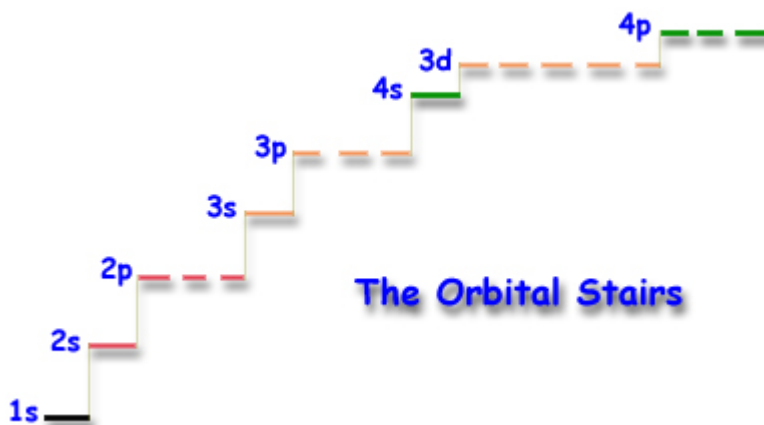


The Periodic Table

H 1 1.01																			He 2 4.00
Li 3 6.94	Be 4 9.01											B 5 10.81	C 6 12.01	N 7 14.01	O 8 16.00	F 9 19.00	Ne 10 20.18		
Na 11 22.99	Mg 12 24.31											Al 13 26.98	Si 14 28.09	P 15 30.97	S 16 32.07	Cl 17 35.45	Ar 18 39.95		
K 19 39.10	Ca 20 40.08	Sc 21 44.96	Ti 22 47.88	V 23 50.94	Cr 24 52.00	Mn 25 54.94	Fe 26 55.85	Co 27 58.93	Ni 28 58.69	Cu 29 63.55	Zn 30 65.39	Ga 31 69.72	Ge 32 72.61	As 33 74.92	Se 34 78.96	Br 35 79.90	Kr 36 83.80		
Rb 37 85.47	Sr 38 87.62	Y 39 88.91	Zr 40 91.22	Nb 41 92.91	Mo 42 95.94	Tc 43 (97.9)	Ru 44 101.07	Rh 45 102.91	Pd 46 106.42	Ag 47 107.87	Cd 48 112.41	In 49 114.82	Sn 50 118.71	Sb 51 121.76	Te 52 127.60	I 53 126.90	Xe 54 131.29		
Cs 55 132.91	Ba 56 137.33	La 57 138.91	Hf 72 178.49	Ta 73 180.95	W 74 183.85	Re 75 186.21	Os 76 190.2	Ir 77 192.22	Pt 78 195.08	Au 79 197.97	Hg 80 200.59	Tl 81 204.38	Pb 82 207.2	Bi 83 208.98	Po 84 (209)	At 85 (210)	Rn 86 (222)		
Fr 87 223.02	Ra 88 226.03	Ac 89 227.03	Rf 104 (261)	Db 105 (262)	Sg 106 263	Bh 107 (262)	Hs 108 (265)	Mt 109 (266)	Ds 110 (271)	Rg 111 (272)	Uub 112 (285)	Uut 113 (284)	Uuq 114 (289)	Uup 115 (288)					

Ce 58 140.12	Pr 59 140.91	Nd 60 144.24	Pm 61 (145)	Sm 62 150.36	Eu 63 152.97	Gd 64 157.25	Tb 65 158.93	Dy 66 162.50	Ho 67 164.93	Er 68 167.26	Tm 69 168.93	Yb 70 173.04	Lu 71 174.97
Th 90 232.04	Pa 91 231.04	U 92 238.03	Np 93 237.05	Pu 94 (240)	Am 95 243.06	Cm 96 (247)	Bk 97 (248)	Cf 98 (251)	Es 99 252.08	Fm 100 257.10	Md 101 (257)	No 102 259.10	Lr 103 262.11



Some Useful (maybe) Constants:

- 1 amu = $1.661 \times 10^{-24} \text{g}$

SID

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Last _____ First _____

Question 1 How many **significant figures** are there in each of the following numbers?

6 Points

- a. 57.4 _____ c. 13.40×10^3 _____
 b. 0.065 _____

Question 2 a. When **36.456** is added to **74.2**, the result should be reported to how many decimal places? _____

4 Points

b. The number **26.71560...** rounded to **4** significant figures is: _____

Question 3 The density of whole blood at **37°F** is **1.06 g.cm⁻³**. What is the mass, in grams of a **15.0 cm³** sample of blood? _____

4 Points

Show work.

9

Question 4 Give the correct **formula** for the following **polyatomic ions**:

8 Points

- a. **Nitrite** _____
 b. **Nitride** _____
 c. **Carbonate** _____
 d. **Permanganate** _____

Question 5 Which of the following applies to the **proton**?

4 Points

- mass $\sim 9.109 \times 10^{-28}$ g charge = -1
 charge = 0 charge = +1
 mass $\sim 1.673 \times 10^{-24}$ g

Question 6 How many **protons, neutrons and electrons** are there in **⁴⁰Ca²⁺** ?

6 Points

Protons**Neutrons****Electrons**

Question 7 The following questions pertain to the periodic table given at the front of this exam:

8 Points

- a. The **symbol** for the **noble gas** in **period 3**? _____
 b. The **symbol** for the **group IB, period 4** element? _____
 c. The **symbol** for the **heaviest alkali earth metal** is? _____
 d. The **d block elements** are also known as: _____

Question 8
8 Points

1. **Name** the compound with the formula Na_2CrO_4 ? _____
2. **Name** the compound with the formula Fe_2CO_3 ? _____
3. What is the **formula** for **magnesium phosphide**? _____
4. What is the **formula** for **iron(II) nitrate**? _____

Question 9
5 Points

A certain element consists of two stable isotopes:

	Exact Mass (amu)	Abundance (%)
#1	120.9038	57.25
#2	122.9041	42.75

What is the atomic weight of this element?

Give answer to 5 significant figures.

Show Work

amu

Question 10
5 Points

How many **moles** of N_2O_4 molecules are present in a sample that contains **5.52** moles of **nitrogen atoms**?

Show Work

moles

Question 11
6 Points

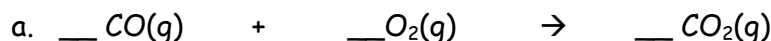
How many **moles** of dinitrogen tetrafluoride, N_2F_4 , are present in **2.61 grams** of this compound?

Show Work

moles

Question 12
6 Points

Balance the following chemical equations using the **smallest possible integer coefficients**.

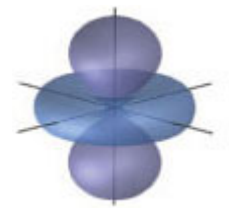
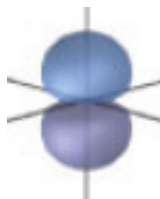
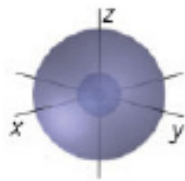


b. For the **complete oxidation** reaction that occurs when **ethanol** ($\text{C}_2\text{H}_5\text{OH}$) burns in air.

c. When **phosphorus** (P_4) reacts with **chlorine**, **phosphorus trichloride** is formed.

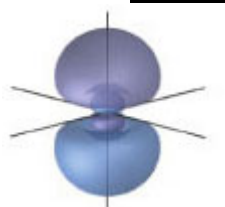
Question 13 Label the following orbital drawings as **s**, **p**, **d** or **f**.

6 Points



Question 14

3 Points



The orbital depicted on the left is **not**:

2p

1s

3d

(Circle those that apply)

3p

Question 15

3 Points

How many **types** of orbitals are there in the shell with $n = 4$ in an atom? _____

Question 16

10 Points

1. Write the **complete** electronic configuration for **chlorine**? _____

2. Write the **noble gas** configuration for **nickel**, (Ni)? _____

3. The **element** with an **electron configuration** of $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^5$ _____

4. **Po**, $[Xe]6s^2 5d^{10} 4f^{14} 6p^4$, has how many **valence electrons**? _____

5. The **element** in **period 3** that has the **Lewis diagram**,  _____

Question 17

4 Points

Using only the periodic table **arrange** the following elements in order of **increasing atomic radius**: **Ga, N, Si, F**

Smallest

Largest

Question 18

4 Points

Using only the periodic table **arrange** the following elements in order of **decreasing ionization energy**: **S, Ca, Al, Mg**

Highest

Lowest

Exam I Score