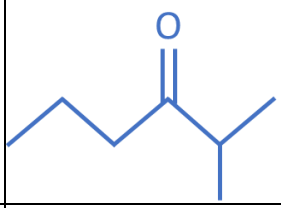
Retrieval Practice: Year 13 Number 4

Rules: Never look at your notes for retrieval practice! Do as many as you can, even if they are educated guesses. When you have tried (hard!) to answer them all, check the mark scheme and rate each question:

- Easy, remembered perfectly
- Harder – could remember part of it or was familiar when I saw the answer
- Very hard – didn't recognise the answer so need to go back over this

	Question	Rating
1	Write an ionic equation for the reaction between potassium bromide and chlorine	
2	Name the type of reaction occurring between ethene and hydrogen bromide	
3	Calculate the energy transferred, in Joules, if 200 cm^3 of water was heated from 21°C to 55°C (Specific heat capacity of water = 4.18 $Jg^{-1}K^{-1}$)	
4	Draw the skeletal formula of 2-methylhexan-3-one	
5	Calculate the M_r of hydrated sodium carbonate, $Na_2CO_3.10H_2O$	
6	Write a balanced equation, with state symbols, for the standard enthalpy of combustion of pentan-1-ol	
7	Calculate the number of moles of gas present if the gas occupies a volume of 500 cm^3 at 50°C and 200 kPa pressure (R = 8.31 $Jmol^{-1}K^{-1}$). Give your answer to 3SF.	
8	Define relative atomic mass	
9	Give the reagents and conditions for the reaction to produce propanal from propan-1-ol	
10	Write an equation, including state symbols, for the second ionisation energy of potassium	

Answers:

	Question
1	Write an ionic equation for the reaction between potassium bromide and chlorine *$2Br^- + Cl_2 \rightarrow 2Cl^- + Br_2$*
2	Name the type of reaction occurring between ethene and hydrogen bromide *Electrophilic addition*
3	Calculate the energy transferred, in Joules, if 200 cm^3 of water was heated from 21°C to 55°C (Specific heat capacity of water = 4.18 $Jg^{-1}K^{-1}$) *$q = mc\Delta T$* *$q = 200 \times 4.18 \times 34 = 28424$ J*
4	Draw the skeletal formula of 2-methylhexan-3-one 
5	Calculate the M_r of hydrated sodium carbonate, $Na_2CO_3.10H_2O$ *$106 + 10 \times 18 = 286$*
6	Write a balanced equation, with state symbols, for the standard enthalpy of combustion of pentan-1-ol *$C_5H_{11}OH\ (l) + 7.5\ O_2\ (g) \rightarrow 5\ CO_2\ (g) + 6\ H_2O\ (l)$*
7	Calculate the number of moles of gas present if the gas occupies a volume of 500 cm^3 at 50°C and 200 kPa pressure. Give your answer to 3SF. (R = 8.31 $Jmol^{-1}K^{-1}$) *$P = 200\ 000$ Pa $V = 5 \times 10^{-4}\ m^3$ $T = 323$ K* *$n = PV/RT = 0.0373$ (be careful of rounding!)*
8	Define relative atomic mass • *the (weighted) mean/average mass of an **atom*** • *on a scale where one ^{12}C atom = 12/ compared to 1/12th of a ^{12}C atom*
9	Give the reagents and conditions for the reaction to produce propanal from propan-1-ol *Acidified (potassium) dichromate (or $Cr_2O_7^{2-}/H^+$)* *Distil the product as it forms/heat under distillation*
10	Write an equation, including state symbols, for the second ionisation energy of potassium *$K^+\ (g) \rightarrow K^{2+}\ (g) + e^-$*