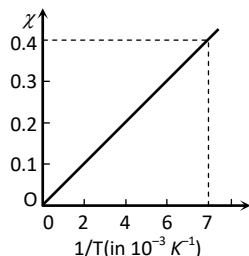# DPP
DAILY PRACTICE PROBLEMS

Class : XIIth
Date :

Subject : PHYSICS
DPP No. : 1

Topic :- MAGNETISM AND MATTER

1. The $\chi - 1/T$ graph for an alloy of paramagnetic nature is shown in fig. the curie constant is

   a) $57\ K$ b) $2.8 \times 10^{-3} K$ c) $570\ K$ d) $17.5 \times 10^{-3} K$

2. If a diamagnetic substance is brought near north or south pole of a bar magnet, it is
   a) Attracted by the poles
   b) Repelled by the poles
   c) Repelled by the north pole and attracted by the south pole
   d) Attracted by the north pole and repelled by the south pole

3. If a bar magnet of length l and cross-sectional area A is cut into two equal parts as shown in figure, then the pole strength of each pole becomes
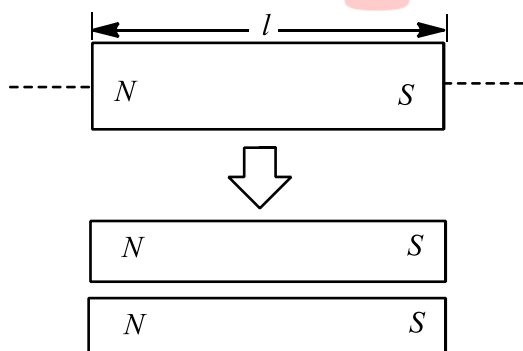
   a) Half   b) Double   c) One-fourth   d) Four time

4. A bar magnet A of magnetic moment M_A is found to oscillate at a frequency twice that of magnet B of magnetic moment M_B when placed in a vibrating $magneto-meter$. We may say that

   a) $M_A = 2M_B$ b) $M_A = 8M_B$ c) $M_A = 4M_B$ d) $M_B = 8M_A$

5. The magnetic lines of force inside a bar magnet
   a) Are from north-pole to south-pole of the magnet
   b) Do not exist
   c) Depend upon the area of cross-section of the bar magnet
   d) Are from south-pole to north-pole of the magnet
6. The magnet can be completely demagnetized by
   a) Breaking the magnet into small pieces   b) Heating it slightly
   c) Droping it into ice cold water   d) A reverse field of appropriate strength
7. A small bar magnet of moment M is placed in a uniform field H. If magnet makes an angle of $30°$ with field, the torque acting on the magnet is

   a) MH b) $\dfrac{MH}{2}$ c) $\dfrac{MH}{3}$ d) $\dfrac{MH}{4}$
8. A current carrying small loop behaves like a small magnet. If A be its area and M its magnetic moment, the current in the loop will be
   a) M/A b) A/M c) MA d) AM^2
9. 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
10. Force between two identical short bar magnets whose centers are r metre apart is 8.1 N, when their axes are along the same line. If separation is increased to $3r$ and the axis are rearranged perpendicularly, the force between them would become
    a) 2.4 N   b) 1.2 N   c) 0.1 N   d) 1.15 N
11. A magnet is parallel to a uniform magnetic field. If it is rotated by $60°$, the work done is 0.8 J. How much work is done in moving it $30°$ further
    a) $0.8 \times 10^7 \, erg$ b) $0.4 \, J$ c) $8 \, J$ d) $0.8 \, erg$
12. The magnetic susceptibility is negative for
    a) Paramagnetic materials   b) Diamagnetic materials
    c) Ferromagnetic materials   d) Paramagnetic and ferromagnetic materials

13. The magnetic moment of a magnet of length $10 \, cm$ and pole strength $4.0 \, Am$ will be
    a) $0.4 \, Am^2$ b) $1.6 \, Am^2$ c) $20 \, Am^2$ d) $8.0 \, Am^2$
14. Before using the tangent galvanometer, its coil is set in
    a) Magnetic meridian (or vertically north south)
    b) Perpendicular to magnetic meridian
    c) At angel of $45°$ to magnetic meridian
    d) It does not require any setting

15. A vibration magnetometer consists of two identical bar magnets placed one over the other such that they are perpendicular and bisect each other. The time period of oscillation in a horizontal magnetic field is $2^{5/4}$ second. One of the magnets is removed and if the other magnet oscillates in the same field, then the time period in second is
    a) $2^{1/4}$ b) $2^{1/2}$ c) 2 d) $2^{5/4}$

16. A copper rod is suspended a non homogenous magnetic field region. The rod when in equilibrium will align itself
    a) In the region where magnetic field is strongest
    b) In the region where magnetic field is weakest and parallel to direction of magnetic field there
    c) In the direction in which it was originally suspended
    d) In the region where magnetic field is weakest and perpendicular to the direction of magnetic field there

17. The force between two magnetic poles is F. If the distance between the poles and pole strengths of each pole are doubled, then the force experienced is
    a) $2F$
    b) $\dfrac{F}{2}$
    c) $\dfrac{F}{4}$
    d) F

18. There is no couple acting when two bar magnets are placed coaxially separated by a distance because
    a) There are no forces on the poles
    b) The force are parallel and their lines of action do not coincide
    c) The forces are perpendicular to each other
    d) The forces act along the same line

19. The magnetic force required to demagnetize the material is

    a) Retaintivity
    b) Coercivity
    c) Energy loss
    d) Hysteresis

20. The points A and B are situated perpendicular to the axis of 2 cm long bar magnet at large distances x and $3x$ from the centre on opposite sides. The ratio of magnetic fields at A and B will be approximately equal to
    a) $27 : 1$
    b) $1 : 27$
    c) $9 : 1$
    d) $1 : 9$