

Coulomb's Law in Magnetism

15 MCQ based on Coloumb's law in magnetism; key in the next page

- Coulomb's law in magnetism states that the force between two magnetic poles is:
 - Directly proportional to the product of their strengths
 - Inversely proportional to the square of the distance between them
 - Both a and b
 - None of the above
- If the distance between two magnetic poles is doubled, the force between them:
 - Doubles
 - Halves
 - Becomes four times weaker
 - Becomes four times stronger
- Coulomb's law in magnetism is analogous to Coulomb's law in:
 - Gravitation
 - Electricity
 - Optics
 - Thermodynamics
- The unit of magnetic pole strength in the SI system is:
 - Tesla
 - Weber
 - Ampere-meter
 - Coulomb
- The magnetic force between two poles of strengths m_1 and m_2 separated by distance r is given by:
 - $F = \frac{k \cdot m_1 \cdot m_2}{r}$
 - $F = \frac{k \cdot m_1 \cdot m_2}{r^2}$
 - $F = \frac{k \cdot m_1 \cdot m_2}{r^3}$
 - $F = \frac{k \cdot m_1 \cdot m_2 \cdot r}{r^2}$
- The constant k in Coulomb's law for magnetism depends on:
 - The medium between the poles
 - The temperature
 - The pole strengths
 - The distance between the poles
- Coulomb's law in magnetism can be experimentally verified using:
 - A galvanometer
 - A magnetometer

- c) A voltmeter
 - d) An ammeter
8. The force between two magnetic poles is:
- a) Always attractive
 - b) Always repulsive
 - c) Attractive or repulsive depending on the poles
 - d) None of the above
9. In a vacuum, the force between two magnetic poles is:
- a) Zero
 - b) Maximum
 - c) Minimum
 - d) Infinite
10. If the strength of one magnetic pole is tripled, the force between the poles:
- a) Remains the same
 - b) Triples
 - c) Halves
 - d) Becomes nine times
11. The magnetic force between two poles of strengths $m_1 = 3 \text{ A}\cdot\text{m}$ and $m_2 = 4 \text{ A}\cdot\text{m}$ separated by a distance of 2 meters is:
- a) 6 N
 - b) 3 N
 - c) 1.5 N
 - d) 2 N
12. For a given separation, if the strengths of both magnetic poles are doubled, the force between them:
- a) Remains unchanged
 - b) Doubles
 - c) Quadruples
 - d) Becomes half
13. Coulomb's law for magnetism is applicable to:
- a) Moving charges
 - b) Static magnetic poles
 - c) Both a and b
 - d) None of the above
14. In Coulomb's law for magnetism, the force is along the line:
- a) Perpendicular to the poles
 - b) Parallel to the poles
 - c) Joining the two poles
 - d) None of the above
15. If the distance between two magnetic poles is reduced to half, the force between them becomes:
- a) Four times
 - b) Twice
 - c) Half
 - d) One fourth

1. c
2. c
3. b
4. c
5. b
6. a
7. b
8. c
9. b
10. b
11. a
12. c
13. b
14. c
15. a