

2012 AP[®] CHEMISTRY FREE-RESPONSE QUESTIONS

- (e) During a laboratory session, students set up the electrochemical cell shown above. For each of the following three scenarios, choose the correct value of the cell voltage and justify your choice.
- (i) A student bumps the cell setup, resulting in the salt bridge losing contact with the solution in the cathode compartment. Is V equal to 0.47 or is V equal to 0 ? Justify your choice.
 - (ii) A student spills a small amount of $0.5\text{ M Na}_2\text{SO}_4(aq)$ into the compartment with the Pb electrode, resulting in the formation of a precipitate. Is V less than 0.47 or is V greater than 0.47 ? Justify your choice.
 - (iii) After the laboratory session is over, a student leaves the switch closed. The next day, the student opens the switch and reads the voltmeter. Is V less than 0.47 or is V equal to 0.47 ? Justify your choice.

STOP

END OF EXAM