**Basic Electronics – DC Magnetism Exam**

Match the terms with their correct definitions.

|  |  |  |
| --- | --- | --- |
| 1. | Magnetism | **A** The portion of a magnet where the magnetic lines appear to |
|  |  | converge or diverge |
| 2. | Magnet | **B** A set of imaginary curved lines around a magnet that indicates the |
|  |  | strength and direction of the magnetic field |
| 3. | Magnetic poles | **C** A property of certain materials, which exerts a mechanical force on |
|  |  | other magnetic materials, and can cause induced voltages in |
|  |  | conductors when relative movement is present |
| 4. | Magnetic lines | **D** An object that will attract iron, nickel, or cobalt, and that |
|  |  | will produce an external magnetic field |

Match the terms with their correct definitions.

|  |  |  |
| --- | --- | --- |
| 5. | Ferromagnetic | **A** A measure of the effectiveness of a material as a path for magnetic |
|  |  | lines of force as compared with the effectiveness of air |
| 6. | Induction | **B** Non-magnetic materials with a permeability of less than one |
| 7. | Permeability | **C** The process of magnetizing an object by bringing it into the magnetic |
|  |  | field of an electromagnet or permanent magnet |
| 8. | Diamagnetic | **D** Magnetic materials with high values of permeability that range |
|  |  | from 50 to 5000 |

Match the inductance abbreviations with their correct definitions.

|  |  |  |
| --- | --- | --- |
| 9. | Artificial magnet | **A** Any material found in the earth that exhibits the properties of |
|  |  | magnetism |
| 10. | Permanent magnet | **B** The area around a magnet through which the lines of force flow |
| 11. | Electromagnet | **C** A device that has been made magnetic by induction |
| 12. | Magnetic field | **D** A core of soft iron that is temporarily magnetized by sending current |
|  |  | through a coil of wire wound around the core |
| 13. | Natural magnet | **E** A magnetic device that retains its magnetism after it is removed |
|  |  | from a magnetic field |

1. Which of the following items is **not** a high permeability material?

**A** Iron

**B** Steel

**C** Cobalt

**D Aluminum**

1. Which of the following items is **not** a low permeability material?

**A** Copper

**B** Zinc

**C** Cobalt

**D Bismuth**

1. Which of the following items is **not** a medium permeability material?

**A** Copper

**B** Aluminum

**C** Manganese

**D** Chromium

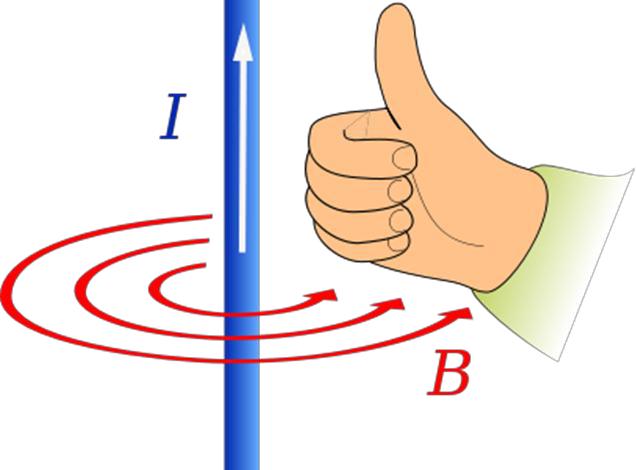
1. Which of the following items is a nonmagnetic material?
2. Antimony
3. Paper
4. Alnico
5. Iron
6. Which of the following items is a high permeability material?

**A** Antimony

**B** Aluminum

**C** Alnico

**D** Zinc

1. Select the true statement from the following concerning magnetic lines of force, magnetic fields, magnetic flux, and flux density.

**A** The direction of flow is from south to north pole

**B** Parallel lines going in opposite directions repel each other

**C** Magnetic lines of forces exert tension along their lengths, tending to lengthen themselves

**D** The magnetic lines of force are continuous and form complete loops

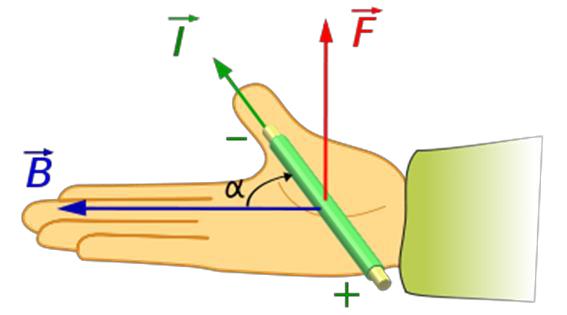
1. In the figure above, the fingers point in the direction of

**A** Current flow

**B** The magnetic field

**C** The force on the conductor

**D** Magnetic induction



1. Select the true statement from the following concerning Right-hand rule of thumb for conductors in the figure below

**A** The thumb points in the direction of the current

**B** The right hand holds the key to magnetism

**C** The thumb points in the direction of the force

**D** The magnetic lines of force are opposite the pointingfingers

1. What creates magnetism?

**A** Electrical charge

**B** The right hand holds the key to magnetism

**C** Iron filings

**D** The dipole moment of an electron

1. Which of the following is **not** a practical application of induction in the electronics field?

**A** Transformers

**B** Radio tuners

**C** The magnetic memory

**D** Motors and generators

1. Which of the following are ways of producing artificial magnets?
   1. Soldering and fabrication
   2. Pounding and welding
   3. Stroking and electrical coil
   4. Wetting and wicking
2. Which of the following is considered to be a natural magnet?
   1. Lodestone
   2. Electromagnet
   3. Permanent magnet
   4. Artificial magnet
3. What is *retentivity*?
   1. The ability to pass or conduct magnetic field lines
   2. The degree which a material will become magnetized due to an external magnetic field
   3. How long a magnet retains its magnetism
   4. The strength of attraction of unlike poles