**Marks
4**

- 2-Propanol can be oxidised to acetone using $Cr_2O_7^{2-}$ in acidic solution as indicated in the reaction below. The rate of decrease of the $Cr_2O_7^{2-}$ ion under a certain set of conditions is 3.0 mol L^{-1} s^{-1}.

$$3CH_3CH(OH)CH_3 + Cr_2O_7^{2-} + 8H^+ \rightarrow 3CH_3COCH_3 + 2Cr^{3+} + 7H_2O$$

What is the rate of increase in the concentration of Cr^{3+}?

What is the rate of decrease in the concentration of 2-propanol?

The rate law for this reaction is:　　$Rate = k\,[Cr_2O_7^{2-}][CH_3CH(OH)CH_3][H^+]^2$

Complete the following table by writing *increase*, *decrease* or *no change* in the box to indicate how the rate of the reaction is affected by each of the following changes.

Increase in $[CH_3CH(OH)CH_3]$	
Increase in $[CH_3COCH_3]$	
Increase in pH	
Increase in temperature	

4

- Complete the following table.

Formula	Systematic name	Oxidation state of transition metal	Number of d-electrons
$K_2[Pt(CN)_4]$			
$[Co(H_2O)_6]Cl_2$			