**Basic Electronics – DC Magnetism Exam Key**

Match the terms with their correct definitions.

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

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

Match the inductance abbreviations with their correct definitions.

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| 9. | Artificial magnet | **C** | **A** Any material found in the earth that exhibits the properties of |
|  |  |  | magnetism |
| 10. | Permanent magnet | **E** | **B** The area around a magnet through which the lines of force flow |
| 11. | Electromagnet | **D** | **C** A device that has been made magnetic by induction |
| 12. | Magnetic field | **B** | **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 | **A** | **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

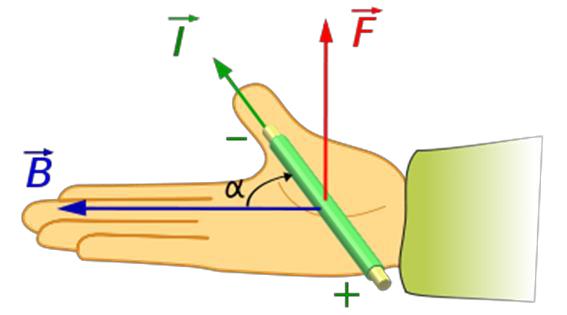
1. Select the true statement from the following concerning magnetic lines of force, magnetic fields, magnetic flux, and flux density.

**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

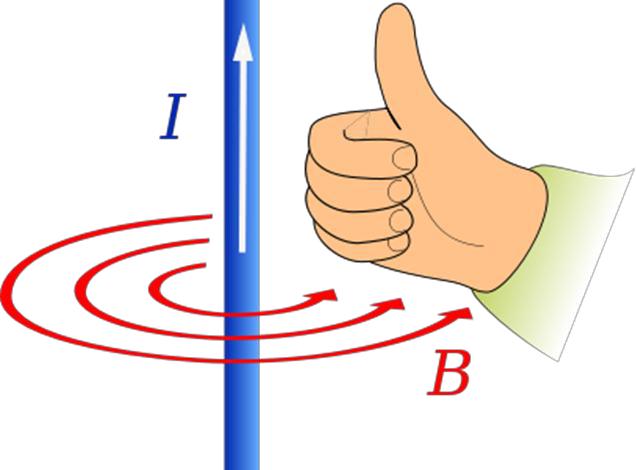
**B The magnetic field**

**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