2001 HIGHER SCHOOL CERTIFICATE EXAMINATION

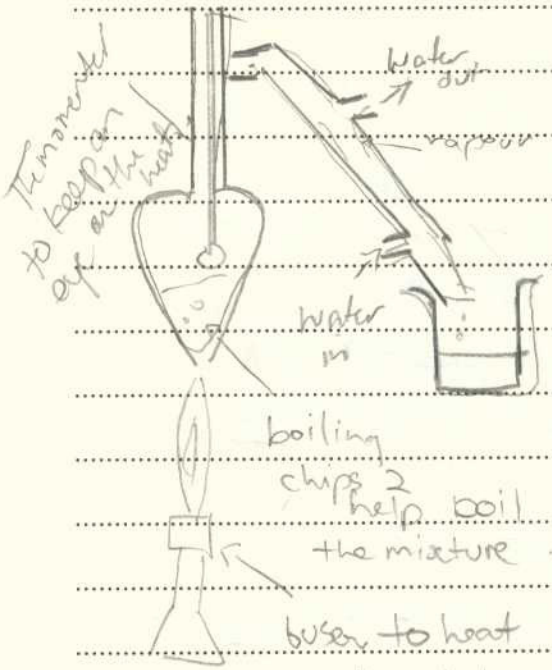
Chemistry

Section I – Part B (continued)

Marks

Question 22 (6 marks)

Justify the procedure you used to prepare an ester in a school laboratory. Include relevant chemical equations in your answer. **6**



To prepare an ester. When should set up the eq equipment as if we would be setting up for ~~ar~~ a distillation process. pictured across in my diagram.

Also you should add up ester. To determine what flavour you want. eg Pinapple, Strawberry etc.

Marks

Question 23 (4 marks)

A household cleaning agent contains a weak base of general formula NaX. 1.00 g of this compound was dissolved in 100.0 mL of water. A 20.0 mL sample of the solution was titrated with 0.1000 mol L^{-1} hydrochloric acid and required 24.4 mL of the acid for neutralisation.

(a) What is the Brönsted–Lowry definition of a base? **1**

has a H^+ ion

(b) What is the molar mass of this base? **3**

$NaSO_4$

$= (22.99) + (32.07) + (16 \times 4)$

$= 22.99 + 32.07 + 64$

$= 119.06$

Molar Mass of $NaSO_4$ is 119.06g

Marks

Question 24 (6 marks)

In the early twentieth century, Fritz Haber developed a method for producing ammonia, as shown by the equation:

$$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$$

(a) Ammonia is used as a cleaning agent. State ONE other use of ammonia. **1**

To make medicines.

(b) Explain the effect of liquefying the ammonia on the yield of the reaction. **2**

So the reaction is more easily complied.

(c) Explain why it is essential to monitor the temperature and pressure inside the reaction vessel. **3**

To ensure the right amount of ammonia is produced if temperature and pressure is not stable the yield will be an unstable balance.