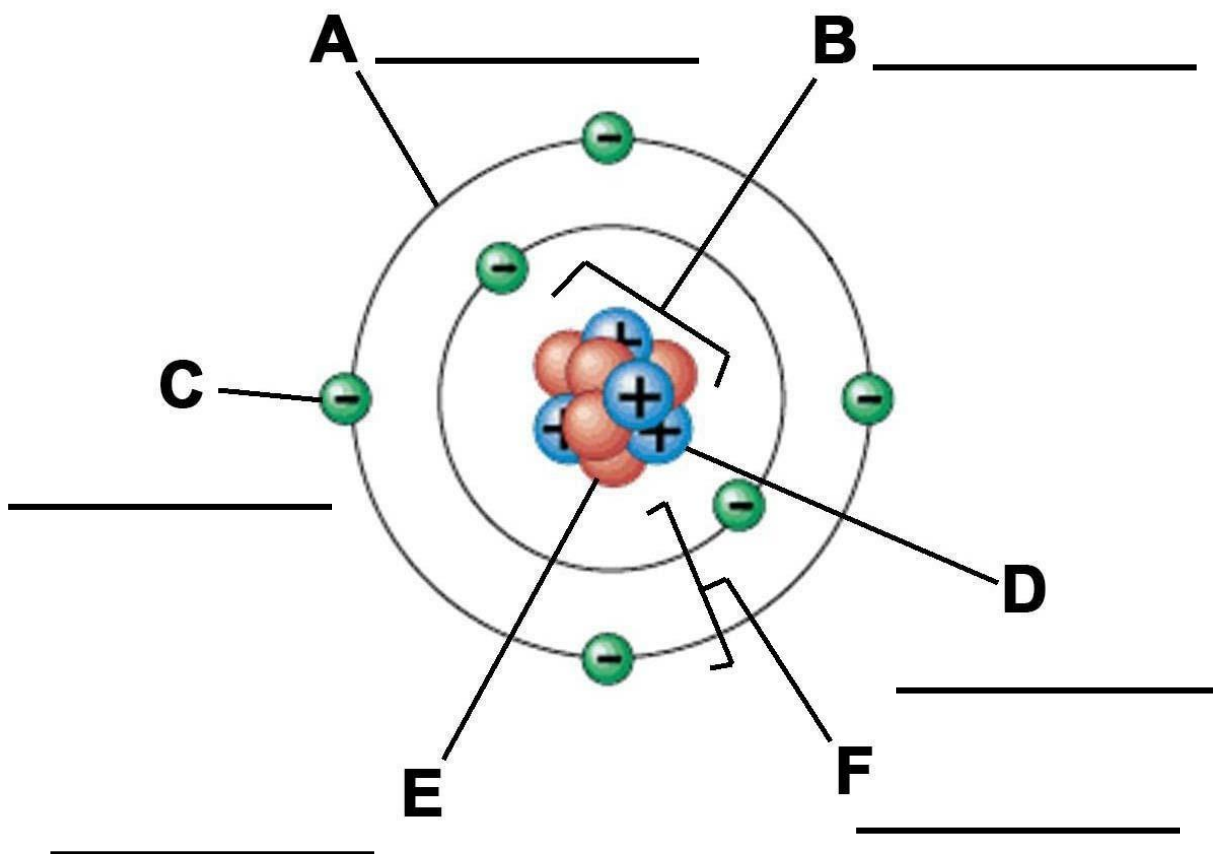


1) Label the parts of the atom below:

/6



2) Chemical X has 17 positively-charged molecules within its nucleus, and has 18 negatively-charged molecules orbiting the electron.

/6

- a. Identify the element associated with Chemical X: _____
- b. Identify by circling whether Chemical X is an: ATOM / ION / ISOTOPE
- c. Draw the Lewis Dot Diagram and a Bohr Diagram of Chemical X Below:

3) Write the formulas of the following compounds, and label C for covalent and I for Ionic. /10

- a. Strontium nitride: _____
- b. Dichlorine monoxide: _____
- c. Sulfur trioxide: _____
- d. Potassium selenide: _____
- e. Silver dichromate: _____
- f. Carbon tetraiodide: _____
- g. Tantalum chromate: _____
- h. Diiodine hexabromide: _____
- i. Rubidium cyanide: _____
- j. Pentagermanium heptaantimonide: _____

4) Name the following compounds, and label C for covalent and I for Ionic. /10

- a. $(\text{NH}_4)_2\text{S}$: _____
- b. V_4MnO_4 : _____
- c. XeO_3 : _____
- d. P_4O_{10} : _____
- e. SrAt : _____
- f. PbO_2 : _____
- g. $\text{Si}(\text{CO}_3)_2$: _____
- h. $\text{NH}_4\text{CH}_3\text{COO}$: _____
- i. NaHCO_3 : _____
- j. Hg_2SO_3 : _____

5) Balance the equations, predict reactants & products, and determine the reaction type: /10



6) In a combustion reaction, such as the example below, fuel is reacted with oxygen to produce carbon dioxide and water. However, we do not see liquid water produced during the reaction, so where did the H₂O molecules go? /2

7) Can protons participate in chemical reactions? Why or why not? /2

8) Discuss similarities and differences between covalent bonding and ionic bonding. Which is stronger, ionic bonding or covalent bonding? Explain. /4

Data and Formula Sheets

Names, Formulas, and Charges of Some Polyatomic Ions							
Positive Ions		Negative Ions					
NH_4^+	ammonium	CH_3COO^-	acetate	HCO_3^-	bicarbonate	NO_2^-	nitrite
		CO_3^{2-}	carbonate	HSO_4^-	bisulfate	NO_3^-	nitrate
		ClO_3^-	chlorate	HS^-	bisulfide	MnO_4^-	permanganate
		ClO_2^-	chlorite	HSO_3^-	bisulfite	PO_4^{3-}	phosphate
		CrO_4^{2-}	chromate	OH^-	hydroxide	PO_3^{3-}	phosphite
		CN^-	cyanide	ClO^-	hypochlorite	SO_4^{2-}	sulfate
		$\text{Cr}_2\text{O}_7^{2-}$	dichromate	ClO_4^-	perchlorate	SO_3^{2-}	sulfite

Types of reactions:

Synthesis

Decomposition

Single Replacement

Double Replacement

Acid-Base Neutralization

Combustion

Prefixes Used in Naming Binary Covalent Compounds	
mono-	1
di-	2
tri-	3
tetra-	4
penta-	5
hexa-	6
hepta-	7
octa-	8
nona-	9
deca-	10