



19. The colour of KMnO_4 is due to:

- (1) $\text{M} \rightarrow \text{L}$ charge transfer transition (2) $d - d$ transition
(3) $\text{L} \rightarrow \text{M}$ charge transfer transition (4) $\sigma - \sigma^*$ transition

Answer: In KMnO_4 , manganese is in the +7 oxidation state, therefore it is a d^0 ion, hence d^0 and d^{10} ions don't absorb visible spectrum radiation because there are no electrons to jump to higher crystal field orbitals (here in d^{10} ions, there are no free orbitals for electrons to jump to), however Ligand (L) to metal (M) charge transfers happens that is oxygen transfers electrons to the empty d orbitals on the metal atom of Mn.



Correct option is (3) $\text{L} \rightarrow \text{M}$ charge transfer transition