

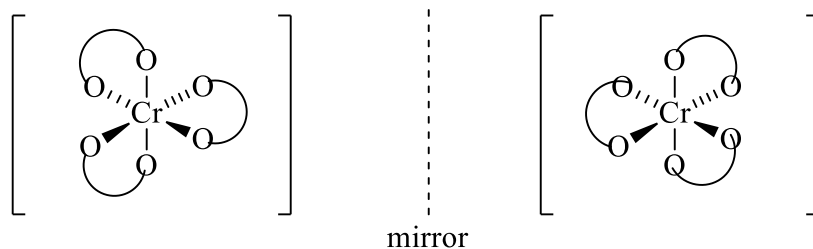
- Which of the following complexes is/are chiral? Explain your reasoning. Use diagrams where necessary.

**Marks**  
**3**

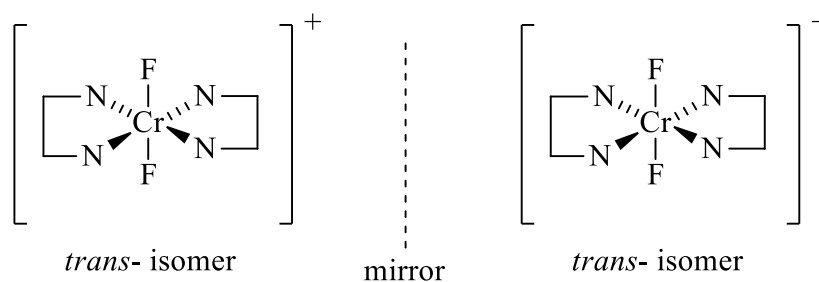
acetylacetonate ion =  $\text{CH}_3\text{COCHCOCH}_3^-$

ethylenediamine =  $\text{NH}_2\text{CH}_2\text{CH}_2\text{NH}_2$

**tris(acetylacetonato)chromium(III) is chiral – mirror images are non-superimposable**



**trans-bis(ethylenediamine)difluoridochromium(III) ion is not chiral – it is identical to its mirror image.**



**acetylacetonatobis(ethylenediamine)chromium(III) ion is chiral – mirror images are non-superimposable**

