

Electricity and Gravity Review

- 1) The gravity between two electrons differs from the electrical force because the gravity is
 - a) weaker and attractive
 - b) stronger and attractive
 - c) weaker and repulsive
 - d) stronger and repulsive
- 2) An electron is heading directly toward a positive plate of charge. Therefore it is
 - a) slowing down
 - b) speeding up
 - c) changing direction and (a)
 - d) changing direction and (b)
- 3) An electron is fired parallel to a positive plate of charge. Therefore it is
 - a) slowing down
 - b) speeding up
 - c) changing direction and (b)
 - d) changing direction or (b)
- 4) A charge of 10^{-4} C is 10 cm from an identical charge. What is the force between them?
 - a) 9 N
 - b) 90 N
 - c) 9×10^3 N
 - d) 9×10^5 N
- 5) Gravity is similar to electricity because they both
 - a) follow an inverse square law, exert forces through fields and attract
 - b) follow an inverse square law, exert forces through fields and repel
 - c) exert forces through fields, attract and repel
 - d) follow an inverse square law, attract and repel
- 6) A 9.0 V battery is connected to two metal plates that are 6.0 cm a side and 1.5 mm thick. They are separated by 3.0 cm. What is the electric field between the plates?
 - a) 150 N/C
 - b) 300 N/C
 - c) 1.5 N/C
 - d) 3.0 N/C
- 7) There is a circular ring with a negative charge spread all over it. In the centre of the ring the electric
 - a) field is zero
 - b) potential is zero
 - c) field and potential are zero
 - d) field and potential are not zero
- 8) In Millikan's experiment, the oil drops stayed stationary between the plates because the
 - a) gravitational and electrical fields were equal
 - b) charge equalled the mass
 - c) gravitational and electrical forces were equal
 - d) all of the above
- 9) Which of the following is not a possible electric charge?
 - a) 1.12×10^{-19} C
 - b) 1.12×10^{-18} C
 - c) 1.60×10^{-19} C
 - d) 1.60×10^{-18} C
- 10) Two electrons are near each other and start from rest. As they move apart their kinetic energy
 - a) increases and potential energy decreases
 - b) increases and potential energy increases
 - c) decreases and potential energy decreases
 - d) decreases and potential energy increases
- 11) Two electrons are near each other and start from rest. As they move apart their velocities
 - a) increase and accelerations decrease
 - b) increase and accelerations increase
 - c) decrease and accelerations decrease
 - d) decrease and accelerations increase
- 12) The electric field at the surface of a conductor in equilibrium is
 - a) zero
 - b) non zero
 - c) parallel to the surface
 - d) perpendicular to the surface
- 13) A charged particle moving in an electric field always has its
 - a) velocity parallel to the field lines
 - b) velocity perpendicular to the field lines
 - c) acceleration parallel to the field lines
 - d) acceleration perpendicular to the field lines
- 14) We don't notice electricity as much as gravity because
 - a) electricity is a much weaker force, most objects are neutral and the earth is a huge mass.
 - b) most objects are neutral and the earth is a huge mass
 - c) electricity is a much weaker force and the earth is a huge mass
 - d) electricity is a much weaker force and most objects are neutral

- 15) In the Coulomb's Law Balloon Experiment, measurements needed to be made quickly so that the
- a) experiment got done in class time
 - b) balloon didn't deflate
 - c) charge didn't decrease
 - d) charge didn't increase
- 16) The electric field is to the electric force as the electric
- a) potential energy is to the electric potential
 - b) potential is to the electric potential energy
 - c) voltage is to the electric potential
 - d) none of the above
- 17) The electric field is always
- a) parallel to the electric force
 - b) perpendicular to the electric force
 - c) parallel to lines of constant potential
 - d) answers a) and c)
- 18) What is true about electric field lines? They
- a) stop at charges, start at charges
 - b) never cross, start at charges
 - c) never cross, stop at charges
 - d) all 3
- 19) What is most likely to kill you
- a) potential
 - b) potential energy
 - c) potential difference
 - d) all three
- 20) What is true about gravitational field lines? They
- a) stop at masses, start at masses
 - b) never cross, start at masses
 - c) never cross, stop at masses
 - d) all 3
- 21) The electrical field lines between parallel plates have a shape that is similar to the field lines
- a) between opposite charges
 - b) between same charges
 - c) near the earth
 - d) around the earth