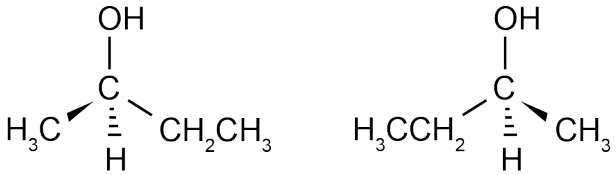
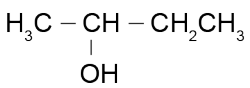
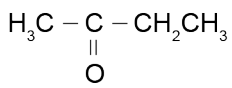
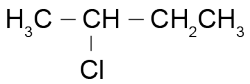
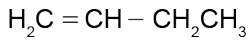
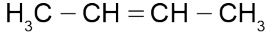
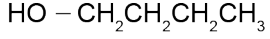
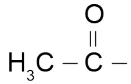
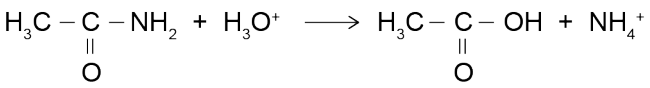
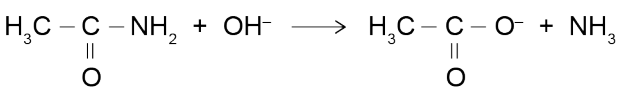
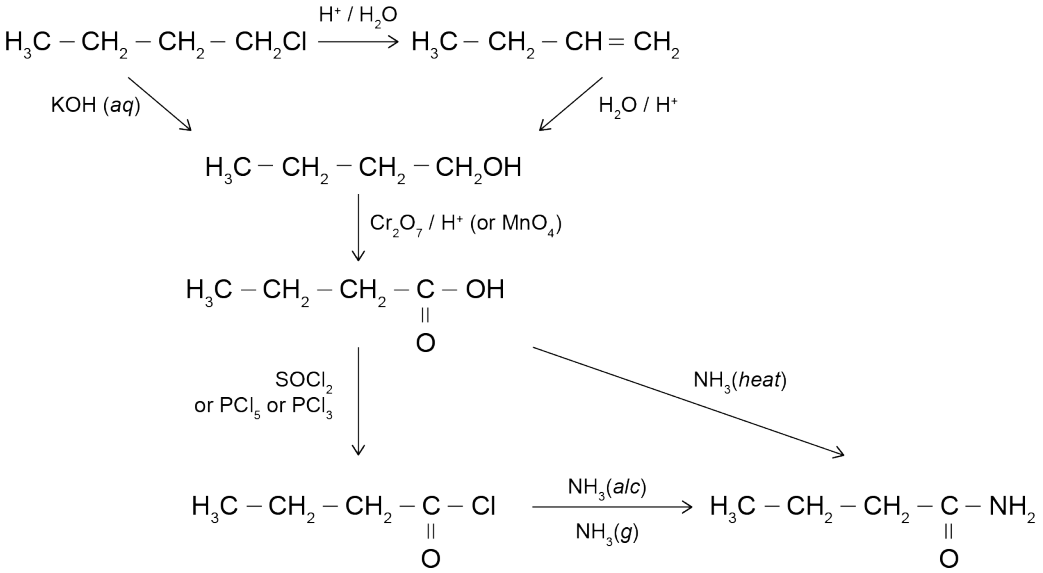
Assessment Schedule – 2012

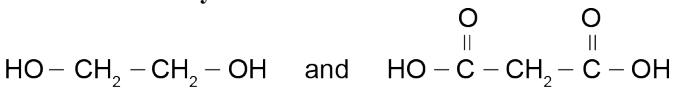
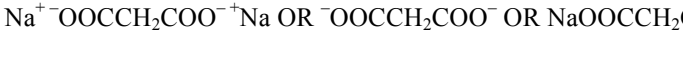
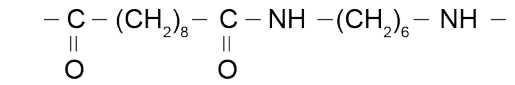
Chemistry: Describe aspects of organic chemistry (90698)

Evidence Statement

Q	Evidence	Achievement	Achievement with Merit	Achievement with Excellence
ONE (a)(i)	A carbon atom must have four different groups / atoms.	EITHER: • (i) correct	Two of (i), (ii), (iii) in Part (a) correct	Part (a) correct
(ii)	They rotate (plane) polarised light in opposite / different directions. OR they undergo stereospecific reactions e.g. enzymes, smell.	OR • (ii) correct		
(iii)		AND	AND	AND
		EITHER: • Both structures in (iii) correct.		
(b)	**A** (butan-2-ol)  **B** (butanone)  **C** (2-chlorobutane)  **D** (but-1-ene)  **E** (but-2-ene)  **F** (butan-1-ol) 	OR • Two correct structural formula WITH names.	• THREE correct structural formula with names.	ALL formulae and names correct.

Q	Evidence	Achievement	Achievement with Merit	Achievement with Excellence
TWO	$H_3C - CH_2 - CH_2 - NH_2$ is propanamine / 1-aminopropane Propanamine will turn **damp** (red) litmus blue. $H_3CCH_2CH_2NH_2 + H_2O \rightleftharpoons H_3CCH_2CH_2NH_3^+ + OH^-$ $H_3C - CH_2 - CHO$ is propanal. Propanal will react with Tollens' reagent, forming a silver mirror / precipitate. Reaction: $CH_3CH_2CHO + Ag^+ \rightarrow CH_3CH_2COOH + Ag$ (OR half equations) $H_3C - COCl$ is ethanoyl chloride. Ethanoyl chloride will react vigorously with water OR Ethanoyl chloride will turn **damp** (blue) litmus paper red. Reaction: $CH_3COCl + H_2O \rightarrow CH_3COOH + HCl$  is propanone. Propanone will not react with any of the reagents.	THREE correct names given to their appropriate formula OR TWO substances positively identified.	THREE substances correctly named. AND THREE substances positively identified. OR TWO substances positively identified, with corresponding reasoning / equation.	All chemicals correctly identified and named, with TWO appropriate equations.

Q	Evidence	Achievement	Achievement with Merit	Achievement with Excellence
THREE (a)		Any TWO reactions correct including reagents.	Any THREE reactions correct including reagents.	ALL reactions correct . *(Allow one reaction error.)*
				
(b)		(States and / or conditions not required.)	(States and / or conditions ARE required.)	(States and / or conditions ARE required.)

Q	Evidence	Achievement	Achievement with Merit	Achievement with Excellence
FOUR (a)	**Monomers of Polymer A:**  or diacylchloride **Monomer of Polymer B:** 	TWO of: • At least one monomer is correctly identified for either polymer A or polymer B.	FOUR of: • Monomer(s) correctly identified for both polymers.	FIVE of: • Monomer(s) correctly identified for both polymers.
(b)	Polymer A  AND  	• Identifies polymer A by drawing the structure of ONE product. • Draws a repeating unit.	• Identifies polymer A by drawing the structure of BOTH products. • Draws a repeating unit.	• Identifies polymer A by drawing the structure of BOTH products. • Draws a repeating unit.
(c)	• The diamine is water soluble because it is a polar molecule / forms hydrogen bonds with water / partially ionises. • Sebacoyl chloride (acid chloride) is dissolved in the non-polar solvent, as it reacts (vigorously) with water forming acidic solutions. • $NaHCO_3$ is added to the solution to neutralise the HCl / neutralise the acid formed during the reaction / prevent the nylon from undergoing acid hydrolysis.	• Outlines why the amine is dissolved in water. • Outlines why sebacoyl chloride is dissolved in an organic solvent. • Outlines why $NaHCO_3$ is added.	• Outlines why the amine is dissolved in water. • Outlines why sebacoyl chloride is dissolved in an organic solvent. • Outlines why $NaHCO_3$ is added.	Outlines why the amine is dissolved in water. • Outlines why sebacoyl chloride is dissolved in an organic solvent. • Outlines why $NaHCO_3$ is added.

Judgement Statement

Achievement	Achievement with Merit	Achievement with Excellence
3 **A** *OR* 2 **M**	3 **M**	3 **E** *OR* 2 **E** + 2 **M**