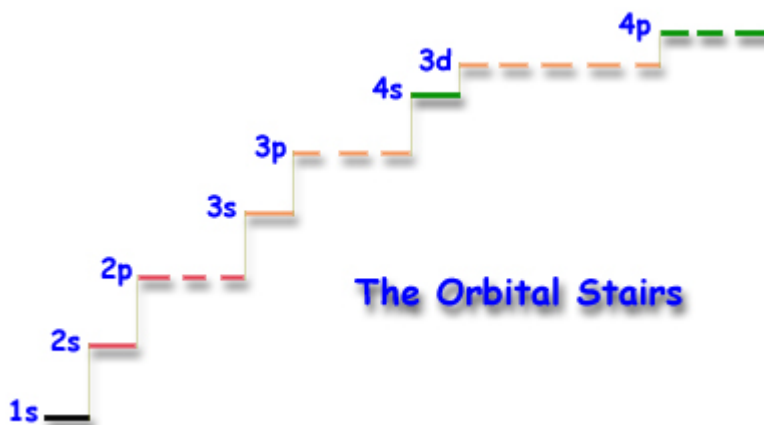


The Periodic Table

<i>IA</i> H 1 1.01																	<i>VIIIA</i> He 2 4.00
<i>IIA</i> Li 3 6.94	Be 4 9.01											<i>IIIA</i> B 5 10.81	<i>IVA</i> C 6 12.01	<i>V A</i> N 7 14.01	<i>VIA</i> O 8 16.00	<i>VIIA</i> F 9 19.00	Ne 10 20.18
Na 11 22.99	Mg 12 24.31	<i>IIIB</i>	<i>IVB</i>	<i>VB</i>	<i>VIB</i>	<i>VII B</i>	<i>VIII B</i>	<i>VIII B</i>	<i>VIII B</i>	<i>IB</i>	<i>IIB</i>	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



SID

Last _____ First _____

Question 1
10 Points

- How many **significant figures** are there in each of the following numbers?
 - 0.0703** _____
 - 241.9** _____
- When **18.44** is added to **36.1**, the result should be reported with ___ digit(s) after the decimal point.
- When **18.44** is multiplied by **36.1**, the answer should be reported to _____ significant digit(s).
- There are **12** eggs in a dozen. If a farmer's chickens produce an average of **524** dozen eggs in a month, how should the average number of eggs per month be reported? _____

Question 2
3 Points

MAIN QUESTION	Question
	Carry out the following calculation and report the answer in the correct number of significant figures.
	$(168) \left[\frac{23.56 - 2.3}{1.248 \times 10^3} \right] =$
	Answer
	<input style="width: 100px; height: 20px;" type="text"/>

Question 3
8 Points

Give the correct name for the following polyatomic ion.

- | | |
|--|---|
| a. ClO_2^- _____
c. SO_3^{2-} _____ | b. SO_4^{2-} _____
d. NO_3^- _____ |
|--|---|

Question 4
3 Points

QUESTION 2 OF 5	ANSWER
A nucleus has 19 protons and 20 neutrons. Fill in the three blanks to complete the atomic symbol.	<div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px;"></div> </div>

Question 5
4 Points

Gallium has two naturally occurring isomers:

	Exact Mass (amu)	Abundance
^{69}Ga	69.925581	60.10
^{71}Ga	70.924701	39.90

What is the **average atomic mass** of Gallium? Give answer to **6 decimal places**.

Average atomic mass:

Question 6 The following questions pertain to the periodic table given at the front of this exam:

10 Points

- a. Element 22 belongs to which **group**? _____
- b. Element 22 belongs to which **period**? _____
- c. Element 22 is one of the _____ **metals**.
- d. The **symbol** for the **lightest Alkali Earth Metal** is? _____
- e. The **name** of the **diatomic element** in **period 3**. _____

Question 7

8 Points

- a. What is the **formula** for **magnesium sulfide**? _____
- b. **Name** of the compound with the formula CaCO_3 ? _____
- c. What is the **formula** for **ammonium iodide**? _____
- d. **Name** of the compound with the formula Cu_3PO_4 ? _____

Question 8

4 Points

QUESTION	ANSWER
QUESTION A sample of cinnamaldehyde, $\text{C}_9\text{H}_8\text{O}$, contains 0.168 mol of the compound. What is the mass of this sample, in grams?	ANSWER <input style="width: 100px; height: 20px;" type="text"/> g

Question 9

6 Points

How many **moles** of **nitrate ions** are present in a sample that contains **2.88** moles of magnesium nitrate, $\text{Mg}(\text{NO}_3)_2$?
[Must Show Work]

Moles of NO_3^-

Question 10

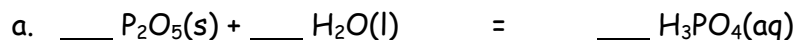
8 Points

How many **grams** of Co^{2+} are present in **1.59** moles of $\text{Co}_3(\text{PO}_4)_2$?
[Must Show Work]

Grams of Co^{2+}

Question 11
6 Points

1. Balance the following molecular equations using the **smallest possible integer coefficients**.

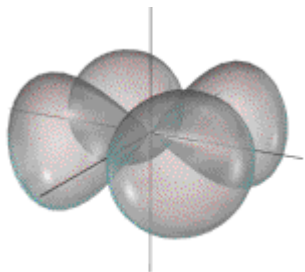


2. Write a balanced equation for the reaction described, using the **smallest possible integer coefficients**.

When **iron** reacts with **oxygen**, **iron(II) oxide** is formed.

Question 12
8 Points


1. How **many** orbitals are there in the shell with $n = 4$ in an atom? _____
2. The maximum number of electrons possible in a set of **4s orbitals** is? _____
3. The orbital depicted directly below is what **type of orbital**? _____



4. The **2s** orbital is _____ than the **3s** orbital.

Question 13
14 Points

1. Write the **electron configuration** for the **chlorine** atom: _____.
2. Write the **electron configuration** for the **calcium** atom: _____.
3. Write the **Noble Gas configuration** for **iron**: _____.

4.  The Lewis diagram represents the **valence electron configuration** of a main-group element. This element is in **group**: _____
5. The element with an electron configuration of $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^3$ is in **group** _____ and **period** _____.
6. **Carbon** has _____ **valence electrons**.

Question 14
4 Points

- Rank the following elements, from 1-4 with 1 being the **smallest**, according to **atomic size**.

_____ C

_____ O

_____ Be

_____ Ca

Question 15 Rank the following elements, from 1-4 with 1 being the **smallest**, according to **ionization energy**.
4 Points

_____ C

_____ O

_____ Be

_____ Ca

Exam I Score