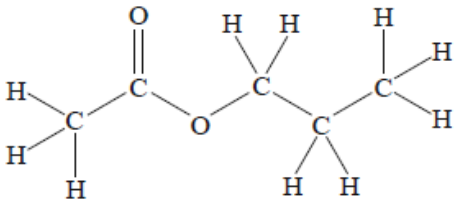
Organic 2013 VCE

1)

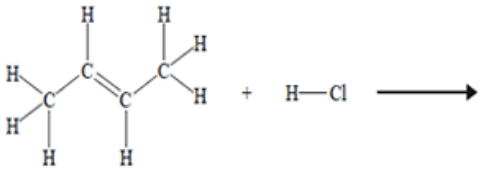


The systematic IUPAC name for the molecule shown above is
A. ethyl ethanoate.
B. ethyl propanoate.
C. propyl ethanoate.
D. methyl propanoate.

Solution

Solution will appear here

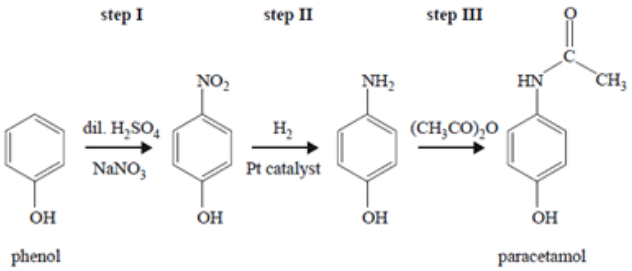
2)



The systematic IUPAC name for the product of the above chemical reaction is
A. 1-chlorobutane.
B. 2-chlorobutane.
C. 3-chlorobutane.
D. 4-chlorobutane.

Solution

3) The reaction pathway for the synthesis of paracetamol, a mild painkiller, is provided below.

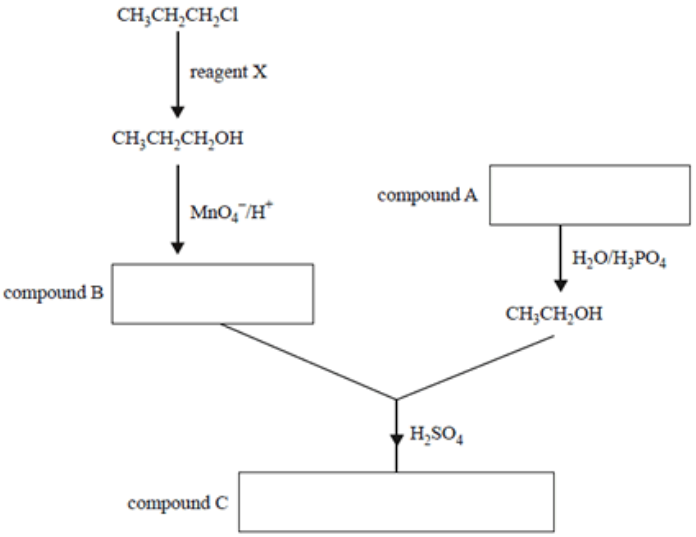


Solution will appear here

Which step or steps in this synthesis involve(s) a reduction reaction?
A. step I only
B. step II only
C. steps I and III only
D. steps I, II and III

Solution

4) The reaction pathway below represents the synthesis of compound C.



Solution will appear here

a) Identify reagent X.

Solution

b) In the appropriate boxes above, write the semi-structural formulas for compounds A, B and C.

Solution

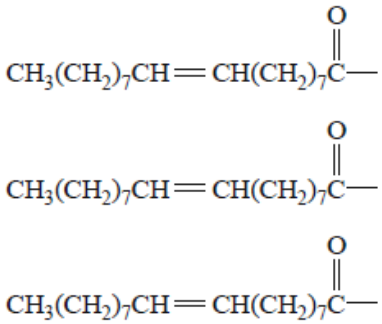
Solution will appear here

c) Give the systematic IUPAC names for compounds A and B.
compound A _____
compound B_____

Solution

Solution will appear here

5) Olive oil, which has been part of the human diet for thousands of years, is derived from the fruit of the olive tree. The main fatty acid that makes up olive oil is oleic acid, $CH_3(CH_2)_7CH\ CH(CH_2)_7\ COOH$.
The triglyceride formed from three oleic acid molecules is glycerol trioleate, $C_{57}H_{104}O_6$. The molar mass of glycerol trioleate is 884 g mol^{-1}.
a. i. An incomplete semi-structural formula of glycerol trioleate is provided below.



Solution will appear here

Complete the semi-structural formula of glycerol trioleate.

Solution

b) Explain why oleic acid is described as a mono-unsaturated fatty acid

Solution

Solution will appear here

6) Ethanol for use as a biofuel can be produced from the fermentation of monosaccharides, such as glucose, $C_6H_{12}O_6$, which is derived from polysaccharides found in plants.
Write an equation for the fermentation reaction of glucose.

Solution

Solution will appear here