CHEMISTRY ONLINE
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CHEMISTRY

INORGANIC CHEMISTRY II

Level & Board	AQA (A-LEVEL)
TOPIC:	CARBOXYLIC ACIDS AND DERIVATIVES
PAPER TYPE:	QUESTION PAPER - 2
TOTAL QUESTIONS	10
TOTAL MARKS	23

Carboxylic Acids and Derivatives - 2

1. Samples of 1-chloropropane and ethanoyl chloride can be distinguished by the addition of an aqueous solution of silver nitrate.

State what you would observe with each sample.

(2)

2. Which compound is formed by acid hydrolysis of phenylmethyl ethanoate?

A. $C_6H_5CH_2OH$
B. C_6H_5CHO
C. $C_6H_5COCH_3$
D. C_6H_5COOH

(1)

3. Esters are used as raw materials in the production of soaps and biodiesel.

(a) A student prepared an ester by two different methods.

Method 1 alcohol + acid anhydride
Method 2 alcohol + acyl chloride

An ester was prepared using method 1, by reacting $(CH_3)_2CHOH$ with $(CH_3CO)_2O$

Write an equation for this reaction and give the IUPAC name of the ester formed.

(2)

(b) The same ester was prepared using method 2 by reacting $(CH_3)_2CHOH$ with CH_3COCl

Outline a mechanism for this reaction.

(4)

4. A student is required to dry a liquid sample of pentanoic acid. Which drying agent is suitable?

A. Calcium oxide
B. Calcium sulfate
C. Potassium hydroxide
D. Potassium carbonate

(1)

5. A shirt was made from polyester.

A student wearing the shirt accidentally splashed aqueous sodium hydroxide on a sleeve.
Holes later appeared in the sleeve where the sodium hydroxide had been.

Name the type of reaction that occurred between the polyester and the aqueous sodium hydroxide.

Explain why the aqueous sodium hydroxide reacted with the polyester.

(3)

6. Which compound can be purified by forming a hot aqueous solution that recrystallises on cooling?

A. Cyclohexene
B. Ethanoic acid
C. Phenylamine
D. Benzoic acid

(1)

7. Butan-1-ol was converted into butyl propanoate by reaction with an excess of propanoic acid. In the reaction, 6.0 g of the alcohol gave 7.4 g of the ester.
The percentage yield of ester was A
A. 57

B. 70
C. 75
D. 81

(1)

8. The reactions of molecules containing the chlorine atom are often affected by other functional groups in the molecule.

Consider the reaction of CH_3CH_2COCl with ammonia.

For the reaction of CH_3CH_2COCl with ammonia, name and outline the mechanism and name the organic product**.**

(5)

9. Aldehydes can be prepared from acyl chlorides.

State how an aldehyde could be tested to show whether it is contaminated with traces of unreacted acyl chloride.

State what you would observe.

(2)

10. Which one of the following would not react with aqueous silver nitrate to produce a precipitate that is soluble in concentrated aqueous ammonia?

A. $CaBr_2$
B. $[COCl_4]^{2-}$
C. $(CH_3)_4N^+I^-$
D. CH_3COCl

(1)

I am Sorry !!!!!

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