**SENIOR CHEMISTRY OLYMPIAD**

**QUESTION ONE**

A. What is meant by a voltaic cell? (1)

B. A voltaic cell is constructed using electrodes with the following half –reactions.

 Cu2+(ag) n+ 2e-→ Cu(s)→ EoCu2+= +0.34V.

 Al3+(ag) +3e- →Al(s) EoAl3+= -1.66V

What is:

1. the overall cell reaction? (3)
2. the standard cell potential?(2)

C. below is a redox reaction

 Cu(s) + 2H+(ag)→Cu2+ (ag)  + H2(g)

1. Calculate the standard cell potential, given that EoCu2+=0.34V, EoH+= 0.00V
2. Will the reaction above occur spontaneously?

Suggest a reason for your answer.(2)

D. Balance the following redox reaction by the ion-election method place in acidic

 medium.

 Br2+SO2(g)→Br –(ag) + SO2-4 (5)

**END**