

1 when sugar or salt is added to water
it dissolves to form _____.

heterogeneous mixture
compound

homogeneous mixture
element

2 which of the following is composed
of only one atom

CH_4 , H_2O , N_2 , PCl_3 , H_2Se

3 which one of the following has
the greatest attraction for e^-

Al , Mg , P , Si , Cl

4 Given Si. The number of core and #
of valence e^- are $1s^2 2s^2 2p^6 3s^2 3p^2$

4, 10, 2, 12, 12, 2, 10, 4

5

Based on the P. table above, elements from A and F combine to form:



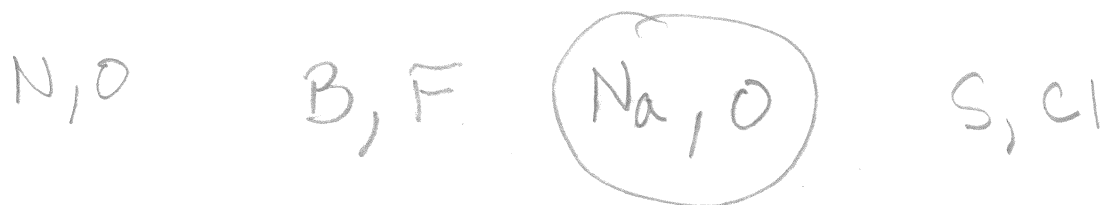
6

Based on P. table above, elements from B combine with F to form



7

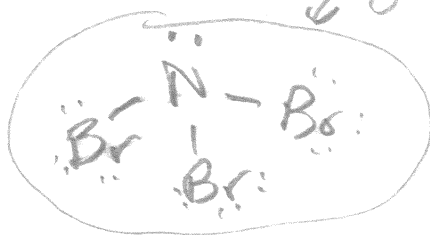
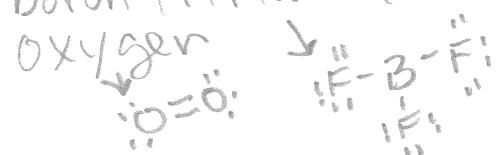
which elements combine to form an ionic bond



8

Draw the LF of nitrogen tribromide

nitrogen $\text{:N}\equiv\text{N:}$
 boron trifluoride
 oxygen



9 Given $\text{:}\ddot{\text{X}}\text{:}\ddot{\text{X}}\text{:}$, the element is

H_2 , ~~O_2~~ , N_2 , Cl_2 , S_2

10 Given $\text{:}\ddot{\text{X}}\text{:}\ddot{\text{X}}\text{:}$, the element is

H_2 , Cl_2 , N_2 , O_2 , S_8

11 The boiling of H_2O is a
physical change, chemical change

12
12. when nitrogen ionizes to nitride,
how many electrons does it
gain? Show proof by calculation.

$$\begin{array}{r} N^{-3} \rightarrow 3e^{-} \quad +7 \\ \quad \quad \quad \quad \quad -10 \\ \hline \quad \quad \quad \quad \quad -3 \end{array}$$

13
13. Use arrow and word to rank
reactivity of barium, magnesium,
strontium, calcium.

Ba, Sr, Ca, Mg
big ← ————— → small
more less

14
14. Of the following elements, which is
most likely the smallest?

copper, titanium, manganese, iron

↓
Cu

chem 7 white Board

① ~~Calculate~~ the number of neutrons.



15

② Determine the atomic mass of:

$$\text{V} = 50.94$$

$$\text{Cr} = 52$$

$$\text{N} = 14.01$$

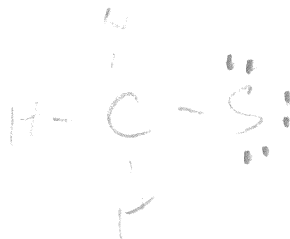
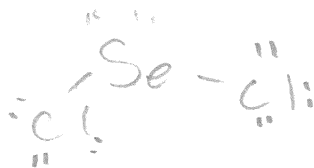
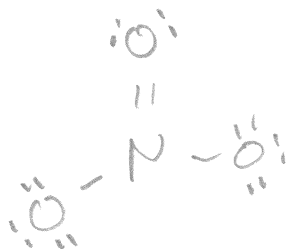
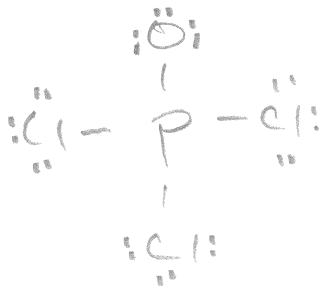
$$\text{C} = 12.01$$

$$\text{Ar} = 39.95$$

Complete sentence
③ Thomson discovered the electron and this particle has a negative charge.

~~16~~ 16

use octet rule and draw LF



~~125~~
10 Write correct L.F. for:

~~126~~ ~~31~~ ~~22~~ 17
 $N_2, H_2, O_2, Br_2, Cl_2, I_2, CH_4, NH_3$

11 In which of the compounds do you find an ionic bond?

CH_4

$HC_2H_3O_2$

OF_2

SO_2

K_2CO_3

~~127~~
12 How many atoms in 2 $C_6H_{12}O_6$

~~128~~ 48

~~129~~ 32

~~130~~ 48

13 When Ba metal reacts with oxygen the compound formula is BaO. $2Ba + O_2 \rightarrow 2BaO$

~~131~~ 42
14 Compound formula for aluminum reacted with sulfur.

Al_2S_3

~~132~~ 42
15 Formula for sulfur dioxide

SO_2

~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ 18
choose the separation methods
for a homogeneous mixture:

filtration

Decanting

TLC

distillation

~~60~~ ~~5~~ ~~17~~ ~~18~~ 19

which two elements are most
similar?

P Cl Mg Sb Kr

(P, Sb) ← same group

~~18~~ ~~19~~ ~~20~~ 20

what is the charge on an element with
85 protons and 86 electrons?

(-1)

~~Q1~~ 21

calculate Z_{eff} for C valence e^-

$$Z_{\text{eff}} = 6 - 2 = \textcircled{4}$$

~~Q2~~ 22

use Z_{eff} to explain why

F has a higher IE than Be,
 Calc required

Z_{eff} F is +7

Z_{eff} Be is +2

F has a higher attraction for its e^- $+7 > +2$

~~Q3~~ 23

Circle the 2 factors that control the size of an element.

Nuclear charge + core e^-

Nuclear charge + Z_{eff}

Nuclear charge + valence e^-

24 ~~24~~
A) write EC for ~~24~~

~~13~~ B $1s^2 2s^2 2p^1$
~~13~~ C $1s^2 2s^2 2p^2$
~~13~~ P $1s^2 2s^2 2p^6 3s^2 3p^3$
S $1s^2 2s^2 2p^6 3s^2 3p^4$
Cl $... 3s^2 3p^5$
Ar $... 3s^2 3p^6$

~~13~~ write the EC for the atom in
period 2, group 2A $1s^2 2s^2$ Be

~~9~~ EC for ~~24~~ ~~24~~ 26

Sc $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^1$
²⁴ Cr $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^5$
Fe $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^6$
Cu $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^{10}$
Zn $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10}$

~~15~~ ~~10~~ ~~24~~ 25

Determine the # of core e⁻

~~17~~ for Br. ³⁵Br 7 valence

$$35 - 7 = 28e^-$$

~~11~~ ~~4~~ 26

Determine the core e⁻ for

³²Ge. Ge 32 - 4 = 28

~~17~~ ~~2~~ 27

Determine the core e⁻ for

¹⁵P. P 15 - 5 = 10e⁻

~~17~~ 28

Calculate the core e⁻ Si

¹⁴Si 1s²2s²2p⁶3s²3p²

10e⁻

~~17~~ 29

Calculate the core e⁻ for K

1s²2s²2p⁶3s²3p⁶4s¹

core

18e⁻

Balance the following combustion rxns between the indicated hydrocarbon and

oxygen

19 1,5 → 3,4



Calculate the total mass of C in

5g $HC_2H_3O_2$.

$$\%C = \frac{24}{60} = 0.4 \times 5g = 2g$$

Rank Sr, Cd, Tc, Zr according to size.
Use arrows and words

Sr Zr Tc Cd
big ← → small

30

Covalent or Ionic

HBr C

CaCl_2 I

CH_4 C

KMnO_4 I

H_2SO_4 C

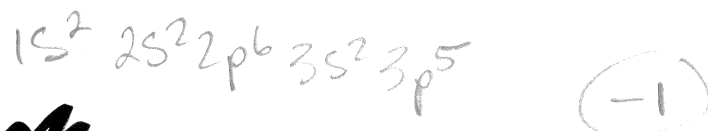
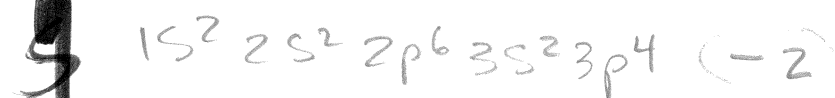
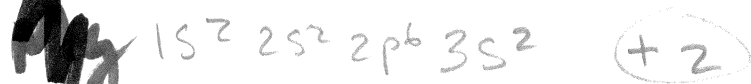
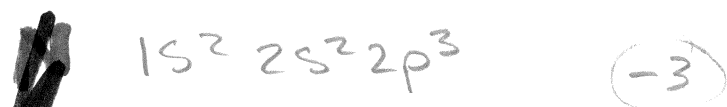
KCN I

C_2H_4 C

31

~~22~~

Given the following EC's predict the charge on the ion that will form.



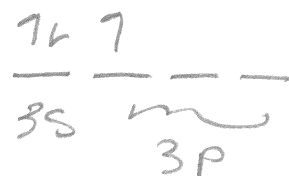
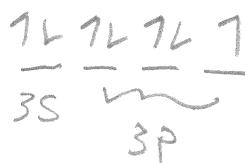
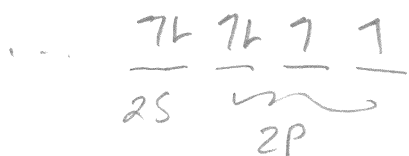
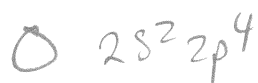
10 which atom of each pair is larger? ~~22~~ 32



~~11~~ write the outer valence CD for



~~Q~~ write OD of outer valence:



⑥ which element ionizes more easily, Zn or Al? why?

Zn. Because Al required heating in HCl soln for longer period.

⑦ what was the primary evidence that calcium ionizes more easily than magnesium?

Ca reacted in dH_2O

Mg did not react with H_2O .

33

~~Q~~ Based on periodic trends, rank the following elements based on big to small using an arrow and words.

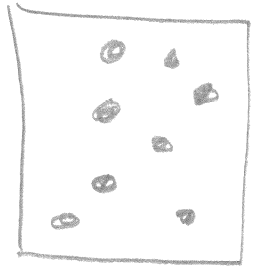
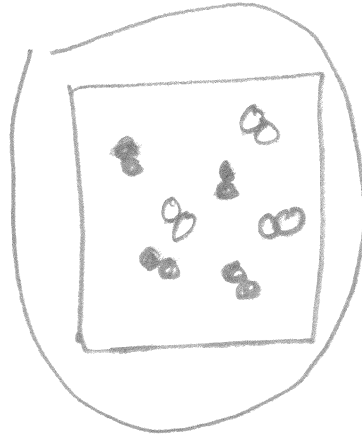
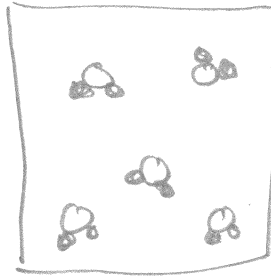
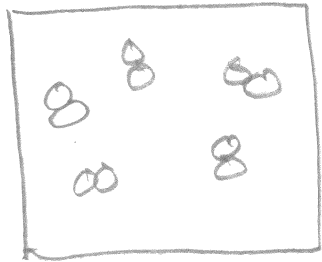
Pollonium, Oxygen, Sulfur, Telerium

(small O, S, Te, Po big)

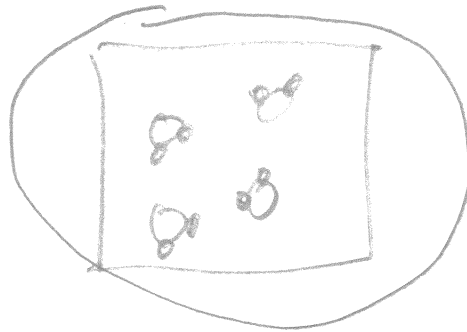
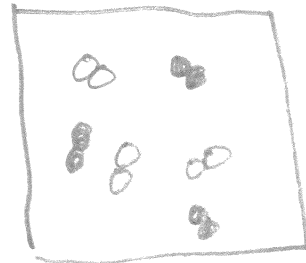
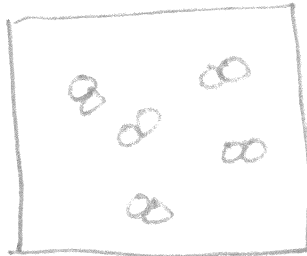
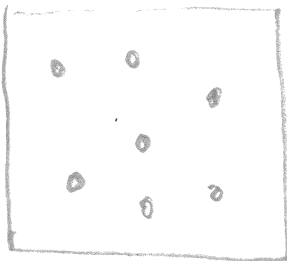
34



Identify the mixture by drawing the box on your board.



Identify the compound:



White Board : chem 7

~~14~~ EC of: $3s^3p^3$ $4s^23d^2$ P, Ti, O, F, Ar

(2) OD of $\xrightarrow{24} 4s^13d^5$
P, Cr, B, C, Ne

~~14~~ ~~6A~~ when Li reacts with water, the solution formed is basic because it contains OH^- which is a strong base.

~~14~~ ~~35~~ Out of the following elements, which two have the closest diameter?

Na, P, Ar, (Mn, Fe)

~~14~~ ~~35~~ It's easier to remove an e^- from?
C, (Ge)