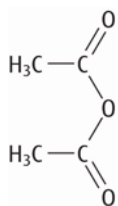


# Marking scheme for AHL Worksheet – Option G

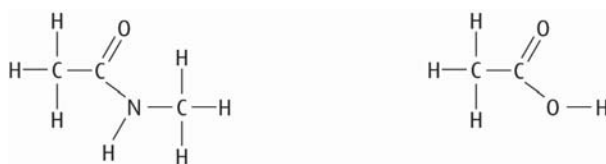
1 a

[1]



b

[2]



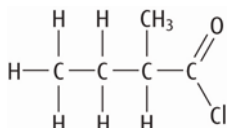
c addition-elimination

[1]

2

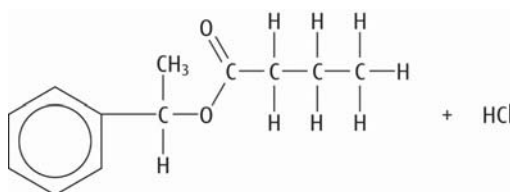
a

[2]

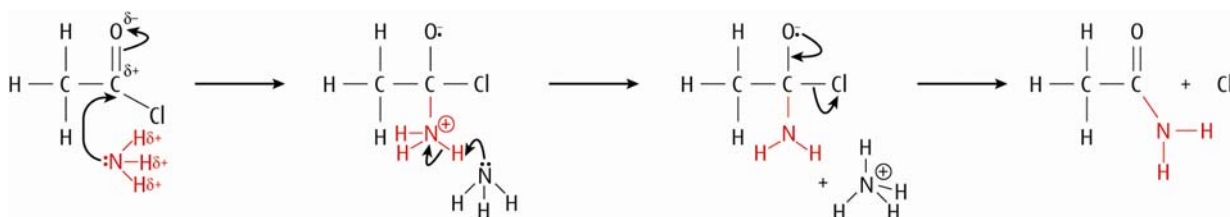


b

[2]



c



curly arrow from lone pair on N to C and curly arrow from C=O to O

[1]

structure of intermediate

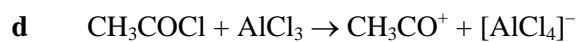
[1]

deprotonation, which can be shown at either stage

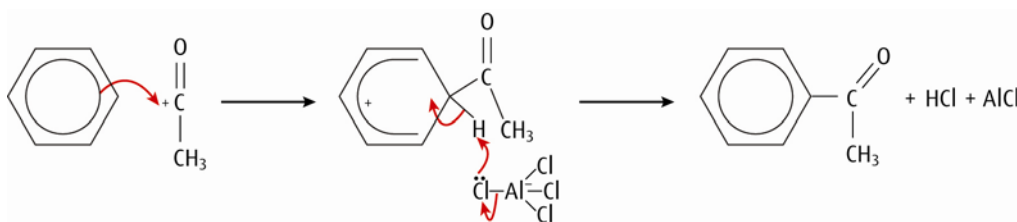
[1]

curly arrow from O to bond and from C-Cl bond to Cl

[1]



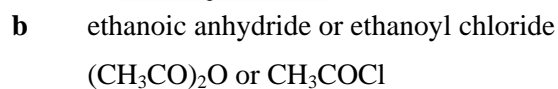
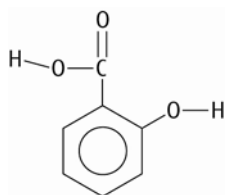
[1]



1 mark for each stage, including formation of electrophile

3 **a**

[1]



[1]

[1]

4



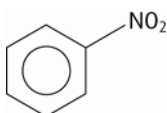
[1]

concentrated nitric acid and concentrated sulfuric acid

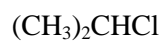
[1]

heat

[1]



[1]



[1]



[1]