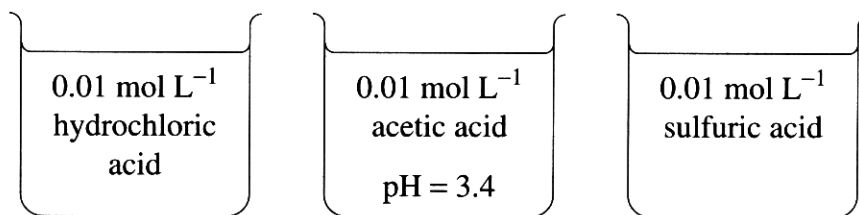**Section I – Part B (continued)**

Marks

Question 22 (5 marks)

Solutions of hydrochloric acid, acetic acid and sulfuric acid were prepared. Each of the solutions had the same concentration (0.01 mol L^{-1}). The pH of the acetic acid solution was 3.4.

0.01 mol L^{-1} hydrochloric acid	0.01 mol L^{-1} acetic acid $pH = 3.4$	0.01 mol L^{-1} sulfuric acid	CH_2OOH

(a)   Calculate the pH of the hydrochloric acid solution.   **1**

$$2.0$$

(b)   Compare the pH of the sulfuric acid solution to the pH of the hydrochloric acid solution. Justify your answer. (No calculations are necessary.)   **2**

The pH of H$_2$SO$_4$ would less than HCl , Because their is more hydrogen present in H$_2$SO$_4$ than HCl . $-Log [H^+]$

(c)   Explain why the acetic acid solution has a higher pH than the hydrochloric acid solution.   **2**

Classified as a
Because it's a weak acid. and it is citric acid. Hydroclonic acid more Stronger .