Practice Question Set For A-Level
Subject : Chemistry
Paper-2 Topic: Carboxylic Acids & Derivatives

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Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

Ethanoic acid, propyl ethanoate and propan-1-ol are all colourless liquids. Esters do **not** give a positive result with any of the usual tests for functional groups.

State how you could use chemical tests to show the presence of ethanoic acid and propan-1-ol in a mixture of the acid, the alcohol and the ester.

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(Total 4 marks)

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Q2.

(a) During the preparation of aspirin, it is necessary to filter the crude product under reduced pressure.

Draw a diagram to show the apparatus you would use to filter the crude product under reduced pressure. (Do **not** include the vacuum pump.)

(2)

(b) You are provided with a small sample of pure aspirin in a melting point tube. Describe briefly how you would determine an accurate value for the melting point of aspirin.

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(2)

(Total 4 marks)

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Q3.

Acyl chlorides such as CH_3COCl are useful compounds in synthesis.

(a) The acyl chloride CH_3COCl reacts with benzene.

(i) Write an equation for this reaction and name the organic product.

Identify a catalyst for the reaction.

Write an equation to show how this catalyst reacts with CH_3COCl to produce a reactive intermediate.

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(4)

(ii) Name and outline a mechanism for the reaction of benzene with the reactive intermediate in part (a)(i).

Name of mechanism _____

Mechanism

(4)

(b) Nucleophiles such as alcohols can react with CH_3COCl
The ion CH_3COO^- can act as a nucleophile in a similar way.

State the meaning of the term *nucleophile*.

Draw the structure of the organic product formed by the reaction of CH_3COO^- with CH_3COCl

Name the functional group produced in this reaction.

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(3)

(Total 11 marks)

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