Assessment schedule: practice paper 2026

AS 91165 Demonstrate understanding of the properties of selected organic compounds · Vertex Academy practice paper, not an NZQA paper

QUESTION ONE

Part	Evidence	Achievement (u)	Merit (r)	Excellence (t)
(a)	(i) propan-1-ol (ii) propan-2-ol (iii) propanoic acid (iv) 2-chloropropane	All four names correct AND both alcohols classified correctly.		
(b)	$CH_3CH_2CH_2CH_2CH_3$ $CH_3CH(CH_3)CH_2CH_3$ $C(CH_3)_4$	All three isomers with correct formulas and names.		
(c)	C=C cannot rotate but-2-ene: H and CH_3 on each C of the C=C but-1-ene: two H on carbon 1	Describes cis and trans but-2-ene, OR states that rotation about the C=C bond is restricted.	Explains that rotation is restricted AND that each carbon of the C=C must carry two different groups, applied to both molecules.	
(d)	elimination: H and Cl removed H from carbon 1 H from carbon 3 but-2-ene has cis and trans isomers major: H removed from the carbon with fewer H atoms	Names the reaction as elimination. Names one product correctly.	Names but-1-ene, cis-but-2-ene and trans-but-2-ene, OR explains that two different alkenes form because the H can come from either neighbouring carbon.	Discusses all of: two positions for the C=C giving but-1-ene and but-2-ene, cis and trans isomers of but-2-ene, AND but-2-ene as the major product (H removed from the carbon with fewer H atoms).

QUESTION TWO

Part	Evidence	Achievement (u)	Merit (r)	Excellence (t)

(a)	orange to colourless, quickly product: CH_2BrCH_2Br, 1,2-dibromoethane addition	Observation, product name and reaction type all correct.		
(b)	orange $Cr_2O_7^{2-}$ to green Cr^{3+} product: ethanoic acid, CH_3COOH oxidation	Colour change, product name and reaction type all correct.		
(c)	$CH_3CH=CH_2 + HBr$ major: $CH_3CHBrCH_3$, 2-bromopropane minor: $CH_2BrCH_2CH_3$, 1-bromopropane	Names both products correctly.	Identifies 2-bromopropane as the major product AND explains it with the rule that H adds to the carbon of the C=C that already has more H atoms.	
(d)	bromine water: hex-1-ene orange to colourless quickly hexane and hexan-1-ol: no quick change acidified dichromate, warm: hexan-1-ol orange to green hexane: no change with either reagent	One correct observation with a reagent (for example, hex-1-ene decolourises bromine water).	Identifies hex-1-ene with bromine water, giving the product and reaction type, OR identifies hexan-1-ol with dichromate, giving the product and reaction type.	Discusses a complete scheme that identifies all three liquids, with observations, products (1,2-dibromohexane, hexanoic acid), reaction types (addition, oxidation), and why hexane shows no change.

QUESTION THREE

Part	Evidence	Achievement (u)	Merit (r)	Excellence (t)
(a)	longer chain longer chain	Describes both trends correctly: boiling point increases AND solubility decreases as the chain gets longer.		

(b)	addition polymerisation C=C opens repeating unit: $–CH_2–CH(CH_3)–$	Names addition polymerisation AND gives the correct repeating unit.		
(c)	bubbles of CO_2 $2CH_3COOH + Na_2CO_3 \rightarrow 2CH_3COONa + H_2O + CO_2$ $CH_3COOH + H_2O \rightleftharpoons CH_3COO^- + H_3O^+$ weak acid, only partly reacts	Bubbles of gas (CO_2) observed, OR one correct equation.	Both equations correct AND explains the pH: ethanoic acid only partly reacts with water, so few H_3O^+ ions form.	
(d)	ethanoic acid: blue to red ethanol: no change to either methanamine: red to blue $CH_3NH_2 + HCl \rightarrow CH_3NH_3^+Cl^-$	States that ethanoic acid is acidic AND methanamine is basic, with the litmus colour changes.	One correct equation with water, OR the correct product with hydrochloric acid.	Discusses all three with litmus results, equations for ethanoic acid and methanamine with water, why ethanol is neutral, AND the salt formed with hydrochloric acid.

Judgement for each question

N0	N1	N2	A3	A4	M5	M6	E7	E8
No response; no relevant evidence.	1a.	2a, or 1m.	3a, or 1a and 1m.	4a, or 2a and 1m.	2m, or 1e.	2a and 2m, or 1m and 1e.	1e and 1m, with a minor error or omission elsewhere.	2a, 1m and 1e: every part correct.

Grade score out of 24 (each question's grade: N0 = 0 to E8 = 8): Not Achieved 0 to 7, Achieved 8 to 13, Merit 14 to 18, Excellence 19 to 24 (the 2025 exam's cut scores).