Multiple Choice Answers

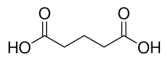
Q27: B

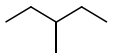
Multiple Choice Answers

Q27: A
Q28: C
Q29: C

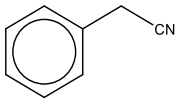
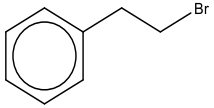
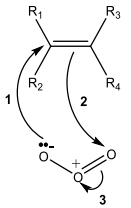
Multiple Choice Answers

Q25: A

3(a)	simplest /lowest (whole number / integer) ratio of atoms (of each element) in a compound / molecule
3(b)	two of:  **OR** **OR**
3(c)(i)	homolytic
3(c)(ii)	**M1** $C_5H_{10} + Cl\bullet \rightarrow C_5H_9\bullet + HCl$ **M2** $C_5H_9\bullet + Cl_2 \rightarrow C_5H_9Cl + Cl\bullet$
3(c)(iii)	termination
3(d)(i)	HCl (g)
3(d)(ii)	**M1** (reaction 1): –3115 –286 + 3292 = –109 (kJ mol^{-1}) **M2** ΔH_2 = – 53 – (–109) = (+)56 (kJ mol^{-1})
3(e)(i)	
3(e)(ii)	**M1** absorption labelled at approx. 3000 cm^{-1} identified as O—H **M2** absorption labelled at approx. 1720 cm^{-1} identified as C=O

3(a)	**M1** (family of molecules / compounds / series with) same general formula **OR** (family of molecules where) molecular formula differs (only) by (units of) $CH_{2(n)}$. **M2** similar chemical properties / reactions
3(b)	**M1** strong C—H (bonds) **M2** non-polar (C—H / molecule / bonds)
3(c)	cracking
3(d)(i)	 **M1**  **M2**
3(d)(ii)	**M1** B < A < hexane. **M2** hexane / unbranched has stronger / more IMFs **M3** hexane / unbranched requires most / more energy
3(e)(i)	H_2 ((g)) **OR** hydrogen (gas)
3(e)(ii)	**M1** +215 + (–156) – (+48) = **M2** +11 kJ mol^{-1}
3(e)(iii)	$C_6H_{14} + 9½O_2 \rightarrow 6CO_2 + 7H_2O$

9(a)	**M1:** (basicity linked to) ability of lone pair / p-orbital to **AND** accept / coordinate with a proton / H^+ **M2:** (lone pair of) electrons on N is delocalised into C=O group (and make amides neutral)

9(b)(i)	**M1: M**  **M2: N** 
9(b)(ii)	Li*Al*H$_4$
9(c)	ketone / carbonyl **AND** secondary / 2^o
9(d)(i)	 curly arrow 1: from O lone pair to C atom (in C=C) curly arrow 2: from C=C bond to the right-hand O atom in O=O curly arrow 3: from O=O bond to O$^+$

9(d)(ii)