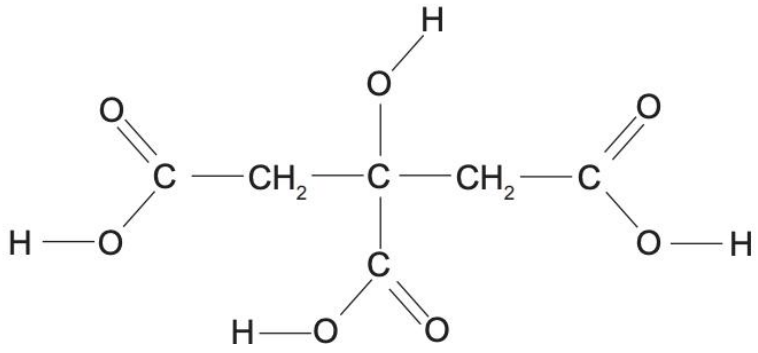
Question 33 **(5 marks)**

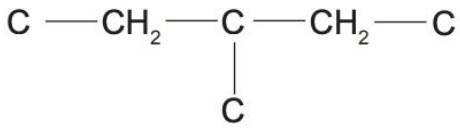
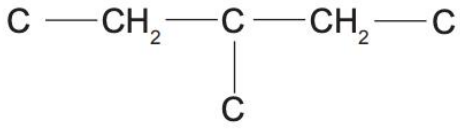
Citric acid, $C_6H_8O_7(aq)$, is a triprotic acid which reacts readily with solid sodium hydroxide, NaOH(s).

(a) Write a balanced chemical equation for this reaction, showing all state symbols. (2 marks)

The structure of $C_6H_8O_7$ is shown below.



(b) In the spaces below, complete the structures, showing **each** successive ionisation of the acidic hydrogen atoms. (3 marks)

H^+ removed	**Structure**
First	
Second	
Third