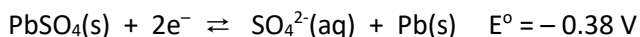
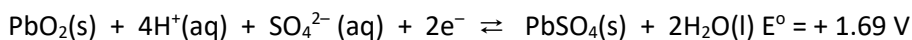


Friday Worksheet

Name:

Galvanic cells worksheet 4



1) The equations above are written as they would appear on the electrochemical series and take place in the lead acid car battery.

The lead-acid battery is one form of energy storage cell.

What substance is used for the following aspects of the battery?

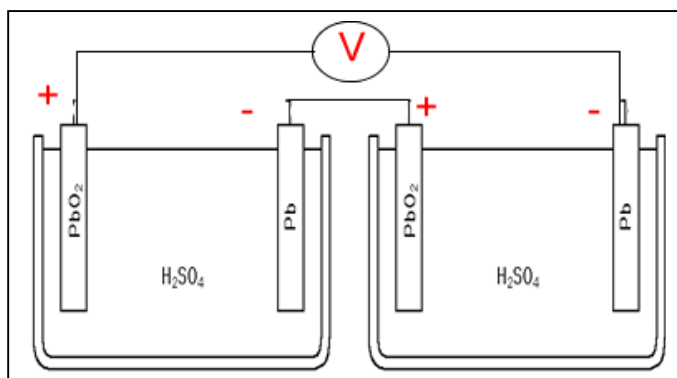
The anode

The cathode

The electrolyte



- (a) What happens to the pH of the electrolyte as the battery is:
 - i. discharging
 - ii. recharging
- (b) Write the anode half-equation for when the battery is discharging.
- (c) Write the cathode half-equation for when the battery is discharging.
- (d) Knowing that reduction always occurs at the cathode, regardless of whether the cell is recharging or discharging, write the cathode half-equation for when the battery is recharging.
- (e) What is the equation for the overall reaction taking place in the lead acid battery during discharge?
- (f) Why is it that the life of a battery is severely shortened if frequently knocked about? Explain
- (g) A car battery can deliver 12.0 volts and yet the cell above can deliver much less.
 - i. Explain how this is possible.
 - ii. Below is a diagram showing two cells connected in series under standard conditions. What is the voltage measured at "V"?



iii. Will the cathode increase or decrease in mass as the two cells discharge. Explain

iv. Will the anode increase or decrease in mass as the two cells discharge. Explain