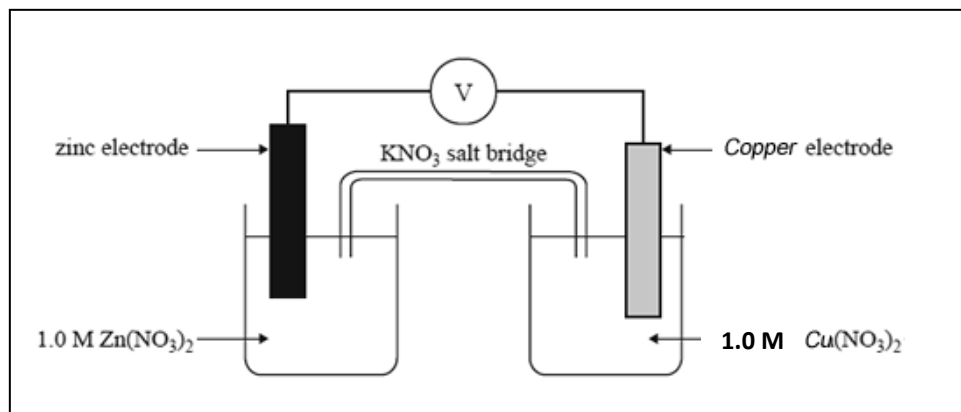


## Friday Worksheet

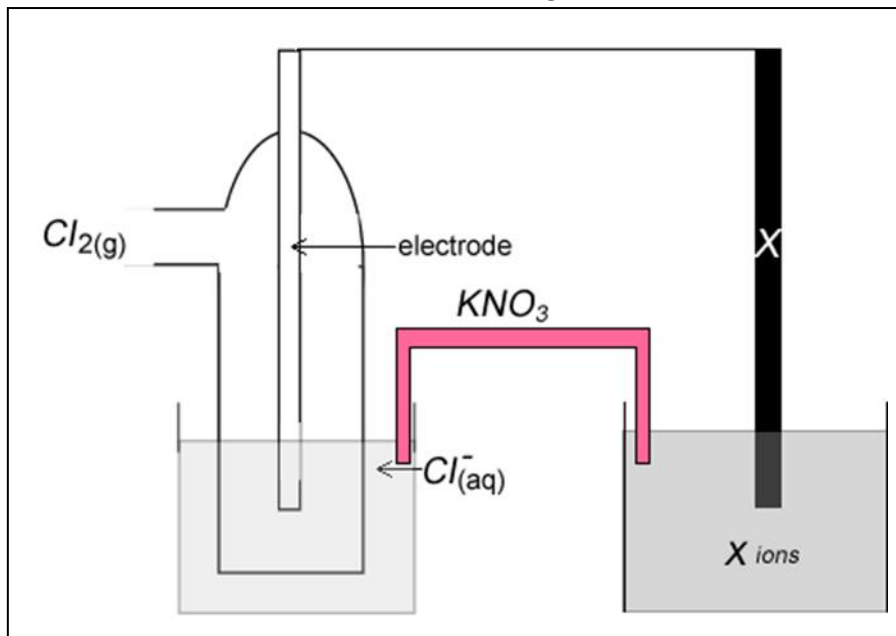
Name: .....

### Galvanic cells worksheet 1



- 1) Above is a galvanic cell. Label the following.
  - a) Direction of electron flow.
  - b) The anode
  - c) The cathode
  - d) Direction of anion movement
  - e) The polarity of the electrodes
- 2) Indicate the maximum theoretical voltage that can be generated by the cell and describe the conditions under which this voltage is achievable.
- 3) What happens to the concentration of zinc ions in the solution surrounding the zinc electrode?
- 4) Write the equation for the reaction taking place at the anode and for the reaction taking place at the cathode.
- 5) Write the overall equation

- 6) The galvanic cell shown below was set up using a  $\text{Cl}_2/\text{Cl}^-$  half cell and a half cell made from an unknown metal electrode and a solution containing the metal ions.



- What is an appropriate material for the electrode in the  $\text{Cl}_2/\text{Cl}^-$  half cell?
- As the cell discharged the mass of electrode X increased. Identify the strongest oxidant present and give a reason.
- On the diagram above label the following
  - Direction of electron flow
  - Direction of anion flow
  - The anode
  - The cathode.
- After discharging 9409 C of electricity it was found that 0.0325 mol of metal X was deposited on the electrode made of metal X.
  - Calculate the mol of electrons that flowed in order to deposit 0.0325 mol of X.
  - Give the
    - reduction half equation
    - oxidation half equation
  - Give the overall equation for the galvanic cell.