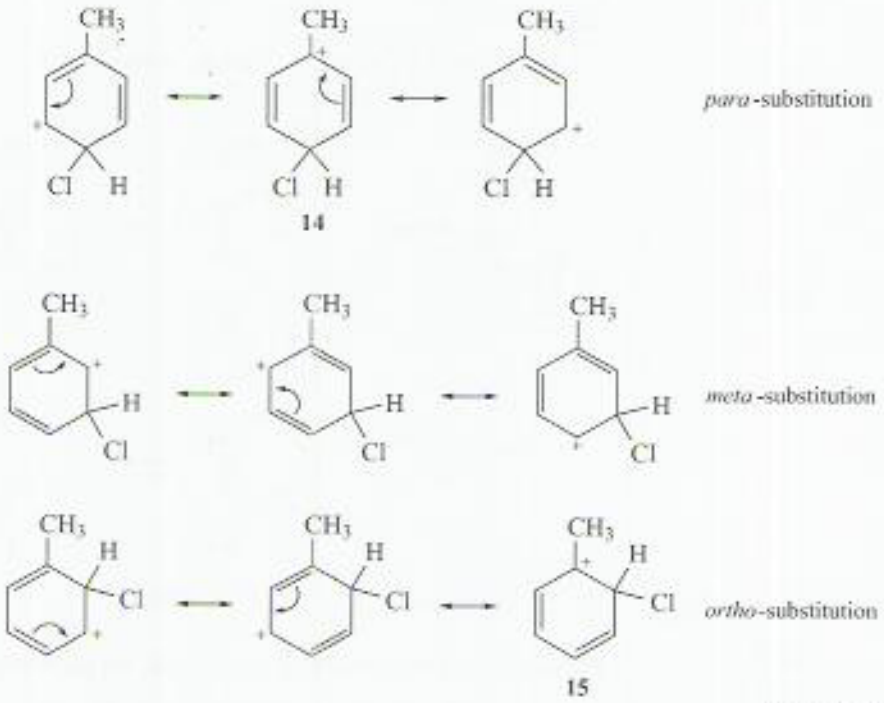


SCHEME 8

The *ortho*- and *para*-product pathways involve intermediates that have resonance forms with more-stable tertiary carbocations (**14** and **15**). The *meta*-product route involves no such intermediate, and therefore does not benefit from such stabilization. The *meta*-product intermediate is therefore the least-stable intermediate, and the *meta*-isomer is a minor product.

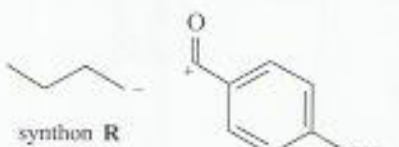
The influence of steric effects means that attack at the *para* position to give Compound **6** occurs more readily than it does at the *ortho* positions.

Question 15

(*a*) The carbon–carbon bond disconnections occur in steps *d* and *e*.

The FGIs occur in steps *a* (acetal to ketone), *b* (aromatic to cycloalkane) and *c* (ketone to acetal). [*Only two out of these three FGIs were asked for in the question.*]

(*b*) (i)



synthon **R** synthon **S**

(ii)

Organolithium reagents are reactive enough to react with carboxylate anions (formed by loss of H^+ from Structure **8**), whereas other organometallic reagents are insufficiently reactive, and stop at this stage.