Regents Chemistry **Name _____**

Periodic Table Practice Test A **Period ____**

1) Which elements contain atoms that form colored ions and have more than one positive oxidation state?

a) alkali metals
b) alkaline earth metals
c) transition elements
d) noble gases

2) Which elements have the *most* similar chemical properties?

a) K and Na b) K and Ca c) K and Cl d) K and S

3) Which element in Period 3 has the *greatest* tendency to gain electrons?

a) Ar b) Cl c) Si d) Na

4) How many halogens are in Period 3 of the Periodic Table?

a) 3 b) 1 c) 4 d) 2

5) Which of the following elements has the *highest* ionization energy?

a) sodium b) aluminum c) calcium d) phosphorus

6) The element with the *highest* electronegativity is

a) chlorine b) bromine c) fluorine d) iodine

7) In the modern Periodic Table, the elements are arranged according to

a) atomic mass
b) atomic number
c) mass number
d) oxidation number

8) An atom of an element contains 20 protons, 20 neutrons, and 20 electrons. The element is

a) an alkali metal
b) a noble gas
c) an alkaline earth metal
d) a halogen

9) A diatomic element with a high ionization energy would *most* likely be a

a) nonmetal with a high electronegativity
b) metal with a high electronegativity
c) metal with a low electronegativity
d) nonmetal with a low electronegativity

10) As we move down the elements in Group 16, the electronegativity of the elements

a) increases b) decreases c) remains the same

11) What element is in Group 2 and Period 7 of the Periodic Table?

a) magnesium b) radon c) manganese d) radium

12) Alkali metals, alkaline earth metals, and halogens are found respectively in Groups
a) 1, 2, and 14 b) 1, 2, and 18 c) 1, 2, and 17 d) 2, 13, and 17

13) Compared to the atomic radius of a sodium atom, the atomic radius of a magnesium atom is smaller. The smaller radius is primarily a result of the magnesium atom having
a) a smaller nuclear charge
b) fewer principal energy levels
c) a larger nuclear charge
d) more principal energy levels

14) Atoms of metallic elements tend to
a) gain electrons and form positive ions
b) lose electrons and form negative ions
c) lose electrons and form positive ions
d) gain electrons and form negative ions

15) Which element is considered a ***malleable*** substance?
a) sulfur b) radon c) hydrogen d) gold

16) As we consider the elements of Period 2 from left to right, there is a general ***decrease*** in
a) ionization energy
b) metallic character
c) nonmetallic character
d) electronegativity

17) Which period contains the *greatest* number of metals?
a) 1 b) 2 c) 3 d) 4

18) As we move down Group 1 elements of the Periodic Table, the first ionization energy of each element decreases. One reason for this is that
a) the nuclear charge is decreasing
b) the number of principal energy levels is decreasing
c) the distance between the valence electron and the nucleus is increasing
d) the number of neutrons is increasing

19) Which is the *most* active metal in the Periodic Table of Elements?
a) I b) Fr c) Cl d) F

20) The properties of boron are characteristic of
a) a metal only
b) a nonmetal only
c) both a metal and a nonmetal
d) neither a metal nor a nonmetal

21) Which compound contains an alkaline earth metal and a halogen?
a) CaS b) Rb_2S c) RbCl d) $CaCl_2$

22) Metals outnumber nonmetals on the periodic table because most of the elements

a) are close to having a full octet
b) have 1 to 2 valence electrons
c) have a high ionization energy
d) have a high electronegativity

23) As we move from left to right on the periodic table, the reactivity of metals

a) increases
b) decreases
c) stays the same

24) As we move from left to right on the periodic table, the reactivity of nonmetals

a) increases
b) decreases
c) stays the same

25) Which of the following generally applies to the noble gases?

a) high ionization energy, low electronegativity, high reactivity
b) high ionization energy, high electronegativity, high reactivity
c) low ionization energy, low electronegativity, low reactivity
d) high ionization energy, low electronegativity, low reactivity

Short Answer

1) Name two properties of nonmetals that make them unsuitable for use in electrical wiring. Explain why each of these properties makes them unsuitable.

2) Use the list of elements below to answer the questions that follow.

Na, Ni, N, Mg, Rb, B

a) Choose the two elements which would have the most similar chemical properties. [*Explain why*]

b) Which of the elements is the most reactive metal?

c) Which of the elements is the most reactive nonmetal?

d) Which element has the highest electronegativity? Explain why.

3) A neutral atom in the ground state has the electron configuration 2-8-18-7.

a) State the group and period this element is found on the Periodic Table.

b) Identify this element.

c) Classify this element as a metal, nonmetal, or metalloid.

d) In the box below, draw a Lewis electron-dot structure for this element.

e) List *two* other elements likely to have properties similar to this element.

Bonus (1 pt.)

1) The radius of a calcium ion is *smaller* than the radius of a calcium atom because the calcium ion contains the same nuclear charge and

a) fewer electrons
b) fewer protons
c) more protons
d) more electrons

REGENTS CHEMISTRY **Periodic Table Practice Test (A)** **Name** _____

Mr. Dolgos **Period** ____

1. ____
2. ____
3. ____
4. ____
5. ____
6. ____
7. ____
8. ____
9. ____
10. ____
11. ____
12. ____
13. ____
14. ____
15. ____
16. ____
17. ____
18. ____
19. ____
20. ____
21. ____
22. ____
23. ____
24. ____
25. ____

1. Name two properties of nonmetals that make them unsuitable for use in electrical wiring. Explain why each of these properties makes them unsuitable.

_____

_____

_____

_____

2. Use the list of elements below to answer the questions that follow.

Na, Ni, N, Mg, Rb, B

a) Choose the two elements which would have the most similar chemical properties. [*Explain why*]

_____

_____

b) Which of the elements is the most reactive metal?

c) Which of the elements is the most reactive nonmetal?

d) Which element has the highest electronegativity? Explain why.

_____

2) A neutral atom in the ground state has the electron configuration 2-8-18-7.

a) State the group and period this element is found on the Periodic Table:

_____

b) Identify this element: _____

c) Classify this element as a metal, nonmetal, or metalloid (circle one).

d) In the box below, draw a Lewis electron-dot structure for this element.

e) List *two* other elements likely to have properties similar to this element.

_____

REGENTS CHEMISTRY
Mr. Dolgos

Periodic Table Practice Test

Name KEY

Period ____

1. C
2. A
3. B
4. B
5. D
6. C
7. B
8. C
9. A
10. B
11. D
12. C
13. C
14. C
15. D
16. B
17. D
18. C
19. B
20. C
21. D
22. B
23. B
24. A
25. D

1. Name two properties of nonmetals that make them unsuitable for use in electrical wiring. Explain why each of these properties makes them unsuitable.

- Not ductile => can't be drawn into wire
- Not malleable => can't bend
- Nonconductors => can't transmit electricity

2. Use the list of elements below to answer the questions that follow.

Na, Ni, N, Mg, Rb, B

a) Choose the two elements which would have the most similar chemical properties. [*Explain why*]

Na, Rb b/c same group/family

b) Which of the elements is the most reactive metal?

Rb

c) Which of the elements is the most reactive nonmetal?

N

d) Which element has the highest electronegativity? Explain why.

N b/c it's closest to a full octet

2) A neutral atom in the ground state has the electron configuration 2-8-18-7.

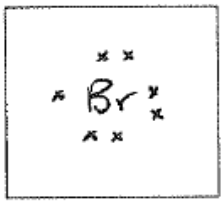
a) State the group and period this element is found on the Periodic Table:

Group 17 Period 4

b) Identify this element: Bromine (Br)

c) Classify this element as a metal, (nonmetal), or metalloid (circle one).

d) In the box below, draw a Lewis electron-dot structure for this element.



e) List *two* other elements likely to have properties similar to this element.

F, Cl, I

BONUS: a.)