CHEMISTRY ONLINE
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CHEMISTRY

INORGANIC CHEMISTRY II

Level & Board	AQA (A-LEVEL)
TOPIC:	ALDEHYDES AND KETONES
PAPER TYPE:	QUESTION PAPER - 3
TOTAL QUESTIONS	10
TOTAL MARKS	33

Aldehydes and Ketones

1. Explain why triglycerides are soluble in non-polar solvents and not in water.

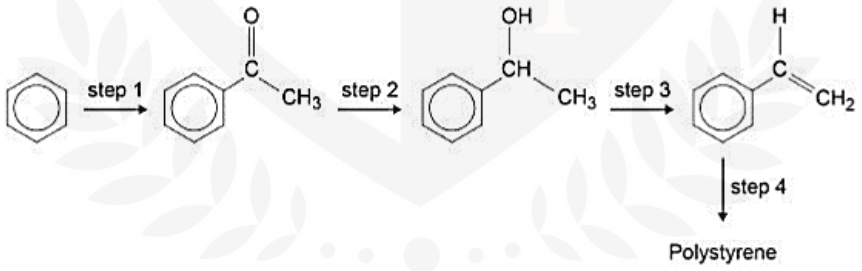
(3)

2. Propanone can be reduced to form an alcohol. functional group isomer of the alcohol formed is

A. $CH_3CH_2CH_2OH$
B. CH_3CH_2CHO
C. $CH_3OCH_2CH_3$
D. CH_3COCH_3

(1)

3. Polystyrene can be made from benzene in the series of steps shown.



(a) State the type of reaction in step 1.

Identify the reagent(s) and conditions needed for step 1.

(3)

(b) State the name of the mechanism for the reaction in step 2.

Identify the inorganic reagent needed for step 2.

Name the organic product of step 2.

(3)

(c) The organic product of step 2 is reacted with concentrated sulfuric acid in step 3.

Outline the mechanism for step 3.

(3)

(d) Draw the repeating unit of polystyrene.

(1)

4. In which one of the following mixtures does a redox reaction occur?

A. ethanal and Tollens' reagent
B. ethanoyl chloride and ethanol
C. ethanal and hydrogen cyanide
D. ethanoic acid and sodium hydroxide

(1)

5. Chloral hydrate is broken down in the body after several hours.

One reaction is oxidation to trichloroethanoic acid.

Complete the equation for this reaction below.

$Cl_3CCH(OH)_2 + (O) \rightarrow$

(1)

6. Glyceryl trihexanoate is a triglyceride that can be made from glycerol (propane-1,2,3-triol) and hexanoic acid, $C_5H_{11}COOH$.

Draw the structure of glyceryl trihexanoate.

Show every bond in the functional groups.

(2)

7. Reaction of geraniol with ethanoic acid can be used to make ester Z, which is used in chewing gum and desserts.

(a) Suggest why esters are used in the manufacture of foods.

(1)

(b) State the conditions needed to make ester Z from geraniol and ethanoic acid.

(2)

(c) Complete the equation for the formation of ester Z.

$+ C_9H_{15}CH_2OH \rightarrow$

(2)

8. Benzoic acid and phenylmethanol will react with each other in the presence of a suitable catalyst.

(a) State a suitable catalyst for this reaction.

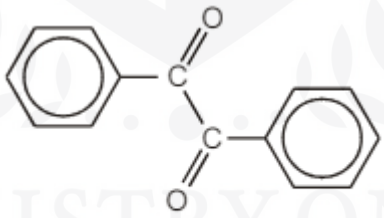
(1)

(b) Draw the displayed formula of the organic product.

(2)

9. The reducing agent, $NaBH_4$, is used widely in organic chemistry.

One example is for the reduction of diphenylethanedione, $C_{14}H_{10}O_2$, shown below.



diphenylethanedione

(a) Draw a displayed formula to show the structure of the organic product that would be formed by reducing diphenylethanedione with excess $NaBH_4$.

(1)

(b) Complete and balance the equation for this reaction, using (H) to represent the reducing agent.

$C_{14}H_{10}O_2 \rightarrow$

(1)

10. Consider the following conversion.

Identify a reducing agent for this conversion.

Write a balanced equation for the reaction using molecular formulae for the nitrogencontaining compounds and (H) for the reducing agent.

Draw the repeating unit of the polymer formed by the product of this reaction with benzene1,4-dicarboxylic acid.

I am Sorry !!!!!

(5)

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