Marks 5

- Complete the following table. Give, as required, the formula, the systematic name, the oxidation number of the underlined atom and, where indicated, the number of *d* electrons for the element in this oxidation state.

Formula	Systematic name	Oxidation number	Number of *d* electrons
$\underline{C}O_2$	**carbon dioxide**	**+IV or +4**	**0**
$Na_2\underline{Cr}O_4$	**sodium chromate**	**+VI or +6**	**0**
$\underline{Fe}Cl_3 \cdot 3H_2O$	**iron(III) chloride-3-water (the non-IUPAC form "iron(III) chloride trihydrate" is also acceptable)**	**+III or +3**	**5**
K_2SO_4	potassium sulfate		

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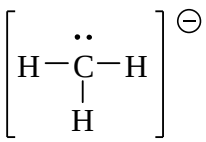
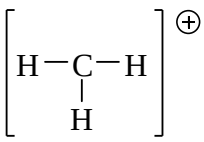
- Draw the Lewis structures, showing all valence electrons for the following species.

CH_3^-	CH_3^+
	

Indicate which of these species you expect will be more stable and explain why.

CH_3^- is more stable as it has a full octet of electrons