Practice Question Set For A-Level
Subject : Chemistry
Paper-2 Topic: Alcohols

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Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Q1.

Which statement about the industrial production of ethanol from ethene at 300 °C is correct?

$$C_2H_4(g) + H_2O(g) \rightleftharpoons C_2H_5OH(g) \qquad \Delta H = -46 \text{ kJ mol}^{-1}$$

A The use of an acid catalyst increases the yield of ethanol. ⬭

B The reaction is slower than fermentation. ⬭

C An increase in temperature, at constant pressure, increases the value of K_p. ⬭

D An increase in pressure, at constant temperature, increases the equilibrium yield of ethanol. ⬭

(Total 1 mark)

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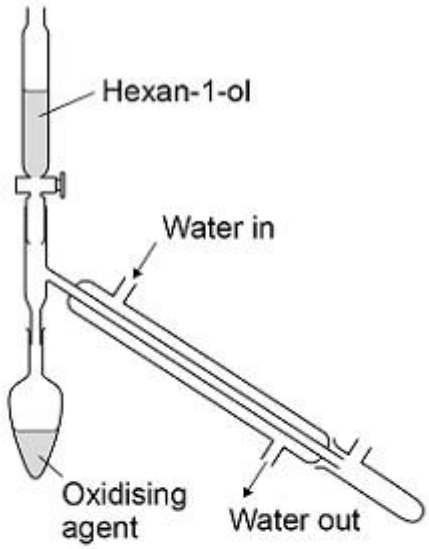
Q2.

Which diagram shows the correct apparatus for the conversion of hexan-1-ol to hexanal?

A



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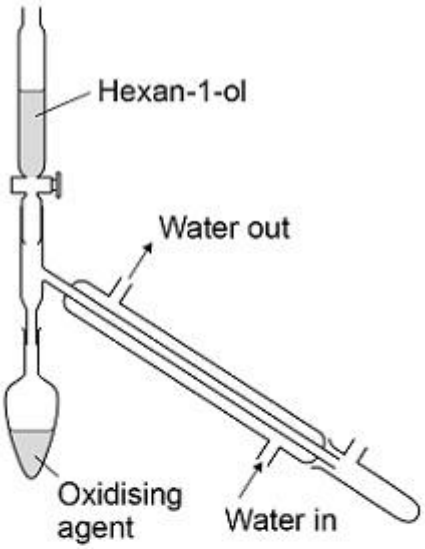

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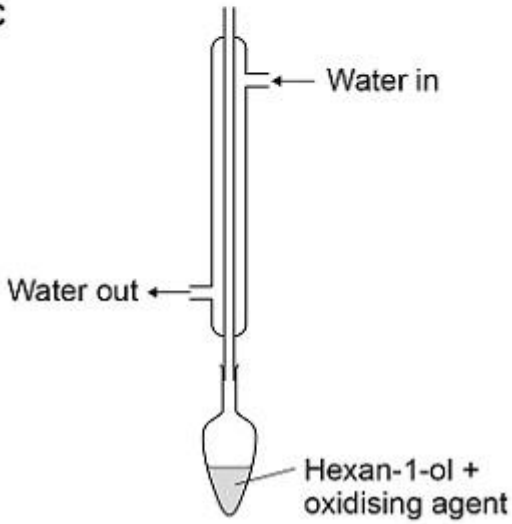
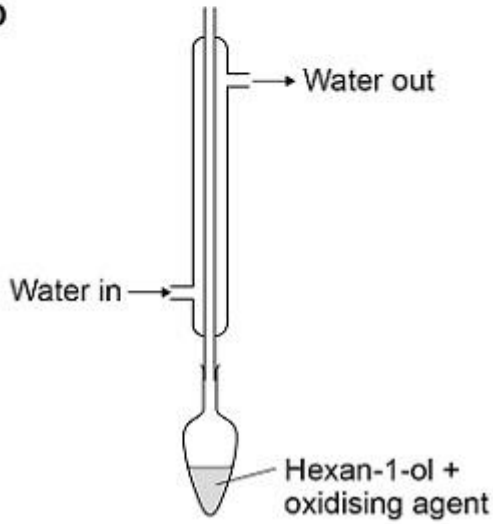


D



A ⬭

B ⬭

C ⬭

D ⬭

(Total 1 marks)

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Q3.

The alcohol $CH_3CH_2CH_2OH$ can be oxidised.

Which compound **cannot** be produced by oxidation of this alcohol?

A CO_2 ⬭

B CH_3COCH_3 ⬭

C CH_3CH_2CHO ⬭

D CH_3CH_2COOH ⬭

(Total 1 mark)

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Q4.

Which is a correct equation for the oxidation of 1-phenylethanol?
[O] represents oxygen from an oxidising agent.

A $C_6H_5CH_2CH_2OH + 2\ [O] \rightarrow C_6H_5CH_2COOH + H_2O$ ⬭

B $C_6H_5CH_2CH_2OH + [O] \rightarrow C_6H_5CH_2CHO + H_2O$ ⬭

C $C_6H_5CH(OH)CH_3 + [O] \rightarrow C_6H_5CH_2CHO + H_2O$ ⬭

D $C_6H_5CH(OH)CH_3 + [O] \rightarrow C_6H_5COCH_3 + H_2O$ ⬭

(Total 1 mark)

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Q5.

Which alcohol when dehydrated forms a mixture of alkenes?

A propan-1-ol ⬭

B propan-2-ol ⬭

C pentan-1-ol ⬭

D pentan-2-ol ⬭

(Total 1 mark)

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Q6.

Which statement is **not** correct for both primary and secondary alcohols?

A They are easily oxidised to carboxylic acids by acidified $K_2Cr_2O_7$ solution. ⬭

B They can be formed from bromoalkanes by hydrolysis. ⬭

C They form esters with carboxylic acids. ⬭

D They show hydrogen bonding in the liquid state. ⬭

(Total 1 mark)

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Q7.

Which compound produces $(CH_3)_2CHCOCH_3$ when oxidised?

A 2-methylpropan-1-ol ⬭

B 2,2-dimethylpropanol ⬭

C 2-methylbutan-2-ol ⬭

D 3-methylbutan-2-ol ⬭

(Total 1 mark)

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Q8.

Which pair of reagents does **not** produce ethanol?

A CH_3CH_2Br and NaOH(aq) ⬭

B CH_3COOCH_3 and NaOH(aq) ⬭

C $HCOOCH_2CH_3$ and NaOH(aq) ⬭

D CH_3CHO and $NaBH_4$(aq) ⬭

(Total 1 mark)

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Q9.

Which compound can be dehydrated to form an alkene?

A CH_3CHO ⬭

B CH_3COOH ⬭

C CH_3CH_2OH ⬭

D CH_3COOCH_3 ⬭

(Total 1 mark)

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Q10.

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 $C_6H_5CH(OH)CH_3$ ⬭

(Total 1 mark)

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Q11.

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

$$C_2H_4(g) + H_2O(g) \rightleftharpoons C_2H_5OH(g) \quad \Delta H = -46 \text{ kJ mol}^{-1}$$

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 ⬭

(Total 1 mark)

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Q12.

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. ⬭

(Total 1 mark)

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Q13.

Which compound reacts to form a ketone when warmed with an acidified solution of potassium dichromate(VI)?

A $CH_3CH_2CH_2OH$ ⬭

B $(CH_3)_2CHOH$ ⬭

C CH_3CH_2CHO ⬭

D $(CH_3)_2CHCOOH$ ⬭

(Total 1 mark)

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Q14.

Which alcohol forms a mixture of alkenes when dehydrated?

A propan-1-ol ⬭

B propan-2-ol ⬭

C pentan-1-ol ⬭

D pentan-2-ol ⬭

(Total 1 mark)

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Q15.

Which compound can be oxidised to form $(CH_3)_2CHCOCH_3$?

A 2-methylpropan-1-ol ⬭

B 2,2-dimethylpropanol ⬭

C 2-methylbutan-2-ol ⬭

D 3-methylbutan-2-ol ⬭

(Total 1 mark)

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Q16.

Which compound is formed 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 $C_6H_5CH_2COOH$ ⬭

(Total 1 mark)

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Q17.

In the UK industrial ethanol is now produced by the direct hydration of ethene. This process has largely replaced the fermentation method.

Which is a likely reason for this change of method?

A The direct hydration route produces purer ethanol. ⬭

B The direct hydration route employs milder conditions. ⬭

C The direct hydration route does NOT use a catalyst. ⬭

D The direct hydration route produces ethanol by a slower reaction. ⬭

(Total 1 mark)

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Q18.

Which alcohol can be oxidised by acidified potassium dichromate(VI) but cannot be dehydrated by heating with concentrated sulfuric acid?

A 2,3-dimethylbutan-2-ol ⬭

B 2,2-dimethylpropan-1-ol ⬭

C 2-methylpropan-2-ol ⬭

D pentan-3-ol ⬭

(Total 1 mark)

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