Practice Question Set For A-Level
**Subject : Chemistry**
**Paper-1 Topic: Physical 1**

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

**Name of the Student**:_____
**Max. Marks : 13 Marks** **Time : 13 Minutes**

Q1.

(a) A flask containing a mixture of 0.200 mol of ethanoic acid and 0.110 mol of ethanol was maintained at 25 °C until the following equilibrium had been established.

$CH_3COOH(l) + C_2H_5OH(l) \rightleftharpoons CH_3COOC_2H_5(l) + H_2O(l)$

The ethanoic acid present at equilibrium required 72.5 $cm^3$ of a 1.50 mol $dm^{-3}$ solution of sodium hydroxide for complete reaction.

(i) Calculate the value of the equilibrium constant, $K_c$, for this reaction at 25 °C.

**(7)**

(ii) The enthalpy change for this reaction is quite small. By reference to the number and type of bonds broken and made, explain how this might have been predicted.

Downloaded from www.merit-minds.com

_____

_____

**(2)**

(b) Aspirin can be prepared by acylation using either ethanoyl chloride or ethanoic anhydride, as represented by the equations shown below.

$CH_3COCl + HOC_6H_4COOH \rightarrow CH_3COOC_6H_4COOH + HCl$

$(CH_3CO)_2O + HOC_6H_4COOH \rightarrow CH_3COOC_6H_4COOH + CH_3COOH$

(i) By a consideration of the intermolecular forces involved, explain why the product HCl is a gas but the product $CH_3COOH$ is a liquid at room temperature.

_____

_____

_____

_____

**(2)**

(ii) Give **two** industrial advantages of using ethanoic anhydride rather than ethanoyl chloride in the manufacture of aspirin.

_____

_____

_____

_____

**(2)**

**(Total 13 marks)**

Downloaded from www.merit-minds.com