



CHEMISTRY ONLINE
— **TUITION** —

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CHEMISTRY

ORGANIC CHEMISTRY

Level & Board	AQA (A-LEVEL)
TOPIC:	ALCOHOLS
PAPER TYPE:	QUESTION PAPER - 1
TOTAL QUESTIONS	10
TOTAL MARKS	24

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Alcohols - 1

1. Ethanol can be manufactured by the direct hydration of ethene and by the fermentation of sugars.

(a) State what is meant by the term hydration.

(1)

(b) Give one advantage and one disadvantage of manufacturing ethanol by fermentation rather than by hydration.

(3)

2. Which compound is produced when 1-phenylethanol reacts with acidified potassium dichromate(VI)?

- A. $C_6H_5CH_2CH_2OH$
B. $C_6H_5CH_2CHO$
C. $C_6H_5COCH_3$
D. $C_6H_5CH(OH)CH_3$

(1)

3. When 3-bromo-2,3-dimethylpentane, $(\text{CH}_3)_2\text{CHCBr}(\text{CH}_3)\text{CH}_2\text{CH}_3$, reacts with aqueous potassium hydroxide, an alcohol is formed.

(a) Name the type of reaction taking place and give the role of the reagent.

(1)

(b) Outline a mechanism for the reaction, showing clearly the structure of the alcohol formed.

(3)

4. Which statement is correct about the production and use of ethanol as a biofuel?

- A.** Biofuel ethanol is produced by the fermentation of glucose in the presence of yeast and air.
B. Biofuel ethanol is purified by fractional distillation.
C. No carbon dioxide is released when biofuel ethanol is burned.
D. Biofuel ethanol burns with a cleaner flame than ethanol made by hydration of ethene.

(1)

5. Ethanol can be oxidised to an aldehyde and to a carboxylic acid.

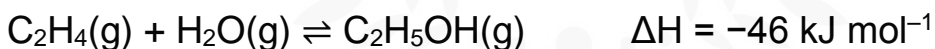
(a) Draw the structure of this aldehyde and of this carboxylic acid.

(2)

(b) Give a suitable reagent and reaction conditions for the oxidation of ethanol to form the carboxylic acid as the major product.

(3)

6. Which statement is not correct about the industrial production of ethanol from ethene at 300 °C?



- A. The reaction is catalysed by an acid.
- B. The reaction has 100% atom economy.
- C. An increase in temperature decreases the equilibrium yield of ethanol.
- D. An increase in pressure increases the value of K_c

(1)

7. State the class of alcohols to which the diol butane-1,4-diol belongs.

Identify a suitable reagent or combination of reagents for the conversion of butane-1,4-diol into butanedioic acid ($\text{HOOCCH}_2\text{CH}_2\text{COOH}$).

Write an equation for this oxidation reaction using [O] to represent the oxidising agent.

(3)

8. Which one of the following reactions will produce an organic compound that has optical isomers?
- A. dehydration of butan-2-ol by heating with concentrated sulphuric acid
 - B. reduction of pentan-3-one by warming with NaBH_4
 - C. addition of Br_2 to 3-bromopropene
 - D. reduction of 2,3-dimethylpent-2-ene with H_2 in the presence of a nickel catalyst

(1)

9. A chemical test can be used to distinguish between separate samples of propanone and propanal.

Give a suitable reagent for the test and describe what you would observe with propanone and with propanal.

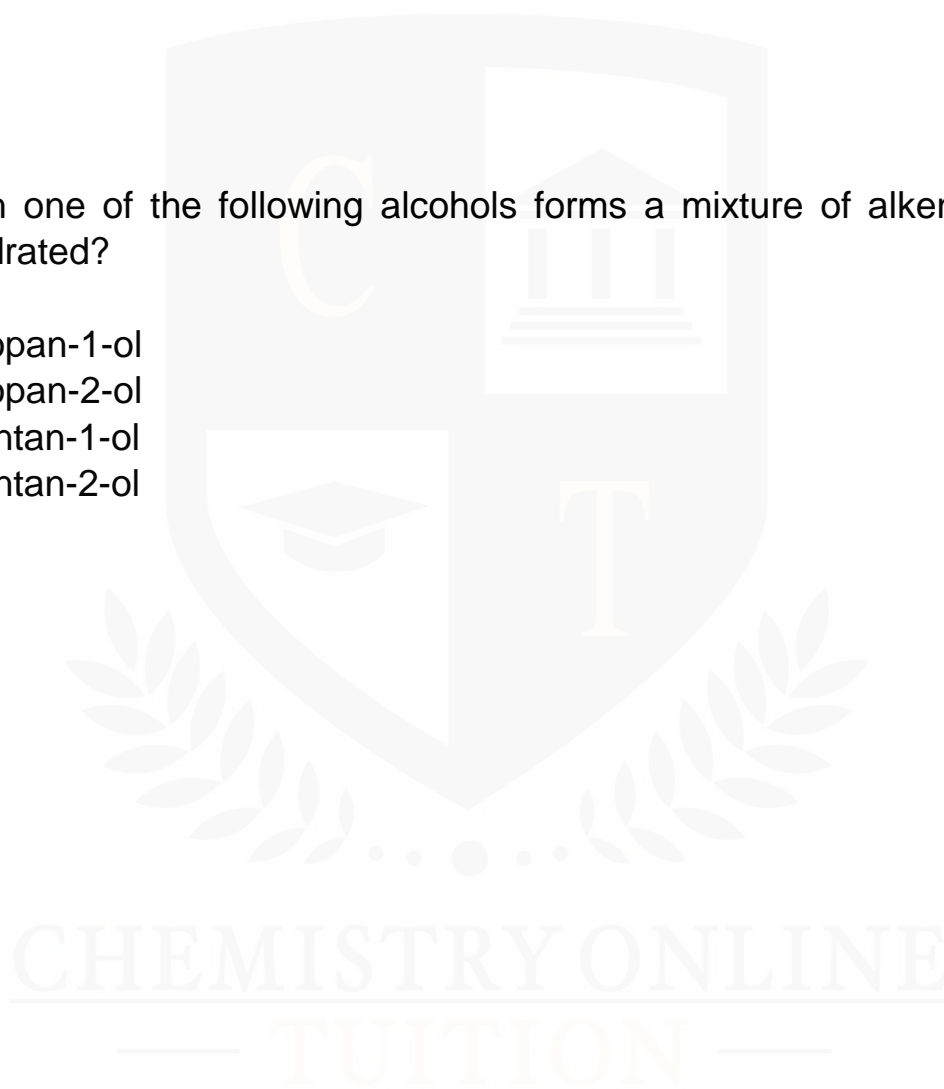
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(4)

10. Which one of the following alcohols forms a mixture of alkenes when dehydrated?

- A. propan-1-ol
- B. propan-2-ol
- C. pentan-1-ol
- D. pentan-2-ol

(1)



I am Sorry !!!!!



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- Founder & CEO of Chemistry Online Tuition Ltd.
- Completed Medicine (M.B.B.S) in 2007
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