Conversion Factors: $\mu = 10^{-6}$, m = 10^{-3}, c = 10^{-2}, k = 10^{3}.
1 kg = 2.205 pounds, 2.54 cm = 1 in, 12 inches = 1 ft.

SHOW ALL WORK TO RECEIVE CREDIT

1. (6 Pts) A certain medication calls for a dosage of 1.0 μL for each kilogram of body weight. If a patient weighs 193 pounds, how many μL of medication should his dosage contain?

$$\frac{193 \text{ lbs}}{} \left| \frac{1 \text{ kg}}{2.205 \text{ lbs}} \right| \frac{1.0 \mu L}{kg} = 87.5 \mu L$$

2. (9 Pts) Complete the following table.

Element or ION	No. of protons	No. of electrons	No. neutrons
$^{15}N^{3-}$	7	10	8
^{55}Fe	26	26	29
^{37}Cl	17	17	20

3. (3 Pts) State which member the alkali metal group Li, Na, K, Rb, or Cs is most reactive and then explain why.

Cs   each metal is in the same group.
Cs is the largest (period~6), so it loses e⁻'s
most easily.

4. (3 Pts) State which member of the Halogen family is most reactive and explain why.

F   smallest halogen (non-metal) gains e⁻'s most
easily.

5. (4 Pts) A rectangular room measures 12 ft 3inches by 7 ft. Determine its area in cm^2.

$A = l \cdot w$

$$l = \frac{12 \text{ ft}}{} \left| \frac{12 \text{ in}}{1 \text{ ft}} \right. + 3 \text{ in} = \underline{147 \text{ in}}$$

$$w = \frac{7 \text{ ft}}{} \left| \frac{12 \text{ in}}{1 \text{ ft}} \right. = 84 \text{ in}$$

$$\frac{147 \text{ in}}{} \left| \frac{2.54 \text{ cm}}{1 \text{ in}} \right| \frac{84 \text{ in}}{} \left| \frac{2.54 \text{ cm}}{1 \text{ in}} \right. = 79664 \text{ cm}^2$$

$$= 80000$$

Conversion Factors: $\mu = 10^{-6}$, $m = 10^{-3}$, $c = 10^{-2}$, $k = 10^{3}$.
1 kg = 2.205 pounds. 2.54 cm = 1 in, 12 inches = 1 ft.

SHOW ALL WORK TO RECEIVE CREDIT

1. (6 Pts) A certain medication calls for a dosage of 2.0 μL for each kilogram of body weight. If a patient weighs 163 pounds, how many μL of medication should her dosage contain?

$$\frac{163\,lbs}{} \left| \frac{1\,kg}{2.205\,lbs} \right| \frac{2.0\,\mu L}{kg} = 147.8\,\mu L$$

2. (9 Pts) Complete the following table.

Element or ION	No. of protons	No. of electrons	No. neutrons
$^{14}N^{3-}$	7	10	7
^{56}Fe	26	26	30
^{35}Cl	17	17	18

3. (3 Pts) State which member the alkali metal group Li, Na, K, Rb, or Cs is least reactive and then explain why.

Li is the smallest of this group of metals therefore it is harder to remove an e^-.

4. (3 Pts) State which member of the Halogen family is most reactive and explain why.

F smallest halogen (non-metal) gains e^-s most easily.

5. (4 Pts) A rectangular room measures 10 ft 4 inches by 9 ft. Determine its area in cm^2.

$A = \ell \cdot w$

$\ell = \dfrac{10\,ft}{} \left| \dfrac{12\,in}{1\,ft} \right. + 4\,in = 124\,in$

$w = \dfrac{9\,ft}{} \left| \dfrac{12\,in}{1\,ft} \right. = 108\,in$

$\dfrac{124\,in}{} \left| \dfrac{2.54\,cm}{1\,in} \right| \dfrac{108\,in}{} \left| \dfrac{2.54\,cm}{in} \right. = 86399\,cm^2$

$90000\,cm^2$