

Physical Science Practice TEST

Use outline to complete

Multiple Choice

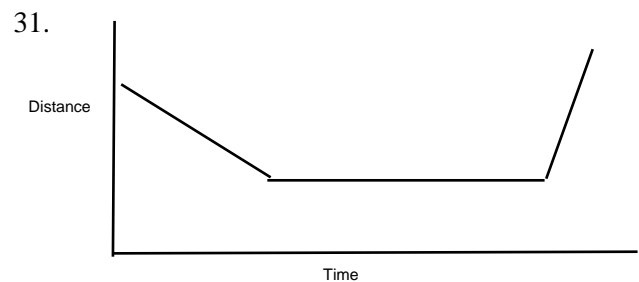
Identify the choice that best completes the statement or answers the question.

- What are the characteristics of a proton?
 - negative charge, atomic mass of 1
 - positive charge, atomic mass of 1
 - negative charge, very little mass
 - positive charge, very little mass
- The subatomic particle that circles the nucleus and is important in bonding is the:
 - proton.
 - neutron.
 - electron.
 - positron.
- Carbon 12 has how many sub-atomic particles?
 - 12 protons and 12 neutrons
 - 12 protons and 0 neutrons
 - 6 protons and 12 neutrons
 - 6 protons and 6 neutrons
- Carbon 14 has how many of each sub-atomic particles?
 - 14 protons and 14 neutrons
 - 14 protons and 0 neutrons
 - 7 protons and 7 neutrons
 - 6 protons and 8 neutrons
- Give the location of metals on the Periodic Table.
 - on the left
 - on the right
 - in Group XVIII
 - in Group XX
- How will non-metals bond ionically?
 - donating electrons
 - gaining electrons
 - sharing electrons
 - they don't, they are inert
- How will noble gases bond ionically?
 - donating electrons
 - gaining electrons
 - sharing electrons
 - they don't, they are inert
- Each vertical column on the Periodic Table gives what information?
 - the number of protons in each element
 - the number of electrons in the outer most energy level for each element
 - the number of electron energy levels in each element
 - the number of electrons in each element
- Why do atoms bond together?
 - So that they will have 8 electrons in their outer most energy level, except H and He.
 - So that they will have 18 electrons in their outer most energy level except Ne.
 - So that they will become chemically inert.
 - Because they like each other.
- Give the molecular formula that will result when aluminium⁺³ bonds with oxygen⁻².
 - AlO
 - Al₃O₂
 - Al₂O₃
 - Al₂O₆
- When a sulfur atom gains 2 electrons what will its charge become ?
 - +2
 - 2
 - +6
 - 6

12. Berillium⁺² will bond with fluorine⁻ by:
- donating 2 electrons.
 - gaining 2 electrons.
 - gaining 6 electrons.
 - barium will not bond with fluorine.
13. Unlike ionic bonds, covalent bonds:
- donate electrons.
 - gain electrons.
 - share electrons.
 - they don't bond, they are inert.
14. Give the balanced equation for the splitting of water in to diatomic molecules of oxygen and hydrogen..
- $\text{H}_2\text{O} \rightarrow \text{O}_2 + \text{H}_2$
 - $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$
 - $\text{H}_2\text{O}_2 \rightarrow \text{O}_2 + \text{H}_2$
 - $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + 2\text{O}_2$
15. Why is energy always a part of a chemical reaction?
- Reactions always give off energy.
 - Reactions always absorb energy.
 - Reactions need activation energy.
 - Reactions need deactivation energy.
16. The splitting of water into oxygen and hydrogen takes energy because:
- it is an endothermic reaction.
 - it is an exothermic reaction.
 - it is an ectothermic reaction.
 - it has to be that way ot the oceans would turn to gases and the whales would fall to the bottom and hurt themselves.
17. Give the balanced formula for the equation for photosynthesis
- $\text{H}_2\text{O} + \text{CO}_2 \rightarrow \text{O}_2 + \text{C}_6\text{H}_6\text{O}_6$
 - $e + 6\text{H}_2\text{O} + 6\text{CO}_2 \rightarrow 6\text{O}_2 + 6\text{C}_6\text{H}_{12}\text{O}_6$
 - $6\text{O}_2 + \text{C}_6\text{H}_6\text{O}_6 \rightarrow 6\text{H}_2\text{O} + 6\text{CO}_2 + e$
 - $e + 6\text{H}_2\text{O} + 6\text{CO}_2 \rightarrow 6\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6$
18. What happens to energy during photosynthesis?
- it is created from light
 - it is converted from light
 - it is released as light
 - it changes to light
19. Photosynthesis is what type of reactions?
- endothermic
 - exothermic
 - ectothermic
 - nuclear thermal
20. Chemical reactions will speed up if:
- the temperature increases and the size of the material decreases.
 - the temperature increases and a catalyst is removed.
 - The material is not agitated and the temperature decreases.
 - a catalyst is not used and the material is not agitated.
21. What are the reactants of the cellular respiration reaction?
- oxygen and water
 - water and carbon dioxide
 - glucose and carbon dioxide
 - the products of photosynthesis
22. Salt dissolved in water is a:
- chemical compound.
 - physical compound.
 - chemical mixture.
 - physical mixture.
23. A suspension, which will separate upon standing is which of the following?
- homogeneous mixture
 - heterogeneous mixture
 - heterogeneous compound
 - homogeneous compound

24. If one is driving along a straight level road at a constant speed and throws a hard rubber ball straight out of the window where will it land?
- in front of where it was thrown.
 - at the same location but out from where it was thrown.
 - behind where it was thrown.
 - straight out from the car where the car will be when it hits the ground.
25. Which of Newton's Laws states that an object will have a constant velocity unless an unbalanced force acts on it?
- First Law
 - Second Law
 - Third Law
 - Forth Law
26. Newton's first Law of Motion is also call the Law of Inertia. It explains:
- why it hurts when you hit a wall with your fist.
 - how a rocket works.
 - why a fast pitched baseball hitting you on the head hurts more than dropping a basketball on your head.
 - why you should always wear your seat belt when riding in a car.
27. Newton's second law can be shown by the formula $a=f/m$. This equation means:
- action equals force divided by matter.
 - acceration equals force divided by mass.
 - action equals force times mass.
 - acceleration equals force times mass.
28. Newton's Second Law explains:
- why hitting a wall with you fist hurts.
 - how a rocket works.
 - why a fast pitched baseball hitting you on the head hurts more than dropping a baseball on you head
 - why you should always wear your seat belt when riding in a car.

29. Velocity is equal to:
- distance divided by time.
 - distance multiplied by time.
 - time divided by distance.
 - acceleration divided by time.
30. Which of Newton's Laws explains why it is hard to push a tack into the wall when standing on a well oiled skate board?
- First Law
 - Fourth Law
 - Third Law
 - Second Law



This graph of distance and time shows a object doing what?

- Speeding up, going at a constant speed, and slowing down quickly.
 - Going at a constant speed, slowing down, and speeding up quickly.
 - Slowing down, going at a constant speed, and speeding up quickly.
 - Turning right, going straight, turning left quickly.
32. Scientifically "acceleration" is:
- speeding up.
 - slowing down.
 - staying the same speed.
 - any change in velocity.
33. Given that $w = f \times d$, if you push on a boulder for an hour and it doesn't move, about how much work have you done?
- none
 - a bit
 - a lot
 - a whole lot!

34. How does a simple machine work?
- increasing the work by decreasing the distance and the force applied.
 - decreasing the distance and decreasing the force needed to do the same work.
 - increasing the work by increasing the distance and increasing the force applied.
 - increasing the distance so decreasing the force needed to do the same work.
35. A baseball bat is an example of what type of machine?
- wheel and axil
 - incline plane
 - screw
 - lever
36. A door knob is an example of what type of simple machine?
- wheel and axil
 - incline plane
 - screw
 - lever
37. To generate an electric current safely all one has to do is:
- make one coil of wire and turn it quickly.
 - make one coil of wire inside of another coil , turn the inner coil and get a current out of it.
 - make one coil of wire inside another coil, turn the inner coil and get current from of the outer coil.
 - stand outside in a thunderstorm with a metal rod in your hand and wait for lighting.
38. To make a generator into an electric motor one must:
- simply reverse the currect.
 - make the outside coil rotate around the inside coil.
 - make the inside coil rotate around the outside coil.
 - hook up the metal rod you're holding in a lightning storm to an AC motor.
39. If $f = m/d^2$:
- the force will increase if the distance is doubled.
 - the force will increase as m decreases.
 - the force will decrease by the square of the distance.
 - the force will increase by the square of the distance.
40. Gravity is:
- a force of attraction between any two objects.
 - what makes all objects fall down.
 - what hakes objects fall to the surface of the earth.
 - what holds atoms together.
41. Weight is really a measurement of:
- the amount of matter in an object.
 - how much the force of gravity pulls on an object.
 - how much space an object takes up.
 - how dense the molecules of an object are packed together.
42. If there is a force of gravity between you and the person closest to you , how come you both don't fall together?
- You don't find each other attractive.
 - You like them, but it's not reciprocated.
 - There is a more massive body around.
 - They're just not your type.
43. If the force of gravity is equal to $f = m^1 \times m^2 / d^2$, why would you weigh 1/6 of your Earth weight on the Moon?
- You would lose all that weight just getting there.
 - You'd only be 1/6 of the distance to the moon's center of gravity because it is so much smaller.
 - Because there is no air pushing down on you.
 - Because the Moon's mass is 1/6 that of the Earth's.

44. What is the relationship between potential energy and gravitational energy?
- Potential energy is a charged battery on the top shelf, gravitational energy is a dead battery on the bottom shelf.
 - Potential is what you have but are not using to get your grades up, gravitational energy is what keeps making them fall down.
 - Potential energy is what keeps the stars shining, gravitational energy keeps the Earth going around the Sun.
 - Potential energy can fall, gravitational energy is falling.
45. If a ball at the top of one hill with a valley at the bottom and another hill on the other side all with perfectly smooth sides is pushed just enough to get it moving, when will the ball have the greatest kinetic energy?
- half way down the hill
 - at the bottom of the hill
 - half way up the next hill
 - at the top of the next hill
46. An example of a longitudinal/compression wave is:
- light waves.
 - sound waves.
 - waves on Lake Tahoe.
 - gamma radiation.
47. A simple demonstration that light is a transverse wave is:
- a halo around the sun
 - a snowflake.
 - lightning.
 - shadows.
48. Which choice is a good demonstration that waves are a movement of energy not matter?
- Yelling at one end of a hall until all of the air is pushed to the other end of the hall and you suffocate.
 - Watching the water return to the east side of Lake Tahoe in one big wave after the wind has been blowing it to the west side of the lake all day.
 - Noticing that the longer you shine a light on a piece of paper the brighter it gets as all of the light waves build up.
 - Noticing that the reason the students all sit in the back rows of the room on the first day of school is **NOT** because the sound waves build up there so that the students can hear better.
49. Why can't we hear the Sun?
- It is too far away.
 - The Sun doesn't make any noise, it is quite energy.
 - Sound doesn't travel through space.
 - Sound does travel through space! I've seen Star Wars and you can hear the Death Star blow up!
50. Both reflection and refraction work by:
- slowing the light waves.
 - bending light waves.
 - speeding up the light waves.
 - stopping certain light waves.
51. A convex mirror is used to:
- see distant object in a telescope.
 - concentrate light into a laser beam.
 - see around corners in tight turns and in stores to catch shoplifters.
 - see things on your face better.
52. Which uses the results of refraction and reflection?
- a rainbow
 - a mirage
 - an echo
 - the biggest telescope on the Earth

53. When energy changes from steam to electricity to a fan going around:
- some energy is totally lost at each stage.
 - the same amount of energy is transferred at each stage.
 - the same amount of energy is used to move the air as was originally in the coal to heat the water to steam, following the Law of Conservation Of Energy.
 - some energy is transformed to heat at each step
54. The equation $E = mc^2$ shows that:
- a small amount of mass can create a large amount of energy.
 - they thought mass could change to energy, but they were wrong.
 - energy is equal to mass times the temperature in degrees Celsius.
 - the Law of Conservation of energy is always correct.
55. Of the three types of atomic radiation which is the most dangerous?
- omega radiation
 - gamma radiation
 - beta particles
 - alpha particles
56. The biggest problem with fission reactors and of the applications of radioactivity is:
- radioactive burns caused by beta particles.
 - fall out that gets into the soil and then into crops leading to food poisoning.
 - gamma radiation causing cancer and leukemia.
 - long term mutations caused by alpha radiations.
57. What do fusion and fission have in common?
- They both produce large amounts of radioactive waste products.
 - They both are now used directly to produce electricity.
 - They both produce large amounts of energy from small amounts of mass..
 - All of the above.
58. Which statement is true about fusion?
- It occurs when large nuclei split apart.
 - It occurs in atomic reactors.
 - It is what took place in the bombs dropped on Nagasaki and Hiroshima.
 - It is what makes stars shine.
59. Identify the instrument used to measure the average kinetic energy of the molecules of a substance?
- kineticometer
 - barometer
 - geiger counter
 - thermometer
60. What happens because the molecules in a gas are not bonded to each other? Gases:
- take the shape and volume of their container.
 - have their own shape and volume.
 - have their own shape, have the volume of their container.
 - have their own volume, but take the shape of their container.
61. Which model describes the characteristics of a liquid?
- The molecules are held together by sticks.
 - The molecules are held together by stretchy strings.
 - The molecules are not held together at all, they are not attached.
 - The molecules break up into individual atoms.
62. What term describes the change when the bonds between molecules are so weakened that they start to flow together?
- evaporation
 - condensation
 - melting
 - freezing
63. Which state of matter has the lowest kinetic energy?
- solid
 - plasma
 - liquid
 - gas

64. Which change in matter releases energy?
- A. evaporation
 - B. condensation
 - C. melting
 - D. sublimation.
65. What process is used by sweating or a swamp cooler to keep you cool?
- A. heat of evaporation
 - B. heat of condensation
 - C. heat of melting
 - D. heat of sublimation
66. As the black rock heats up during the day it transfers that heat to the air molecules that are in contact with it. This is an example of what type of heat transfer?
- A. convection
 - B. radiation.
 - C. sublimation
 - D. conduction
67. The sun heats up black volcanic rock faster than the surrounding white sand. This produces a column of rising warm air. Hawks use the rising air to soar. It also can cause summer cumulus clouds to form. This rising, warm air is an example of:
- A. convection
 - B. conduction
 - C. radiation
 - D. evaporation
68. Standing around the campfire is what type of heat transfer?
- A. conduction
 - B. convection
 - C. radiation
 - D. evaporation
69. As the sun heats up the volcanic rocks they give off heat even after the sun has gone down. This is an example of:
- A. convection
 - B. radiation
 - C. conduction
 - D. evaporation

PROFISH
Answer Section

MULTIPLE CHOICE

1. ANS: B
2. ANS: C
3. ANS: D
4. ANS: D
5. ANS: A
6. ANS: B
7. ANS: D
8. ANS: B
9. ANS: A
10. ANS: C
11. ANS: B
12. ANS: A
13. ANS: C
14. ANS: B
15. ANS: C
16. ANS: A
17. ANS: D
18. ANS: B
19. ANS: A
20. ANS: A
21. ANS: D
22. ANS: D
23. ANS: B
24. ANS: C
25. ANS: A
26. ANS: D
27. ANS: B
28. ANS: C
29. ANS: A
30. ANS: C
31. ANS: C
32. ANS: D
33. ANS: A
34. ANS: D
35. ANS: D
36. ANS: A
37. ANS: C
38. ANS: A
39. ANS: C
40. ANS: A

- 41. ANS: B
- 42. ANS: C
- 43. ANS: D
- 44. ANS: D
- 45. ANS: B
- 46. ANS: B
- 47. ANS: A
- 48. ANS: D
- 49. ANS: C
- 50. ANS: B
- 51. ANS: C
- 52. ANS: A
- 53. ANS: D
- 54. ANS: A
- 55. ANS: B
- 56. ANS: C
- 57. ANS: C
- 58. ANS: D
- 59. ANS: D
- 60. ANS: A
- 61. ANS: B
- 62. ANS: C
- 63. ANS: A
- 64. ANS: B
- 65. ANS: A
- 66. ANS: D
- 67. ANS: A
- 68. ANS: C
- 69. ANS: B