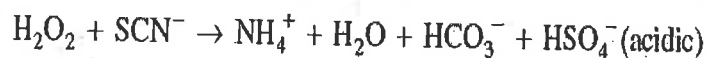


Redox Written Response Key:

1.

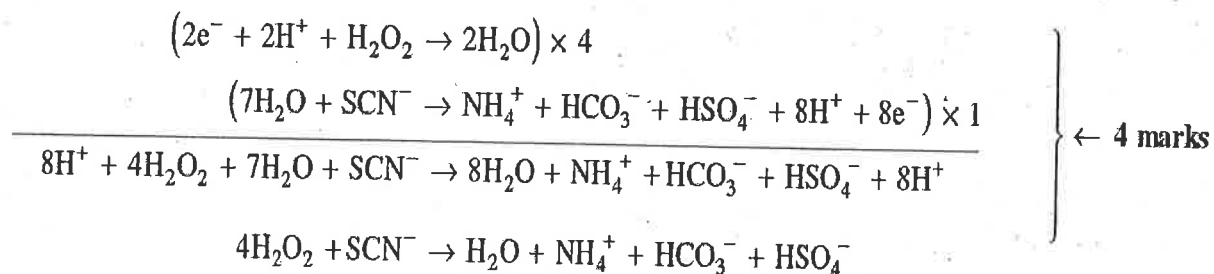
7. (4 marks)

Balance the following redox equation in acidic solution:



Solution:

For Example:



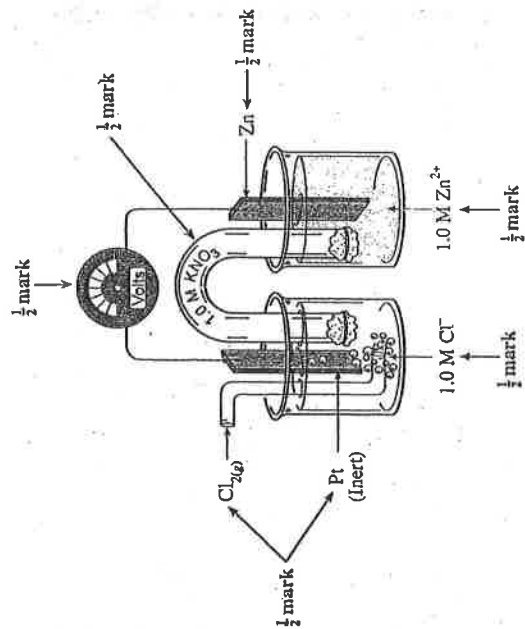
(Note: 1 mark if a student only uses guess and check, or inspection.)

2.

8. Draw a diagram of a standard electrochemical cell which could make use of the reaction $Zn(s) + Cl_2(g) \rightarrow Zn^{2+}(aq) + 2Cl^-(aq)$. Identify all of the chemical species in the cell. (3 marks)

Solution:

For Example:



3.

8. (3 marks)

A solution of $MnSO_4$ is electrolyzed using inert electrodes. Write the anode and cathode half-reactions and describe any observations at the cathode.

Anode half-reaction: _____

Cathode half-reaction: _____

Cathode observation: _____

Solution:

For Example:

Anode half-reaction: $H_2O \rightarrow \frac{1}{2}O_2 + 2H^+ + 2e^-$ ← 1 mark

Cathode half-reaction: $2H_2O + 2e^- \rightarrow H_2 + 2OH^-$ ← 1 mark

Cathode observation: gas bubbles form ← 1 mark

(Notes: no mark for a concentration such as "hydrogen is produced." Must be an observation.)

4.

8. (3 marks)

During the electrolysis of an ionic solution it was observed that gas bubbles formed on the anode, and a solid formed on the cathode. On the diagram below, provide possible substances for the two parts indicated, and the anode half-reaction.

Solution:

For Example:

