PART A: MULTIPLE CHOICE (10 MARKS)

Choose the best response in each case and place your answer in the appropriate space on your answer sheet.

1. Atoms of elements:
   (a) are always charged either positive or negative.
   (b) have an overall positive charge.
   (c) have an overall negative charge.
   (d) are neutral overall.

2. The atomic number of an element tells you:
   (a) the number of protons in its nucleus.
   (b) the number of protons in its shells.
   (c) the number of neutrons in its nucleus.
   (d) the number of electrons in its nucleus.

3. The mass number of an atom is the number of:
   (a) protons in the nucleus.
   (b) neutrons in the nucleus.
   (c) protons and neutrons together.
   (d) all the particles in the atom.

4. Atoms of different elements must have:
   (a) the same number of neutrons in their nuclei.
   (b) different numbers of protons in their nuclei.
   (c) the same number of electrons in their orbits.
   (d) different mass numbers.

5. Which line gives the correct number of electrons, protons, and neutrons in an atom of aluminum $^{27}_{13}Al$?
   (a) 13, 13, 14 (b) 14, 27, 13
   (c) 13, 14, 13 (d) 14, 13, 27

6. How many subatomic particles are in an atom of fluorine $^{19}_{9}F$?
   (a) 9 (b) 10
   (c) 19 (d) 28

7. If a neutral atom of an element has 19 electrons and 14 neutrons, its atomic number is:
   (a) 5 (b) 14
   (c) 19 (d) 33

8. How many neutrons are in a sodium atom $^{23}_{11}Na$?
   (a) 11 (b) 12
   (c) 23 (d) 34

9. How many electrons are in the 3rd, 2nd, and 1st shell for an atom with a total of 15 electrons?
   (a) 2,8,5 (b) 8,2,5
   (c) 2,5,8 (d) 5,8,2

10. An atom becomes an ion with a charge of 2- when it:
    (a) gains 2 electrons
    (b) loses 2 neutrons
    (c) gains 2 protons
    (d) loses 2 electrons

PART B: MATCH (5 MARKS)

Match the definition from the 1st column to the best term in the 2nd column and place the matching letter in the appropriate space on your answer sheet.

1. Process used to break water down into hydrogen and oxygen.
2. Abbreviation for the name of an element.
3. State of an electron when it jumps to a higher orbit.
4. Drawing used to help understand how a molecule forms.
5. Atom that has become charged by gaining or losing electrons.

A) chemical formula
B) chemical symbol
C) combining capacity
D) electrolysis
E) energy level
F) excited state
G) ground state
H) ion
I) precipitate
J) structural diagram

SNC1D CHEMISTRY: ATOMIC STRUCTURE QUIZ#3

PART A: MULTIPLE CHOICE (10 MARKS)

1	2	3	4	5	6	7	8	9	10

PART B: MATCH (5 MARKS)

1	2	3	4	5

PART C: SHORT ANSWER (60 MARKS)

Answer the following questions in the space provided. If more space is needed, use the back of this sheet.

{4} 1. 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
oxygen gas		
hydrogen gas		

{9} 2. Complete the following chart that compares the subatomic particles.

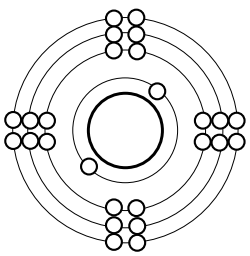
	Relative Mass	Charge	Location
Proton			
	0		
		0	

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

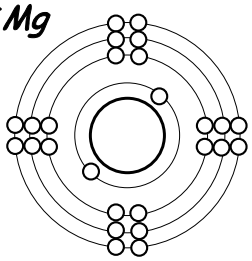
Na_2CO_3	#
Na -	
C -	
O -	

{6} 4. Use the diagrams below to draw B-R diagrams for the following elements:

(a) $^{19}_{9}F$



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



{15} 5. Complete the chart below using the information given.

Element	Symbol	Atomic #	Mass #	# p's	# e's	# n's
argon		18	40			
sodium			23	11		
oxygen				8		8
???????		50				10

{6} 6. Express the first 3 atoms from question #5 in standard atomic notation. ($^{A}_{Z}X$ format)

argon	sodium	oxygen

{4} 7. Use the following info to help draw structural diagrams for: (a) O_2 (b) NH_3

ATOM	# OF CONNECTIONS
hydrogen	1
oxygen	2
nitrogen	3
carbon	4

8. For each compound below use the info given in the tables to write the:

{2} ① name,

{4} ② formula and

{4} ③ structural diagram

Metals		
Element	Symbol	Combining capacity
aluminum	Al	3
sodium	Na	1

Nonmetals			
Element	Symbol	Combining capacity	Combined name
fluorine	F	1	fluoride
oxygen	O	2	oxide

Hint: use the info in the tables above to help answer this question!

	(a) sodium & fluorine	(b) aluminum & oxygen
name		
formula		
structural diagram		