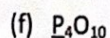
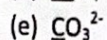
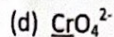
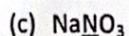
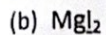
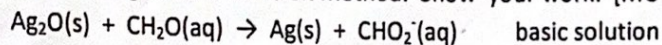


Electrochemistry In-Class Assignment

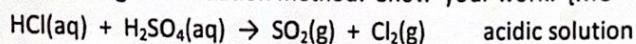
Provide the oxidation number of the underlined element. [KU – 6 marks]



2. Balance the following equation using the ion-electron method. Show your work. [MC – 5 marks]



3. Balance the following equation using the oxidation method. Show your work. [MC – 5 marks]



4. In an experiment, the following cell is set up, $Zn(s) | Zn^{2+}(aq) || Ag^+(aq) | Ag(s)$.

(a) Draw a diagram of this cell. Include the beakers, salt bridge (with sodium nitrate), specific electrodes, specific electrolytes, external circuit and voltmeter. [1 – 4 marks]

(b) Indicate the direction of electron flow on the diagram. [1 – 1 mark]

(c) Indicate direction of ion flow, from the salt bridge, on the diagram. [2 marks]

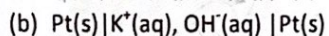
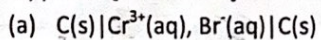
(d) Label anode and cathode under the appropriate compartment. [1 – 2 marks]

(e) Write out the $\frac{1}{2}$ -cell reactions occurring in each compartment under the appropriate compartment. Include the $\frac{1}{2}$ -cell potentials. [1 – 4 marks]

(f) Write out the overall cell reaction and calculate the E_{cell} . [1 – 2 marks]

(g) Circle and label the oxidizing and reducing agents. [1 – 2 marks]

5. Predict anode, cathode and net cell reactions for each electrolytic cell. Calculate the minimum voltage that must be applied. [1 – 8 marks]



MC /10 marks

KU /6 marks

I /25 marks

TOTAL /41 marks

33
40

1a) $x - 4 = 0$
 $x = +4$ ✓

b) $2 - 2x = 0$
 $x = +1$ ✗

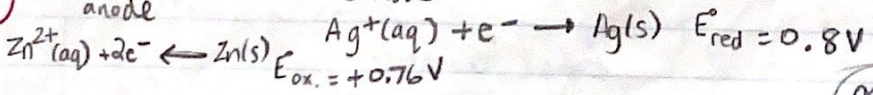
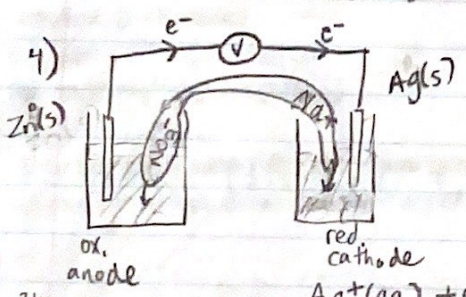
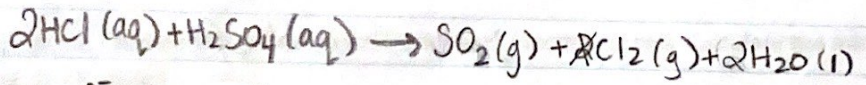
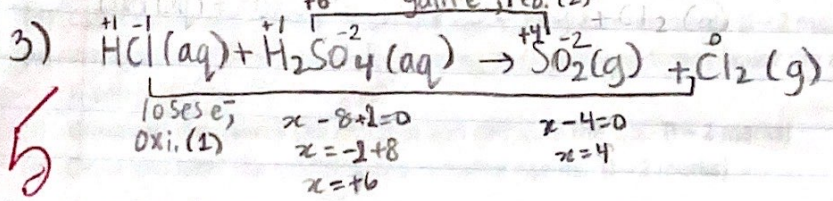
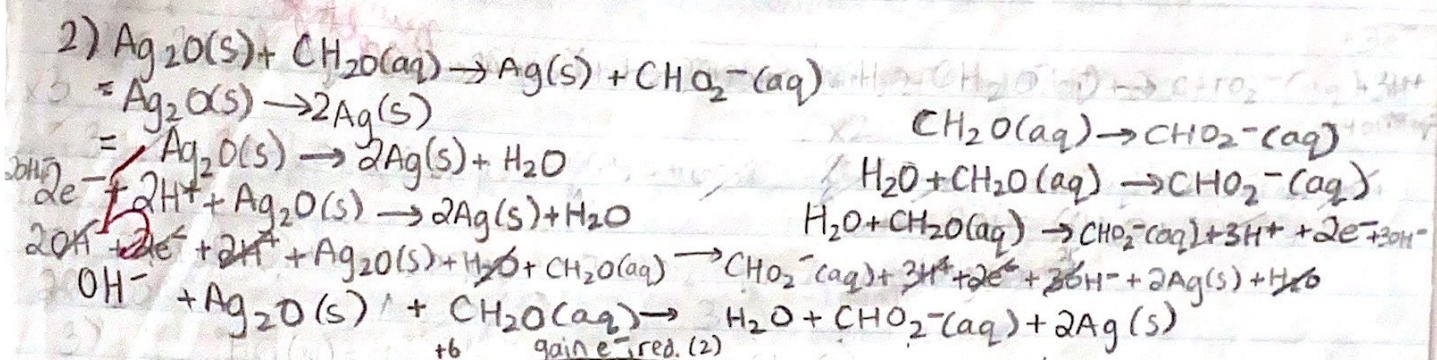
c) $1 + x - 6 = 0$
 $x = 6 - 1$
 $x = +5$ ✓

d) $x - 8 = -2$
 $x = +6$ ✓

e) $x - 6 = -2$
 $x = -2 + 6$
 $x = +4$ ✓

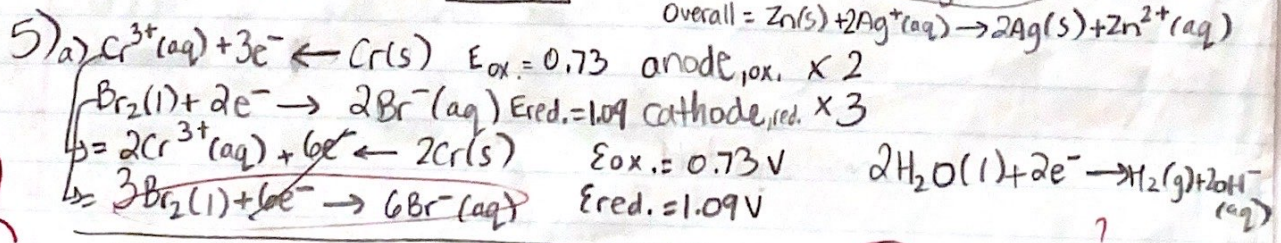
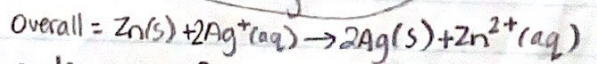
f) $4x - 20 = 0$
 $4x = 20$
 $x = +5$ ✓

5
ku

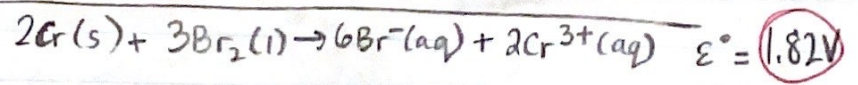


$0.76V + 0.8V = 1.56V$

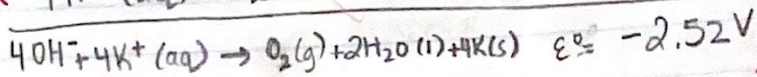
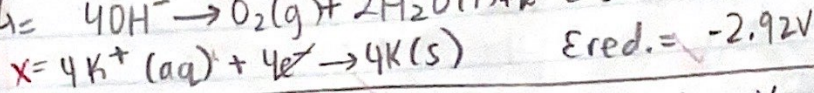
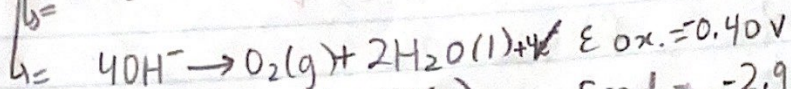
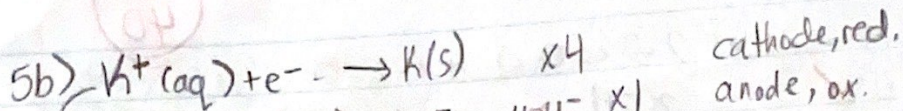
ox. agent = Ag
red. agent = Zn



2



min voltage?



min voltage?

Lower Melting Point

a) Li or Al -> don't remember

b) Kr or Ne

c) LiF or RbI

Last question

What are the 2 Tests?

electrical conductivity
 or hardness
 or heat conductivity