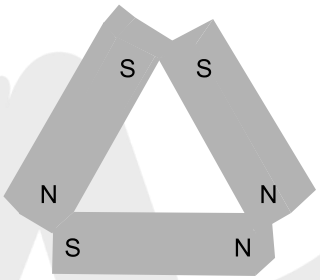
DPP – 07

Q.1 Two similar bar magnets P and Q, each of magnetic moment M, are taken, If P is cut along its axial line and Q is cut along its equatorial line, all the four pieces obtained have

(a) equal pole strength (b) magnetic moment $\frac{M}{4}$

(c) magnetic moment $\frac{M}{2}$ (d) magnetic moment M

Q.2 Three identical bar magnets each of magnetic moment M are placed in the form of an equilateral triangle as shown. The net magnetic moment of the system is



(a) zero (b) 2M (c) $M\sqrt{3}$ (d) $\frac{3M}{2}$

Q.3 An iron rod of length L and magnetic moment M is bent in the form of a semicircle. Now its magnetic moment will be

(a) M (b) $\frac{2M}{\pi}$ (c) $\frac{M}{\pi}$ (d) $M\pi$

Q.4 The magnetic field at a point x on the axis of a small bar magnet is equal to the field at a point y on the equator of the same magnet. The ratio of the distances of x and y from the centre of the magnet is

(a) 2^{-3} (b) $2^{-1/3}$ (c) 2^{3} (d) $2^{1/3}$

Q.5 Points A and B are situated perpendicular to the axis of a 2 cm long bar magnet at large distances X and 3X from its centre on opposite sides. The ratio of the magnetic fields at A and B will be approximately equal to

(a) 1: 9 (b) 2: 9 (c) 27: 1 (d) 9: 1

Q.6 Two small bar magnets are placed in a line with like poles facing each other at a certain distance d apart. If the length of each magnet is negligible as compared to d, the force between them will be inversely proportional to

(a) d (b) d^2 (c) $\frac{1}{d^2}$ (d) d^4

Q.7 The magnetic potential at a point on the axial line of a bar magnet of dipole moment M is V. What is the magnetic potential due to a bar magnet of dipole moment M/4 at the same point?

(a) 4 V (b) 2 V (c) $\frac{V}{2}$ (d) $\frac{V}{4}$

Q.8 A magnet of magnetic moment M is situated with its axis along the direction of a magnetic field of strength B. The work done in rotating it by an angle of 180° will be

(a) $-MB$ (b) $+MB$ (c) 0 (d) $+2MB$

Q.9 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) $\frac{MH}{2}$ (c) $\frac{MH}{3}$ (d) $\frac{MH}{4}$

ANSWER KEY

1.	(C)	**2.**	(B)	**3.**	(B)	**4.**	(D)	**5.**	(C)	**6.**	(D)	**7.**	(D)
8.	(D)	**9.**	(B)										