Warm-up 4/17

1. Describe **two** different methods, one chemical and one physical, other than measuring the pH, that could be used to distinguish between ethanoic acid and hydrochloric acid solutions of the same concentration.

2. Black coffee has a pH of 5 and toothpaste has a pH of 8. Identify which is more acidic **and** deduce how many times the $[H^+]$ is greater in the more acidic product.

Chemical [2 max]

reaction with reactive metal/Mg/Zn/carbonate/hydrogen carbonate;
hydrochloric acid would react faster/more vigorously / ethanoic acid would
react slower/less vigorously;

OR

react with alkali;
temperature change will be more for hydrochloric acid / temperature change
will be less for ethanoic acid;

Physical [2 max]
conductivity;
hydrochloric acid will conduct more/higher / ethanoic acid will conduct
less/lower;   4 max
Accept other suitable examples.

black coffee;
10^3/1000 times;   2