

Grade 9 Science Exam: True-False Review

1. ____ The atomic # of Carbon is 6 which means it has 6 protons and 6 electrons.
2. ____ The # of neutrons = mass # - atomic #.
3. ____ Isotopes are the same elements with different numbers of electrons.
4. ____ The following are correct electric symbols: Q = charge, I = voltage, E = energy.
5. ____ The following are correct electric units: charge in coulombs, energy in joules.
6. ____ A neutral object is repelled by a charged object.
7. ____ A negative object is repelled by another negative object.
8. ____ The density of an object is calculated by: mass x volume.
9. ____ $M = D/V$.
10. ____ A Bohr (shell) diagram for nitrogen would have 2 electrons in the first shell and 7 electrons in the second shell.
11. ____ The second shell of an atom can hold a maximum of 8 electrons.
12. ____ Outer electrons of an atom are called "valence" electrons.
13. ____ Using the "cross-over method" the correct formula for sodium oxide would be Na_2O_3 .
14. ____ Using the "cross-over method" the correct formula for barium chloride would be $BaCl_2$.
15. ____ During ionic bond formation, a metal atom loses electrons (which becomes negatively charged) to a non-metal atom (which becomes positively charged).
16. ____ In ionic bond formation between sodium and chlorine, sodium become Na^+ and chlorine becomes Cl^- and the 2 ions then attract each other.
17. ____ In question #16 above, both Na and Cl achieve full outer shells of electrons.
18. ____ In covalent bonding, ions are formed that share electrons.
19. ____ A covalent bond forms between a metal and a non-metal (ie. CO_2).
20. ____ In electricity, $Q = I / t$.
21. ____ In electricity, I = current and is measured in volts.
22. ____ 1 ampere = 1 coulomb/second.
23. ____ In electricity, $V = E/Q$. Where V = volts and E = electrons.
24. ____ In electricity, $R = V/I$. Where R = resistance measured in ohms.

25. ____ Ohms law is: $V = I \times Q$.
26. ____ In drawing electrical circuits, the negative terminal of a battery is the long vertical line and the positive terminal is the short vertical line.
27. ____ Electrons leave the negative terminal and return to the positive terminal of a battery.
28. ____ Examples of electrical “loads” are bulbs and heating coils.
29. ____ Electrical loads have high resistance that hinder the passage of protons through them.
30. ____ When an ebonite rod is rubbed with fur, the rod becomes negative as it gains protons.
31. ____ If an ebonite rod rubbed with fur touches a pith ball, the ball becomes negatively charged.
32. ____ After touching the pith ball in #31 above, the ball will be attracted to the ebonite rod.
33. ____ A neutral object is drawn with equal numbers of positive and negative charges.
34. ____ Drawings on the exam can be done in pen or pencil but must be large and clear.
35. ____ A glass rod has a greater pull on electrons than a plastic bag.
36. ____ When a positive glass rod is brought close to a metal leaf electroscope, the leaves repel because they are positively charged.
37. ____ Charging by induction occurs when a charged rod touches a neutral object.
38. ____ In the reaction: $A + B \longrightarrow C$, the reactants are A + B and the product is C.
39. ____ copper + oxygen \longrightarrow copper oxide.
40. ____ potassium + chlorine + oxygen \longrightarrow potassium chlorate.
41. ____ Colour is a qualitative physical property of matter.
42. ____ Objects with high lustre tend to sink in water.
43. ____ A heterogeneous mixture has more than one visible particle. An example is water.
44. ____ A homogeneous solution would be apple juice.
45. ____ An example of a pure substance is human blood.
46. ____ The release of light, heat, and sound indicates a physical change.
47. ____ According to particle theory, all particles are at rest until heated.
48. ____ N_2 is an element whereas H_2O is a compound.
49. ____ The alkali metals include sodium and calcium and are in Group 1.
50. ____ The halogens have a valence of 7 and include Cl and Br.

51. ____ Noble gases such as fluorine have a filled outer shell so they are stable or inert.
52. ____ When writing atomic notation for an element, the mass # is above the atomic #.
53. ____ Neutrons and protons are located in the nucleus of an atom and electrons are outside the nucleus travelling in paths called “isotopes”.
54. ____ When connected to an 8 Volt battery, a 9 V bulb is less bright than a 10 V bulb.
55. ____ When 2 batteries are connected in series the overall voltage is higher than if they are connected in parallel.
56. ____ Connecting batteries in parallel does not increase the overall voltage but allows the batteries to last longer.
57. ____ If 2 bulbs are connected in parallel and one goes out the other also goes out.
58. ____ The higher the voltage of a battery, the greater the energy given to each coulomb of charge.
59. ____ The bottom of a thundercloud is positively charged and induces a negative charge on the ground.
60. ____ When an object is discharged, excess charge (electrons) enter or exit it to “ground”.
61. ____ To measure E/Q use a voltmeter, to measure Q/E use an ammeter.
62. ____ The following are correct oxidation numbers: alkali metals = 1, alkaline earth metals = 3, halogens = 7.
63. ____ A load converts energy in an electric circuit.
64. ____ An electroscope is a device to measure static charge .
65. ____ Insulators allow charge to flow freely.
66. ____ If a toaster required an energy input of 30 000 J and had an energy output of 250 000 J, it would have an efficiency of 83 % .
67. ____ An alarm clock is plugged into a 110 V electrical outlet and requires 10 amperes of current, the resistance of the alarm clock would be 10 ohms.
68. ____ The total electrical potential available to 3 cells connected in parallel, each of which has an electrical potential of 3 volts would be 9 volts.
69. ____ The energy needed to light a 60 W bulb for 3 minutes would be 108 00 J.
70. ____ There are practice quizzes on <http://savitapall.com> that will help you study for the exam!