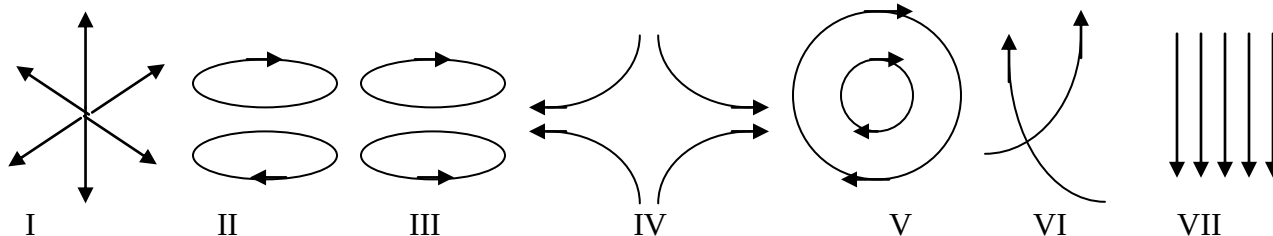


Electromagnetism Review

Name _____



Refer to the diagrams above to answer the following questions.

- 1) Which of the above could be gravitational field lines?
 a) I, VII b) IV, VII c) I, IV d) I, IV, VII
- 2) Which type of field could be represented by the lines in I?
 a) electric b) magnetic c) gravitational d) all three
- 3) Which could represent the field lines around a current-carrying wire?
 a) II, III b) II, V c) III, V d) all three
- 4) Diagram III could represent the field lines for
 a) a magnet b) a solenoid c) either a) or b) d) neither a) nor b)
- 5) Diagram VII could represent the field lines
 a) between charged plates or inside a solenoid b) near the Earth or inside a solenoid
 c) near the Earth or between charged plates d) any of the three possibilities
- 6) Diagram VI could represent the field lines for
 a) an electric field b) a magnetic field
 c) an electric or a magnetic field d) neither an electric nor a magnetic field
- 7) Diagram I could represent the field lines for
 a) an electric field b) a gravitational field c) neither field d) either field
- 8) A stronger electromagnet can be made with
 a) more turns and an iron core b) more turns per cm and an iron core
 c) more turns and a copper core d) more turns per cm and a copper core
- 10) A magnetic field is different from both an electric and a gravitational field because it
 a) only acts on a few elements b) does not follow an inverse square law
 c) has closed field lines d) all of the above
- 11) Magnetism is similar to electricity, but different from gravity, because magnetism and electricity
 a) depend on charge b) can attract and repel
 c) depend on mass d) all three
- 12) What is true about the field lines of all electric, magnetic, and gravitational fields? They
 a) form loops b) radiate from charges or masses
 c) show the path that a particle will follow d) never cross
- 13) A charged particle travelling in a uniform field could have a circular trajectory if the field is
 a) gravitational b) magnetic c) electrical d) gravitational or electrical

- 14) A magnetic field that is uniform can be found
 a) around a current carrying wire b) around a current carrying loop
 c) outside a current carrying solenoid d) inside a current carrying solenoid
- 15) A **uniform** magnetic field will cause a charge to move in a circle if the charge is moving
 a) perpendicular to the field **lines** and the field **strength** is constant
 b) parallel to the field and the field is constant
 c) perpendicular to the field and the field is increasing
 d) parallel to the field and the field is increasing
- 16) An electron moving North through a uniform magnetic field pointing South experiences
 a) a force perpendicular to its velocity b) a force in the same direction as its velocity
 c) a force oriented West d) no force
- 17) A **current is flowing** North in a magnetic field that points West. It experiences
 a) A force down b) a force up c) a force west d) no force
- 18) When a bar magnet is pushed N pole first into a solenoid, the needle of a galvanometer connected to the solenoid moves to the right. The needle will move to the left when the magnet is then
 a) pulled out the bottom b) pulled back out the top
 c) held stationary d) both answers a) and b)
- 19) A magnet is dropped down a copper tube and it falls much slower than an otherwise identical but de-magnetised magnet did. This is because the magnet
 a) is repelled by a permanent magnetic field b) is repelled by an induced magnetic field
 c) experiences more air resistance d) both answers b) and c)
- 20) It is possible to shield materials from the following fields:
 a) magnetic and electric b) gravitational and electric c) gravitational and magnetic d) all three types
- 21) A charged particle is placed in a uniform magnetic field and negligible gravitational field. When released it will exhibit constant
 a) acceleration b) velocity c) speed d) position
- 22) Particles with the same charge and mass enter a uniform magnetic field at right angles. The radius of curvature is
 a) greater for the faster particles b) smaller for the faster particles
 c) the same for all the particles d) infinite, the paths are straight
- 23) Two parallel wires carrying opposite-direction currents will
 a) be attracted to each other b) repel each other
 c) not affect each other d) attract, then repel each other
- 24) The current flowing in your house is unlikely to affect a compass needle because
 a) the wires are insulated with plastic and the wires are in different directions
 b) the current is alternating and the current is not very great
 c) the wires are insulated with plastic and the current is alternating
 d) you need a magnetic field to affect a compass needle
- 25) Two wires carry current as shown. One wire is slightly above the other. Which region has the strongest field pointing out of the page?



26) When a charged particle is fired into a uniform magnetic field at an angle of 90° , it moves along a
 a) circular path b) straight path c) parabolic path d) spiral path

27) Charged particles will go straight in a velocity selector when the following are equal in magnitude
 a) mass and charge b) electric force and magnetic force
 c) electric field and magnetic field d) both answers b) and c)

28) The magnetic field strength outside a solenoid varies
 a) inversely to the distance from the central axis, r
 b) inversely to r^2
 c) directly to r
 d) in a really complicated way

29) The magnetic field outside a co-axial cable is
 a) inversely proportional to r b) inversely proportional to r^2
 c) directly proportional to r d) zero