Classification of Matter

1. Which substance can not be broken down by a chemical change?

i)	ammonia	NH_3
ii)	ethanol	CH_3CH_2OH
iii)	propanol	CH_3CHCH_2OH
iv)	zirconium	Zr

2. Which terms identify types of chemical reactions?

i) decomposition and sublimation
ii) decomposition and synthesis
iii) deposition and sublimation
iv) deposition and synthesis

3. Which change results in the formation of different substances?

i) burning of propane
ii) melting of NaCl
iii) deposition of CO_2
iv) solidification of water

4. Which equation represents a single replacement reaction?

(1) $2\ H_2O_2 \rightarrow 2\ H_2O + O_2$

(2) $2\ H_2O_2 \rightarrow 2\ H_2O$

(3) $H_2SO_4 + Mg \rightarrow H_2 + MgSO_4$

(4) $HCl + KOH \rightarrow KCl + H_2O$

5. What is formed when two atoms of bromine bond together?

(1) a monatomic molecule

(2) a diatomic molecule

(3) a heterogeneous mixture

(4) a homogeneous mixture

6. Which particle has no charge?

(1) electron
(2) positron
(3) neutron
(4) proton

The element aluminum is classified as a :

(1) metal
(2) nonmetal
(3) metalloid
(4) noble gas

8. Salt water is classified as a:

(1) compound because the proportion of its atoms is fixed

(2) compound because the proportion of its atoms can vary

(3) mixture because the proportion of its components is fixed

(4) mixture because the proportion of its components can vary

9. Powdered iron is magnetic, but powdered sulfur is not. What occurs when they form a mixture in a beaker at room temperature?

(1) The iron retains its magnetic properties.
(2) The iron loses its metallic properties.
(3) The sulfur gains magnetic properties.
(4) The sulfur gains metallic properties.

10. Which term represents a type of nuclear reaction?

(1) condensation
(2) vaporization
(3) single replacement
(4) natural transmutation

process of elimination

11. Equal amounts of ethanol and water are mixed at room temperature and at 101.3 kPa.

Which process is used to separate ethanol from the mixture?

1) distillation
(2) filtration
(3) reduction
(4) ionization

you don't need to know this one yet!

12. A sample of a substance has these characteristics:

- melting point of 984 K = Li
- hard, brittle solid at room temperature = M-NM = ionic
- poor conductor of heat and electricity as a solid = NM OR metalloid or ionic
- good conductor of electricity as a liquid or in an aqueous solution = ionic

This sample is classified as:

(1) a metallic element
(2) a radioactive element
(3) a molecular compound
(4) an ionic compound

13. Which elements have the most similar chemical properties? (

1) Si, As, and Te
(2) Mg, Sr, and Ba
(3) N_2, O_2, and F_2
(4) Ca, Cs, and Cu

same column on PT next week

14. Which substances have atoms of the same element but different molecular structures?

(1) He(g) and Ne(g)
(3) K(s) and Na(s)
(2) O_2(g) and O_3(g)
(4) P_4(s) and S_8(s)

15. A gas changes directly to a solid during

(1) fusion
(2) saponification
(3) deposition
(4) decomposition

S ← G

but govt would call this sublimation

frost formation for example

16. A solid element that is malleable, a good conductor of electricity, and reacts with oxygen is classified as a:

(1) metal
(2) noble gas
(3) metalloid
(4) nonmetal

17. Three forms of energy are:

(1) chemical, exothermic, and temperature
(2) chemical, thermal, and electromagnetic
(3) electrical, nuclear, and temperature
(4) electrical, mechanical, and endothermic

18. Given the balanced equation representing a reaction:

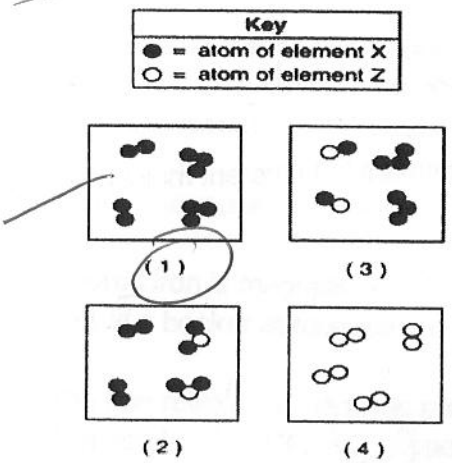
$Zn(s) + H_2SO_4(aq) \rightarrow ZnSO_4(aq) + H_2(g)$

1 ele 1 cpd new cpd new element

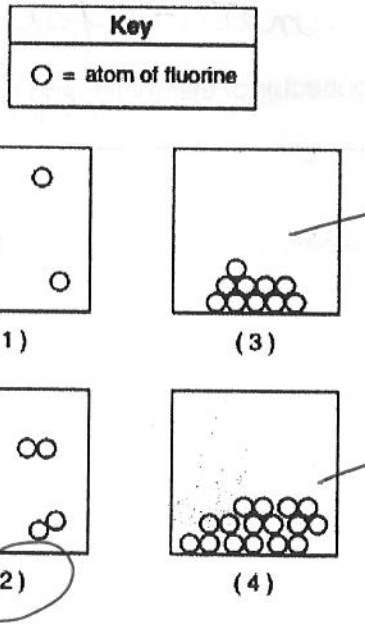
Which type of reaction is represented by this equation?

(1) decomposition
(2) single replacement
(3) double replacement
(4) synthesis

19. Which diagram represents a mixture of two different molecular forms of the same element?



20. Which particle diagram represents the arrangement of F2 molecules in a sample of fluorine at 95 K and standard pressure?



21. Which statement describes the distribution of charge in an atom?

(1) A neutral nucleus is surrounded by one or more negatively charged electrons.
(2) A neutral nucleus is surrounded by one or more positively charged electrons.
(3) A positively charged nucleus is surrounded by one or more negatively charged electrons.
(4) A positively charged nucleus is surrounded by one or more positively charged electrons.

22. Which sample of matter is classified as a substance? = element or cpd.

(1) air mix
(2) milk mix
(3) ammonia cpd NH_3
(4) seawater mix

23. Which statement describes a chemical change? new product

(1) Alcohol evaporates.
(2) Water vapor forms snowflakes.
(3) Table salt (NaCl) is crushed into powder. trauma ⇒ still have salt
(4) Glucose ($C_6H_{12}O_6$) and oxygen produce CO_2 and H_2O.

24. Given the balanced equations representing two chemical reactions:

(1) $Cl_2 + 2\,NaBr \rightarrow 2\,NaCl + Br_2$ $2\,NaCl \rightarrow 2\,Na + Cl_2$ (2)

Which types of chemical reactions are represented by these equations?

(1) single replacement and decomposition
(2) single replacement and double replacement
(3) synthesis and decomposition
(4) synthesis and double replacement

25. Which elements are malleable and good conductors of electricity?

m !

(1) iodine and silver
(2) tin and silver
(3) iodine and xenon
(4) tin and xenon

26. Given the balanced equation representing a reaction:

$$2\,H_2 + O_2 \rightarrow 2\,H_2O$$

10g 80g 90g

What is the mass of H_2O produced when 10.0 grams of H_2 reacts completely with 80.0 grams of O_2?

(1) 70.0 g
(2) 180. g
(3) 90.0 g
(4) 800. g