $\mu_p = 0$  and  $\mu_f \neq 0$

C.  $\mu_d = 0$  and  $\mu_f \neq 0$

D.  $\mu_d \neq 0$  and  $\mu_p = 0$

**Answer: C**



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14. According to Curie's law, the magnetic susceptibility of a paramagnetic substance at an absolute temperature  $T$  is proportional to

A.  $\frac{1}{T_2}$

B.  $T^2$

C.  $\frac{1}{T}$

D.  $T$

**Answer: C**



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15. A diamagnetic material in a magnetic field moves

- A. perpendicular to the field
- B. from weaker to the stronger parts of the field
- C. from stronger to the weaker parts of the field
- D. None of the above

**Answer: C**



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**16.** Two bar magnets having same geometry with magnetic moments  $M$  and  $2M$ , are firstly placed in such a way what their similar poles are same side then its time period of oscillation is  $T_1$ . Now the polarity of one of the magnet is reversed then time period of oscillation will be:-

A.  $T_1 < T_2$

B.  $T_1 > T_2$

C.  $T_1 = T_2$

D.  $T_2 = \infty$

**Answer: A**



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**17.** In which type of material the magnetic susceptibility does not depend on temperature?

A. Diamagnetic

B. Paramagnetic

C. Ferromagnetic

D. Ferrite

**Answer: A**



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**18.** A bar magnet of moment  $M$  is placed in a magnetic field of induction  $B$ . The torque exerted on it is

A.  $M \cdot B$

B.  $-M \cdot B$

C.  $M \times B$

D.  $-M \times B$

**Answer: C**



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**19.** A diamagnetic substance is brought near a strong magnet, then it is

A. attracted by a magnet

B. repelled by a magnet

C. repelled by North pole and attracted by  
South pole

D. attracted by North pole and repelled by  
South pole

**Answer: B**



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20. For protecting a sensitive equipment from the external magnetic field, it should be

- A. placed inside an aluminium can
- B. placed inside an iron can
- C. wrapped with insulation around it when passing current through it
- D. surrounded with fine copper sheet

**Answer: B**



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**21.** Due to the earth's magnetic field, charged cosmic ray particles

A. can never reach the poles

B. can never reach the equator

C. require less kinetic energy to reach the equator than the poles

D. require greater kinetic energy to reach the equator than the poles

**Answer: D**



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22. The work done in turning a magnet of magnetic moment ' $M$ ' by an angle of  $90^\circ$  from the meridian is ' $n$ ' times the corresponding work done to turn it through an angle of  $60^\circ$ , where ' $n$ ' is given by

A. 2

B. 1

C. 0.5

D. 0.25

**Answer: A**



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**23.** A bar magnet is oscillating in the earth's magnetic field with a period  $T$ . What happens to its period and motion if its mass is quadrupled

A. Motion remains simple harmonic with

$$\text{new period} = \frac{T}{2}$$

B. Motion remains simple harmonic with

$$\text{new period} = 2T$$

C. Motion remains simple harmonic with

$$\text{new period} = 4T$$

D. Motion remains simple harmonic and

the period stays nearly constant

**Answer: B**



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