



Name of the Bundle	Advanced Bundle V2	Subject	Competitive Exams Training (Science & Geography)
Topic	Magnetism	Last updated on	14 February 2025

## Multiple choice questions (MCQ) on Magnetism:

1. The magnitude of the magnetic field around a current-carrying conductor is:

- a. Directly proportional to the distance from the conductor and inversely proportional to the current
- b. Directly proportional to both the current and the distance from the conductor
- c. Directly proportional to the current and inversely proportional to the distance from the conductor
- d. Inversely proportional to both the current and the distance from the conductor

**Ans c. Directly proportional to the current and inversely proportional to the distance from the conductor**

2. Which of the following minerals contains iron?

- a. Pyrrhotite (Iron Sulphide)
- b. Ferrite
- c. Columbite
- d. All of the above

**Ans d. All of the above**

3. Which of the following iron ores has the highest iron content?

- a. Hematite
- b. Magnetite
- c. Siderite
- d. All have the same iron content

**Ans b. Magnetite (72.4% of iron)**



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4. Which of the following types of magnets produces a magnetic field?

- a. Bar magnets
- b. Horseshoe magnets
- c. Electromagnets
- d. All of the above

**Ans d. All of the above**

5. Which of the following metals or alloys are commonly used to make permanent magnets?

- a. Iron, Nickel, Cobalt, Steel
- b. Alloy of Neodymium and Samarium
- c. Both A and B
- d. None of the above

**Ans c. Both A and B**

6. What is the primary cause of Earth's magnetism?

- a. The presence of magnetic rocks in the crust
- b. The rotation of the Earth
- c. The Dynamo effect in the Earth's core
- d. The gravitational pull of the Moon

**Ans c. The Dynamo effect in the Earth's core**

7. What determines the pattern of the magnetic field generated by a current-carrying conductor?

- a. The material of the conductor
- b. The shape of the conductor
- c. The color of the conductor
- d. The temperature of the conductor

**Ans b. The shape of the conductor**



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8. What is the magnitude of the magnetic field at the center of a bar magnet?

- a. Maximum
- b. Zero
- c. Equal to the field at the poles
- d. Cannot be determined

**Ans b. Zero**

9. Where is the density of magnetic field lines the highest in a bar magnet?

- a. At the center
- b. At the poles
- c. Uniform throughout the magnet
- d. Outside the magnet only

**Ans b. At the poles**

10. How are materials classified based on their behavior in a magnetic field?

- a. Conductors, Insulators, and Semiconductors
- b. Diamagnetic, Paramagnetic, and Ferromagnetic materials
- c. Solids, Liquids, and Gases
- d. Magnetic, Non-magnetic, and Superconductors

**Ans b. Diamagnetic, Paramagnetic, and Ferromagnetic materials**

11. Which of the following statements is true about diamagnetic materials?

- a. They are magnetized in the same direction as the magnetic field.
- b. They are magnetized in a direction opposite to the magnetic field.
- c. They are strongly attracted to magnets.
- d. They lose their magnetic properties at high temperatures.

**Ans b. They are magnetized in a direction opposite to the magnetic field.**



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12. Which of the following are examples of diamagnetic materials?

- a. Iron, cobalt, nickel
- b. Copper, mercury, gold
- c. Aluminum, platinum, manganese
- d. Steel, iron, cobalt

**Ans b. Copper, mercury, gold**

13. Which of the following statements is true about paramagnetic materials?

- a. They are magnetized opposite to the magnetic field.
- b. They are magnetized in the direction of the magnetic field.
- c. They are strongly repelled by a magnetic field.
- d. They lose all magnetism when placed in a magnetic field.

**Ans b. They are magnetized in the direction of the magnetic field.**

14. Which of the following are examples of paramagnetic materials?

- a. Iron, cobalt, nickel
- b. Aluminium, platinum, chromium
- c. Copper, mercury, gold
- d. Steel, lead, zinc

**Ans b. Aluminium, platinum, chromium**

15. Which of the following statements is true about ferromagnetic materials?

- a. They are magnetized opposite to the magnetic field.
- b. They are weakly magnetized in the direction of the magnetic field.
- c. They are strongly magnetized in the direction of the magnetic field.
- d. They are not affected by magnetic fields.

**Ans c. They are strongly magnetized in the direction of the magnetic field.**



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16. Which of the following are examples of ferromagnetic materials?

- a. Iron, cobalt, nickel, steel
- b. Aluminium, copper, gold
- c. Platinum, manganese, chromium
- d. Mercury, lead, zinc

**Ans a. Iron, cobalt, nickel, steel**

17. According to Faraday's law of electromagnetic induction, what happens when a conductor moves through a magnetic field?

- a. The conductor heats up.
- b. An electric current is induced in the conductor.
- c. The magnetic field disappears.
- d. The conductor produces sound waves.

**Ans b. An electric current is induced in the conductor.**

18. What is Fleming's right-hand rule used for?

- a. To determine the direction of the magnetic field
- b. To determine the direction of force on a current-carrying conductor
- c. To determine the direction of the induced current
- d. To determine the magnitude of the electric current

**Ans c. To determine the direction of the induced current**

19. What happens to the magnetic field lines around a current-carrying wire as you move away from it?

- a. They become stronger.
- b. They remain constant.
- c. They become weaker and diminish.
- d. They change direction randomly.

**Ans c. They become weaker and diminish.**



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20. What does Fleming's Right-Hand Rule help to determine?

- a. The direction of force on a current-carrying conductor
- b. The direction of the induced current in a conductor
- c. The direction of the magnetic field around a wire
- d. The magnitude of the electric current

**Ans b. The direction of the induced current in a conductor**

21. According to Fleming's Right-Hand Rule, which fingers represent the magnetic field, current, and motion?

- a. Thumb: Current, Index finger: Magnetic field, Middle finger: Motion
- b. Thumb: Motion, Index finger: Magnetic field, Middle finger: Current
- c. Thumb: Magnetic field, Index finger: Current, Middle finger: Motion
- d. Thumb: Motion, Index finger: Current, Middle finger: Magnetic field

**Ans b. Thumb: Motion, Index finger: Magnetic field, Middle finger: Current**

22. What is the force experienced by a moving charge in a magnetic field, called?

- a. Gravitational force
- b. Electrostatic force
- c. Magnetic Lorentz force
- d. Centripetal force

**Ans c. Magnetic Lorentz force**

23. When does a charged particle experience the maximum magnetic Lorentz force?

- a. When moving parallel to the magnetic field
- b. When moving perpendicular to the magnetic field
- c. When at rest in the magnetic field
- d. When moving opposite to the magnetic field

**Ans b. When moving perpendicular to the magnetic field**





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24. What is Fleming's Left-Hand Rule used for?

- a. To determine the direction of the induced current
- b. To determine the direction of force on a current-carrying conductor in a magnetic field
- c. To determine the direction of the magnetic field
- d. To measure the strength of the magnetic field

**Ans b. To determine the direction of force on a current-carrying conductor in a magnetic field**

25. According to Fleming's Left-Hand Rule, which fingers represent the magnetic field, current, and force?

- a. Thumb: Force, Index finger: Magnetic field, Middle finger: Current
- b. Thumb: Current, Index finger: Force, Middle finger: Magnetic field
- c. Thumb: Magnetic field, Index finger: Current, Middle finger: Force
- d. Thumb: Force, Index finger: Current, Middle finger: Magnetic field

**Ans a. Thumb: Force, Index finger: Magnetic field, Middle finger: Current**

26. What does Fleming's Left-Hand Rule help to determine?

- a. The direction of the induced current
- b. The direction of force on a current-carrying conductor in a magnetic field
- c. The direction of the magnetic field around a conductor
- d. The magnitude of the electric current

**Ans b. The direction of force on a current-carrying conductor in a magnetic field**



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27. According to Fleming's Left-Hand Rule, which fingers represent the magnetic field, current, and force?

- a. Thumb: Current, Index finger: Force, Middle finger: Magnetic field
- b. Thumb: Force, Index finger: Magnetic field, Middle finger: Current
- c. Thumb: Magnetic field, Index finger: Current, Middle finger: Force
- d. Thumb: Force, Index finger: Current, Middle finger: Magnetic field

**Ans b. Thumb: Force, Index finger: Magnetic field, Middle finger: Current**

28. What is the function of the commutator in an electric motor?

- a. To increase the current in the coil
- b. To reverse the direction of current in the coil
- c. To generate electricity from mechanical energy
- d. To reduce heat loss in the motor

**Ans b. To reverse the direction of current in the coil**

29. Why is it necessary for the commutator to reverse the current in the coil?

- a. To maintain continuous rotation of the coil
- b. To prevent the motor from overheating
- c. To increase the power output
- d. To reduce friction in the motor

**Ans a. To maintain continuous rotation of the coil**

30. What is electromagnetic induction?

- a. The process of generating heat using a magnetic field
- b. The process of generating an electric current by changing the magnetic field
- c. The conversion of electrical energy into mechanical energy
- d. The attraction of metals towards a magnet

**Ans b. The process of generating an electric current by changing the magnetic field**





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31. Which scientist discovered the phenomenon of electromagnetic induction?

- a. Nikola Tesla
- b. Michael Faraday
- c. Isaac Newton
- d. Albert Einstein

**Ans b. Michael Faraday**

32. Which of the following devices works on the principle of electromagnetic induction?

- a. Electric motor
- b. Electric generator
- c. Solar panel
- d. Light bulb

**Ans b. Electric generator**

33. Which phenomenon is the principle behind the operation of transformers, electric generators, and inductors?

- a. Photoelectric effect
- b. Electromagnetic induction
- c. Thermal conduction
- d. Nuclear fusion

**Ans b. Electromagnetic induction**



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34. What are electromagnets?

- a. Magnets that lose their magnetism over time
- b. Devices that produce a magnetic field when an electric current passes through them
- c. Permanent magnets made from iron
- d. Magnets that work only at very high temperatures

**Ans b. Devices that produce a magnetic field when an electric current passes through them**

35. Which of the following is a common use of electromagnets?

- a. In electric bells
- b. In refrigerators
- c. In solar panels
- d. In water heaters

**Ans a. In electric bells**

36. What does Faraday's law of electromagnetic induction state?

- a. The magnetic field is proportional to the current in a conductor.
- b. The induced electromotive force (EMF) is directly proportional to the rate of change of magnetic flux.
- c. The current through a conductor is inversely proportional to voltage.
- d. The force between two charges is proportional to their product.

**Ans b. The induced electromotive force (EMF) is directly proportional to the rate of change of magnetic flux.**



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37. Which of the following devices works based on Faraday's law of electromagnetic induction?

- a. Electric motor
- b. Transformer
- c. Solar panel
- d. Light bulb

**Ans b. Transformer**

38. Who discovered the law of electromagnetic induction?

- a. James Clerk Maxwell
- b. Michael Faraday
- c. Nikola Tesla
- d. Albert Einstein

**Ans b. Michael Faraday**

39. Which of the following are common uses of magnets?

- a. In electric motors and generators
- b. In refrigerators and microwave doors
- c. In compasses for navigation
- d. All of the above

**Ans d. All of the above**

40. Which magnet type is commonly used in MRI (Magnetic Resonance Imaging) machines?

- a. Permanent magnet
- b. Electromagnet
- c. Bar magnet
- d. Horseshoe magnet

**Ans b. Electromagnet**



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41. Why are magnets used in loudspeakers?

- a. To increase the volume
- b. To convert electrical signals into sound vibrations
- c. To cool the speaker
- d. To store electrical energy

**Ans b. To convert electrical signals into sound vibrations**

42. What is Magnetic Resonance Imaging (MRI) primarily used for?

- a. Measuring blood pressure
- b. Producing detailed images of internal body structures
- c. Checking heart rate
- d. Measuring body temperature

**Ans b. Producing detailed images of internal body structures**

43. Which type of magnet is used in MRI machines?

- a. Bar magnets
- b. Permanent magnets
- c. Electromagnets
- d. Horseshoe magnets

**Ans c. Electromagnets**

44. Which element in the body is primarily detected during MRI scans?

- a. Oxygen
- b. Carbon
- c. Hydrogen
- d. Calcium

**Ans c. Hydrogen**



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45. What technology is used to lift and propel magnetic levitation (Maglev) trains?

- a. Electromagnetic induction
- b. Magnetic repulsion and attraction
- c. Gravitational force
- d. Thermal expansion

**Ans b. Magnetic repulsion and attraction**

46. Which type of magnets are primarily used in Maglev trains?

- a. Bar magnets
- b. Electromagnets
- c. Permanent magnets
- d. Horseshoe magnets

**Ans b. Electromagnets**

47. What is the main advantage of Maglev trains over traditional trains?

- a. Lower electricity consumption
- b. Reduced friction, allowing for higher speeds
- c. Lower ticket prices
- d. Ability to carry more passengers

**Ans b. Reduced friction, allowing for higher speeds**

48. How can the direction of a magnetic field be determined?

- a. By using an ammeter
- b. By placing a small compass in the magnetic field
- c. By measuring the temperature
- d. By using a voltmeter

**Ans b. By placing a small compass in the magnetic field**