

Q. 36 Under which of the following reaction conditions, aniline gives *p*-nitro derivative as the major product?

- (a) Acetyl chloride/pyridine followed by reaction with conc.  $\text{H}_2\text{SO}_4$  + conc.  $\text{HNO}_3$
- (b) Acetic anhydride/pyridine followed by conc.  $\text{H}_2\text{SO}_4$  + conc.  $\text{HNO}_3$
- (c) Dil.  $\text{HCl}$  followed by reaction with conc.  $\text{H}_2\text{SO}_4$  + conc.  $\text{HNO}_3$
- (d) Reaction with conc.  $\text{HNO}_3$  + conc.  $\text{H}_2\text{SO}_4$

Ans. (a, b)

Aniline or reaction with acetyl chloride or acetic anhydride in the presence of pyridine produces *N*-acetyl aniline which is a *ortho*, *para* directing group which on further reaction with nitrating mixture (conc.  $\text{HNO}_3$  + conc.  $\text{H}_2\text{SO}_4$ ) produces *p*-nitroaniline preferentially as shown below.

