

Organic (2015 VCE)

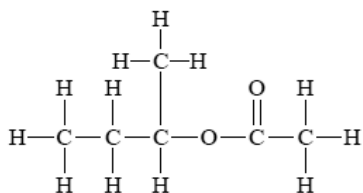
1) What is the name of the product formed when chlorine, Cl_2 , reacts with but-1-ene?

- A. 1,2-dichlorobutane
- B. 1,4-dichlorobutane
- C. 2,2-dichlorobutane
- D. 2,3-dichlorobutane

Solution will appear here

Solution

2) A reaction pathway is designed for the synthesis of the compound that has the structural formula shown below.

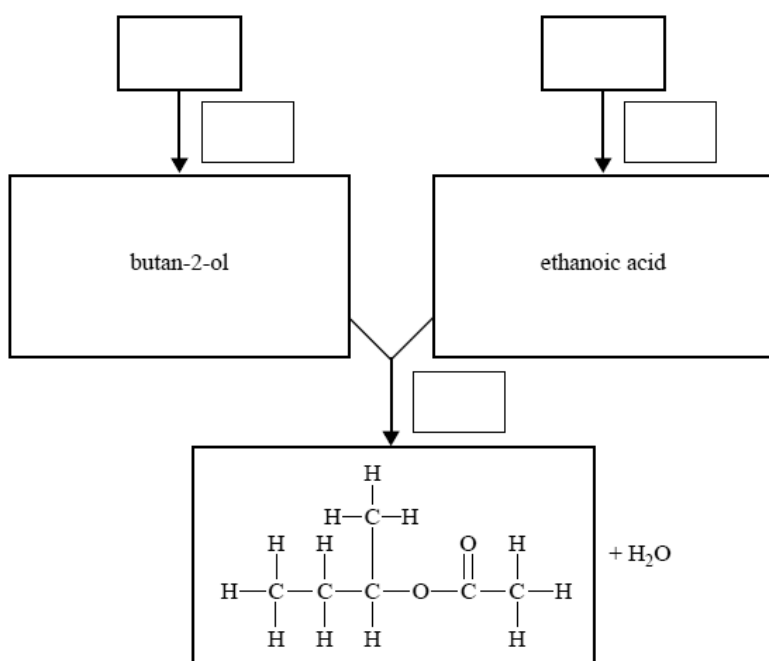


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The table below gives a list of available organic reactants and reagents.

Letter	Available organic reactants and reagents
A	acidified KMnO_4
B	concentrated H_2SO_4
C	H_2O and H_3PO_4
D	
E	
F	
G	

a) Complete the reaction pathway design flow chart below. Write the corresponding letter for the structural formula of all organic reactants in each of the boxes provided. The corresponding letter for the formula of other necessary reagents should be shown in the boxes next to the arrows.



Solution

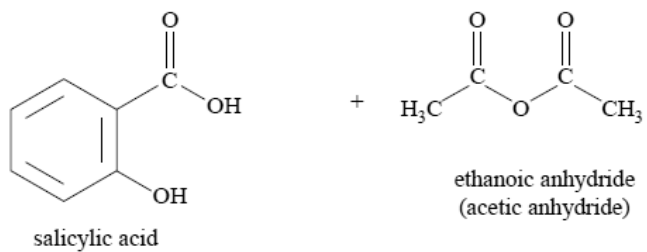
b) Draw the full structural formula of an isomer of butan-2-ol.

Solution

Solution will appear here

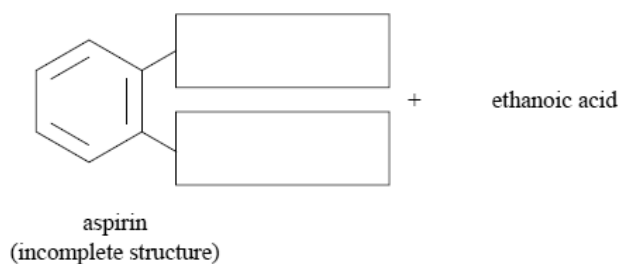
c) A student mixed salicylic acid with ethanoic anhydride (acetic anhydride) in the presence of concentrated sulfuric acid. The products of this reaction were the painkilling drug aspirin (acetyl salicylic acid) and ethanoic acid.

Solution will appear here



concentrated
 H_2SO_4

↓



An incomplete structure of the aspirin molecule is shown above.
 Complete the structure by filling in the two boxes provided in the diagram

Solution

d) Sulfuric acid is used as a catalyst in this reaction. Explain how a catalyst increases the rate of this reaction

Solution will appear here

Solution