

1. a) $E = 745.5 \text{ kJ/mol} = \frac{745.5 \times 10^3 \text{ J/mol}}{6.02 \times 10^{23} \text{ /mol}} = 1.23837 \times 10^{-18} \text{ J}$

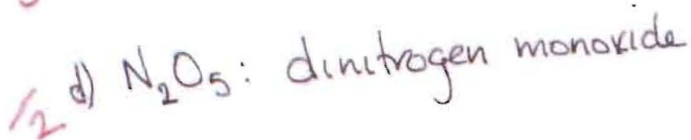
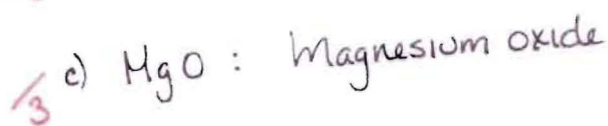
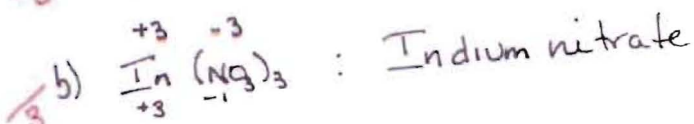
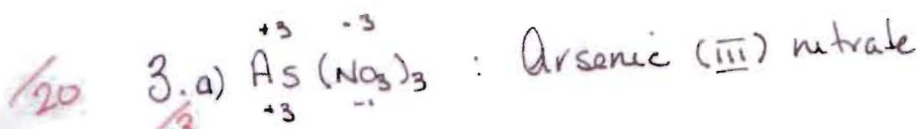
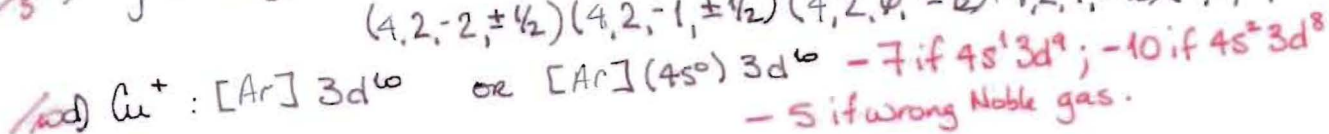
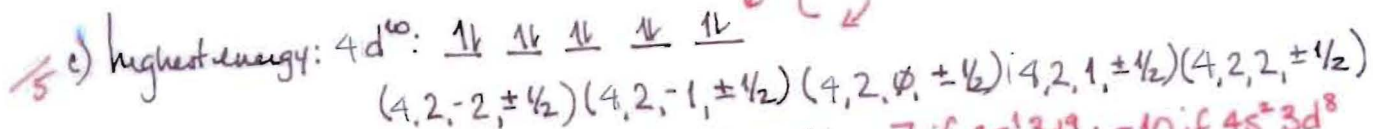
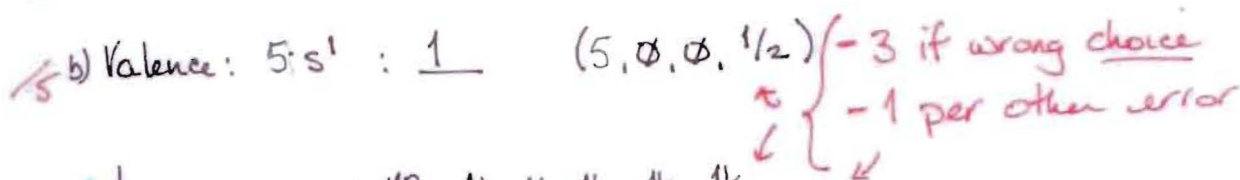
-4 if not converted to J.
(also if they get their bar)
-8 if not converted to per atom

$E = \frac{hc}{\lambda} \therefore 1.23837 \times 10^{-18} \text{ J} = \frac{(6.626 \times 10^{-34} \text{ J/s})(3.00 \times 10^8 \text{ m/s})}{\lambda}$

-3 if calc error
-2 if sig. figs wrong
 $\lambda = 1.60517 \times 10^{-7} \text{ m} = 1.61 \times 10^{-7} \text{ m}$
-3 if unit not given

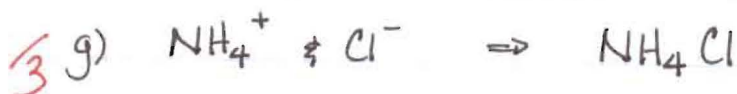
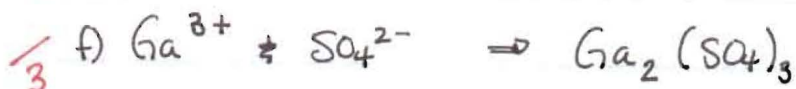
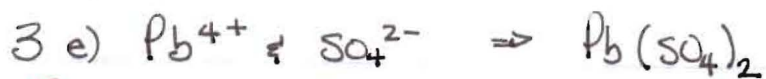
b) $1.61 \times 10^{-7} \text{ m} \times 10^9 = 161 \text{ nm} (1.61 \times 10^2 \text{ nm})$

-2 if unit not given
-1 if sig figs not same as part a. Otherwise -5 if wrong.



-1 per error

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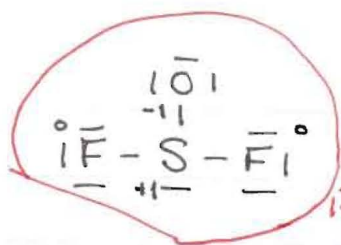


-1 per error.

25 4. a) S: 6

O: 6

2xF: 14 / 26 e⁻



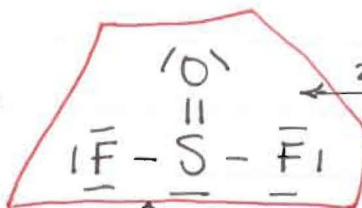
FC: $\overline{F} - : 7 - (6+1) = 0$

$\overline{O} : 6 - (6+1) = -1$

$\overline{S} : 6 - (2+3) = +1$
(i.e. -4 if no double bond)

6/no if this given

Lewis: 10
-4 if LP on S is missing



B.O. / 2 : -1 per error
(no resonance)

B.O. 1. 1

a) Lewis: 10

b) B.O.: 12

c) VSEPR: 10

name: 11

d) polarities: 12

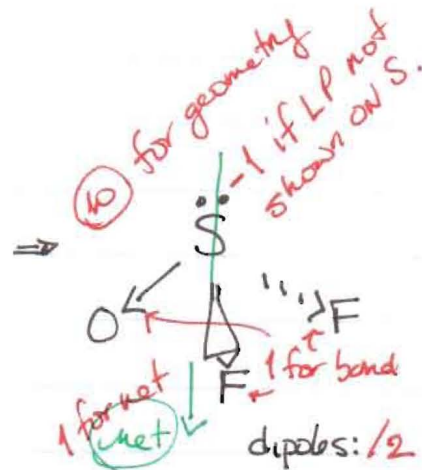
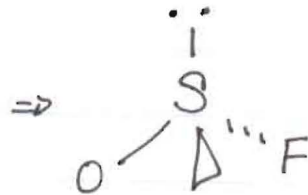
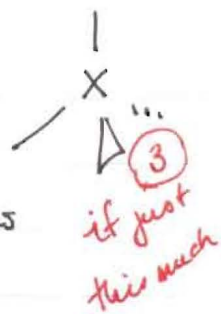
geometry: 10

25

1 LP

1 DB

2 SB / 4 Regions



Name: pyramidal. 1