SNC2D CHEMISTRY: SAFETY SYMBOLS, MATTER & ATOMIC REVIEW QUIZ#1

{2} 1. What do the following acronyms stand for?

(a) WHMIS _____

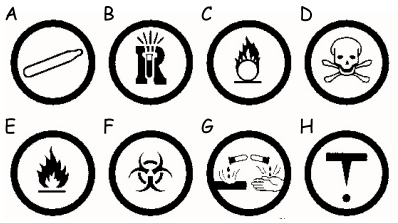
(b) HHPS _____

{2} 2. Why is it necessary to have a system like WHMIS in the workplace. How does it benefit the employee or employer?

_____

_____

{4} 3. Match up the following WHMIS descriptions and symbols (see example).



___ oxidizing material
___ dangerously reactive material
___ compressed gas
___ biohazardous infectious material
H poisonous and infectious material causing other toxic effects

{6} 4. For each HHPS symbol indicate (a) why and (b) to what degree a product is dangerous (see example).

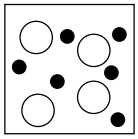
SYMBOL				
WHY?	Poisonous			
DEGREE?	Danger			

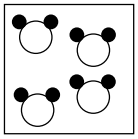
{5} 5. Match the definition from the 1st column to the best term in the 2nd column and place the matching letter in the space provided below.

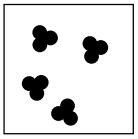
___ Mixture that has two or more visible parts or phases.
___ Pure substance that is made of atoms.
___ Anything that has mass and takes up space.
___ Mixture that only has one visible part or phase.
___ Pure substance that is made of molecules (ie combinations of atoms).

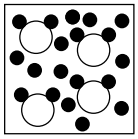
(A) compound
(B) ductile
(C) element
(D) heterogeneous mixture
(E) homogeneous mixture
(F) matter

{4} 6. Identify the following diagrams as an (E) element, (C) compound, or a (M) mixture.

①  ___

②  ___

③  ___

④  ___

{8} 7. Complete the following chart (see example).

	salt ($NaCl$)	hydrochloric acid (HCl)	hydrogen gas (H_2)	carbon dioxide (CO_2)	Gold (Au)
atom/molecule?	M				
element/compound?	C				

{6} 8. List (a) 3 categories of physical properties and (b) 3 clues that a chemical change has happened (see example).

#	PHYSICAL PROPERTY
X	▸ hardness
①	
②	
③	

#	CHEMICAL PROPERTY
X	▸ a new colour appears
①	
②	
③	

{4} 9. Indicate whether each of the following changes is a (P) physical change or a (C) chemical change.

_____ a car rusting

_____ sugar dissolving in a cup of hot water

___ garbage rotting

___ ice melting

{3} 10. Complete the following chart that compares the subatomic particles.

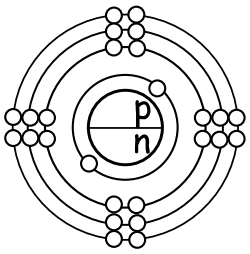
Particle	Relative Mass	Charge	Location
proton			
neutron			
electron			

{6} 11. Indicate the element and the # of atoms of that element present in the following molecule.

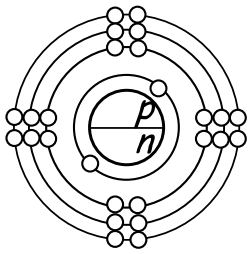
Na_2CO_3	#
Na -	
C -	
O -	

{6} 12. Use the diagrams below to draw B-R (Bohr-Rutherford) diagrams for the following elements:

(a) $^{24}_{12}Mg$



(b) $^{32}_{16}S$



{6} 13. Use the information below to complete the chart.

Element	Symbol	Atomic #	Mass #	# p's	# e's	# n's
argon		18	40			
sodium			23	11		
oxygen					8	8

{6} 14. Express each of the atoms from question #13 in standard atomic notation (ie the $^{A}_{Z}X$ format).

argon	sodium	oxygen

{2} 15. Draw Lewis (electron-dot) diagrams for each of the following elements.

(a) Silicon

Si

(b) Boron

B

{4} 16. Describe the chemical tests (and the results) that can be used to identify the following (see example).

GAS	TEST	RESULTS
water vapour	cobalt chloride test paper	changes from blue to pink
carbon dioxide gas		
oxygen gas		

{9} For questions 17→25 fill in the ❍ of the best choice.

17. Ions of elements:
- ❍ are always charged either positive or negative
- ❍ have an overall positive charge
- ❍ are neutral overall
- ❍ have an overall negative charge

18. The atomic number of an element tells you:
- ❍ the number of protons in its shells
- ❍ the number of electrons its nucleus
- ❍ the number of neutrons in its nucleus
- ❍ the number of electrons in its shells

19. Which line gives the correct number of protons, neutrons and electrons in an atom of phosphorus $^{31}_{15}P$?
- ❍ 16, 31, 15
- ❍ 16, 15, 31
- ❍ 15, 15, 16
- ❍ 15, 16, 15

20. The mass number of an atom is the number of
- ❍ protons in the nucleus
- ❍ neutrons in the nucleus
- ❍ protons and neutrons together
- ❍ all the particles in the atom

21. Atoms of different elements must have
- ❍ different mass numbers
- ❍ the same number of neutrons in their nuclei
- ❍ different numbers of protons in their nuclei
- ❍ the same number of electrons in their orbits

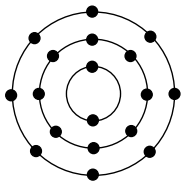
22. How many neutrons are there in an atom of sodium $^{23}_{11}Na$?
- ❍ 11 ❍ 12 ❍ 23 ❍ 34

23. If a neutral atom of an element has 14 electrons and 19 neutrons, its atomic number is
- ❍ 5 ❍ 14 ❍ 19 ❍ 33

24. How many subatomic particles are there in a "normal" fluorine atom $^{19}_{9}F$?
- ❍ 9 ❍ 10 ❍ 19 ❍ 28

25. How many electrons are in the 1st, 2nd, and 3rd shell for an atom with a total of 13 electrons?
- ❍ 2,3,8 ❍ 8,2,3 ❍ 3,8,2 ❍ 2,8,3

{6} 26. The Bohr diagram to the right could represent the electronic structure of a noble gas or a stable ion. What would be the (a) chemical symbol and (b) ionic charge if the nucleus of the atom contained:



	# protons in nucleus		
	17	18	20
chemical symbol			
ionic charge			

{9} 27. Complete the following table.

	# protons	# electrons	# neutrons
K			
N^{3-}			
Li^{1+}			

{3} 28. Atoms and ions are isoelectronic if they have the same number of electrons. What is the chemical symbol of the noble gas that is isoelectronic with each of the following stable ions (ie when they lose/gain electrons what is the name of the noble gas that their electron structure now resembles).

(a) Ca^{2+} ____ (b) Na^{1+} ____ (c) S^{2-} ___