Physical and Chemical Properties Practice Test

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Which of the following is a compound?
A) iron B) magnesium C) copper (II) oxide D) copper

2) In which pair does the symbol match the element name?
A) tungsten - Th B) strontium - St C) gallium - Gl D) chlorine - Cl

3) The "disappearance" of solid mothballs into the air is an example of _____.
A) melting B) condensation C) vaporization D) sublimation

4) What is the name given to the element with the symbol "K"?
A) potassium B) kallium C) phosphorus D) krypton

5) How many of the following pairs of elements and symbols are entirely correct?
silver, Si manganese, Mg copper, Co potassium, P
A) 3 B) 2 C) 1 D) none

6) Silicon is an example of an element that is _____.
A) usable in coins
B) a semiconductor
C) less dense than water
D) ductile
E) usable in gunpowder

7) One characteristic of the element sulfur is that it is _____.
A) a good conductor
B) dull grey in color
C) ductile
D) a good insulator of electricity
E) shiny

8) Semiconductors are located in the periodic table on (or in) the _____.
A) right side of the table
B) last period of the table
C) left side of the table
D) line dividing metals from nonmetals in the table
E) first period of the table

9) Compounds are pure substances that by definition consist of _____.
A) two or more elements in combination
B) gases
C) a single element
D) oxygen and hydrogen
E) solids

10) The physical state(s) present when a substance is melting is (are) _____.
A) liquid + gas
B) solid
C) solid + liquid
D) liquid
E) gas

11) The total number of atoms present in 2 formula units of $Ca(NO_3)_2$ is _____.
A) 25 B) 30 C) 9 D) 18

12) How many atoms of each element are present in 3 formula units of $(NH_4)_2HAsO_4$?
A) 5 N atoms, 45 H atoms, 4 As atoms, 18 O atoms
B) 6 N atoms, 9 H atoms, 3 As atoms, 12 O atoms
C) 6 N atoms, 27 H atoms, 3 As atoms, 12 O atoms
D) 10 N atoms, 18 H atoms, 5 As atoms, 18 O atoms

13) What is the total number of hydrogen atoms present in 6 formula units of $Mg(C_2H_3O_2)_2$?
A) 6 B) 36 C) 12 D) 24

14) Which of the following is a property of both solids and liquids?
A) definite shape B) indefinite shape C) indefinite volume D) definite volume

15) Gallium has a melting point of 30 °C and boiling point of 2403 °C. At which temperature below will gallium be a gas?
A) 2500 °C B) 250 °C C) 25 °C D) −25 °C

16) The state of matter a substance is in is determined by its _____.
A) temperature B) solubility
C) electrical conductivity D) density

17) Physical properties are:
A) those that a substance displays without changing its composition.
B) those that cause atoms and molecules to change.
C) identical for all solid matter.
D) those that a substance displays only through changing its composition.
E) none of the above

18) All of the following can be considered physical properties EXCEPT:
A) density.
B) taste.
C) boiling point.
D) color.
E) flammability.

19) A solid substance is subjected to a number of tests and observations. Which of the following test results would not be classified as a physical property of the substance?
A) It reacts with base to form water. B) It tastes sour.
C) Its density is 1.84 g/mL. D) It is a white-colored solid.

20) In which of the following pairs are both chemical properties?
A) flammable, reacts with acid B) has a high density, is very brittle
C) has metallic luster, soluble in ammonia D) green in color, reacts violently with water

21) When a substance undergoes a *chemical* change it is always true that _____.
A) new substances are formed B) heat is absorbed
C) it changes state D) it condenses

22) Which is an example of a homogeneous mixture?
A) chocolate chip cookieB) sugar water
C) oil & vinegar salad dressing D) a rock collection

23) Which of the following is an example of a *heterogeneous* mixture?
A) oil and vinegar B) vodka C) air D) sugar water

24) An element is a substance which _____.
A) can be broken down into simpler substances by physical means.
B) can be broken down into simpler substances by chemical means.
C) cannot be broken down into simpler substances by physical or chemical means.
D) none of the above

25) Which of the following is NOT a technique that could be used to separate a mixture into its components?
A) distillation
B) decanting
C) filtration
D) stirring
E) none of the above

26) What is the value of 27°C on the Fahrenheit temperature scale?
A) 300
B) -6.8
C) 81
D) 106
E) none of the above

27) What is the value of 98 °F in units of °C?
A) 371
B) 22
C) 72
D) 37
E) none of the above

28) What is the value of 27°C on the Kelvin temperature scale?
A) 246
B) 273
C) 300
D) 81
E) none of the above

29) The physical state of copper at 25 °C (room temperature) is _____.
A) solidB) plasma C) wire D) gas E) liquid

30) How many joules are required to raise the temperature of a 35.0 g sample of iron from $25\,^{\circ}C$ to $35\,^{\circ}C$? Iron has a specific heat of 0.450 J/g °C.
A) 10. J B) 160 J C) 16 J D) 350 J E) 35 J

31) The number of joules needed to raise the temperature of 32 g of water from 12 °C to 54 °C is _____.
A) 5600 J B) 1.3 J C) 1 700 J D) 1300 J E) 130 J

1) C
2) D
3) D
4) A
5) D
6) B
7) D
8) D
9) A
10) C
11) D
12) C
13) B
14) D
15) A
16) A
17) A
18) E
19) A
20) A
21) A
22) B
23) A
24) C
25) D
26) C
27) D
28) C
29) A
30) B
31) A