Multiple Choice Answers

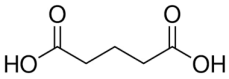
Q3: B

Multiple Choice Answers

Q4: B

Q17: A

Q40: D

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

1(a)	**I** The following data are recorded: • two burette readings **AND** titre for the rough titration • initial and final burette readings for **two** (or more) accurate titrations
	II Titre values recorded for accurate titrations, **AND** Correct headings and units in the accurate titration table • initial / start **AND** (burette) reading / volume • final / end **AND** (burette) reading / volume • titre **OR** volume used/added/ **OR FA 2** used/added • unit: / cm^3 **OR** (cm^3) **OR** in cm^3 (for each heading) **OR** cm^3 unit given for each volume recorded.
	III All accurate burette readings recorded to 0.05 cm^3
	IV The final accurate titre recorded must be within 0.10 cm^3 of any other accurate titre
	Accuracy (Q) marks Round burette readings to the nearest 0.05 cm^3. Check and correct titre subtractions where necessary. Examiner selects the best mean titre, using the following hierarchy: • two (or more) accurate identical titres (ignoring any that are labelled 'rough'), *then* • two (or more) accurate titres within 0.05 cm^3, *then* • two(or more) accurate titres within 0.10 cm^3, *etc.* Calculate the candidate's mean titre value Calculate the supervisor's mean titre value Calculate the difference (δ) between the candidate's mean titre and the supervisor's mean titre
	Award accuracy Q marks as follows: **V** Award if $\delta \leqslant 0.50$ cm^3 **VI** Award if $\delta \leqslant 0.30$ cm^3 **VII** Award if $\delta \leqslant 0.20$ cm^3
1(b)	Correctly calculates mean titre to 2 dp • Candidate must take the average of two (or more) titres that are within a total spread of not more than 0.20 cm^3. • Working/explanation must be shown **OR** ticks must be put next to the two (or more) accurate readings selected. • The mean should be quoted to 2 dp and be rounded to nearest 0.01 cm^3. (*e.g. 26.675 cm^3 must be rounded to 26.68 cm^3*)
1(c)(i)	All answers to **(c)(ii)**, **(c)(iii)** and **(c)(iv)** to 3 − 4 sf
1(c)(ii)	Correctly calculates amount of manganate(VII) = 0.02 × volume in **(b)** / 1000 mol
1(c)(iii)	Correctly uses **M1** Amount of ethanedioic acid = **(c)(ii)** × 5 / 2 mol **M2** Concentration of **FA 1** = **(c)(ii)** × $^{5}/_{2}$ × $^{1000}/_{25}$ mol dm^{-3}
1(c)(iv)	Correctly uses M_r = 6.2(0) / **(c)(iii)**
1(c)(v)	(M_r − 90) / 18 **AND** correctly calculates answer as integer
1(d)	H^+ needed in the reaction / H^+ used in / appears in the equation