Exam:

ch 18 - electrochem 40 pts.

ch 19 - nuclear 34 pts

ch 11 - solids, liquids, gases - 26 pts

good luck!

Review:

^{36}Cl $t_{1/2} = 3 \times 10^5$ yr $\Rightarrow$ 1.58×10^{11} min

rate = $k \cdot n$ ← amount (moles)

$t_{1/2} = \frac{0.693}{k}$

$k = \frac{0.693}{t_{1/2}} = 4.39 \times 10^{-12}\ min^{-1}$

$$rate = (4.39 \times 10^{-12}\ min^{-1})\left(\frac{5.0\ mg\ ^{36}Cl}{} \cdot \frac{1\ g}{1000\ mg} \cdot \frac{1\ mol\ Cl}{36\ g\ Cl} \cdot \frac{6.02 \times 10^{23}\ atoms}{mol}\right)$$

rate = 3.7×10^8 atoms/min

in 1 minute: 3.7×10^8 atoms

*when thinking about ratio of cations to anions you have to consider how many atoms are in the unit cell, for example a simple cube have only 1 ~~atom~~ anion in the unit cell (8 atoms $\times \frac{1}{8}$ (in cell) = 1 atom/cell). If then the cation occupies the body center (1 atom/unit cell) then the ratio is 1:1 even if it "seems" like there are more anions

Network covalents: sheets of Carbon atoms

- have huge molar masses
- all solids

high melting points

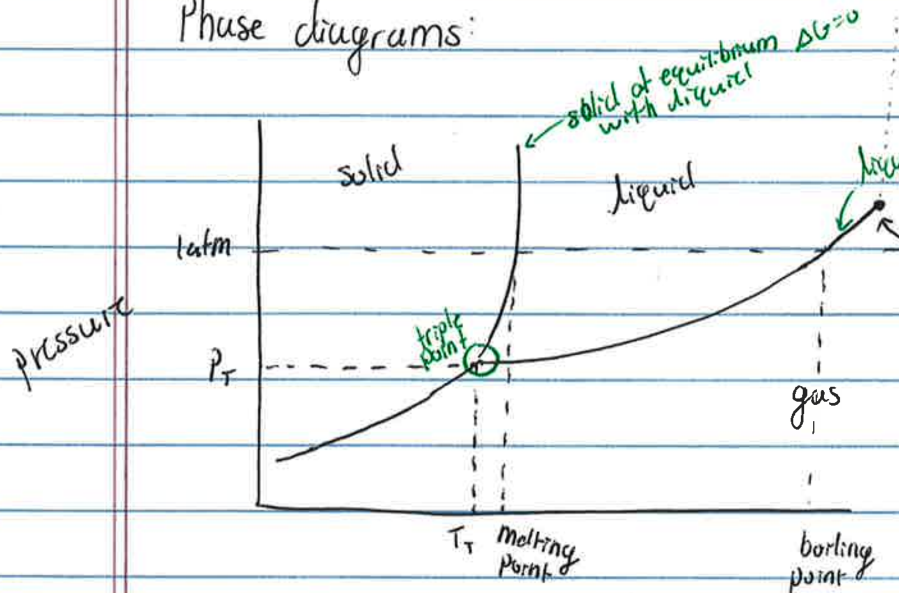
layers held together by london dispersion forces

- graphite, diamond

· allotropes - forms of an element (graphite, $\underbrace{\text{diamond}, C_{60}}_{\text{network covalent}}$) MM = 720g/mol

-bucky ball
-covalent

Phase diagrams:

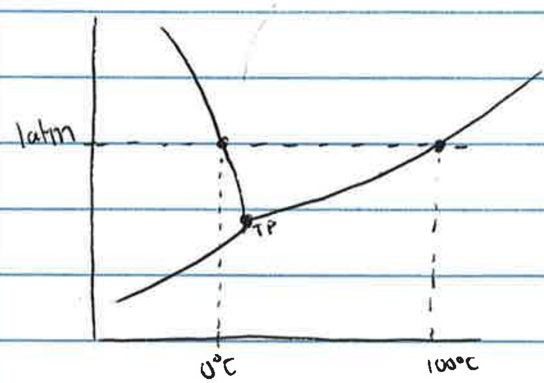


← $T_{critical}$ = E is big enough to break all intermolecular forces so it's a gas all the time at that temp or higher

* it will be a permanent gas if $T_{room\ temp} > T_c$

↳ when $T_{RT} < T_c$ it is a condensible gas

· Suppose they give you melting point, boiling point, and the triple point, sketch phase diagram



* when the triple point temp is below melting point, it means that the compound has a higher density as a liquid