

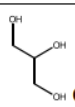
18. Carboxylic acids and derivatives

18.2 Esters

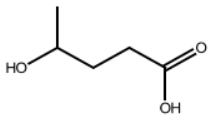
Paper 2

Marking Scheme

Q1.

(c)(i)	<i>suggest suitable reagent and conditions for step 1</i> heat AND any dilute named mineral acid e.g. dilute sulfuric acid / dilute hydrochloric acid	1
(c)(ii)	 OR CH ₂ OHCH(OH)CH ₂ OH	1
(c)(iii)	condensation	1
(c)(iv)	methanol	1
(c)(v)	methyl decanoate	1

Q2.

(d)(i)	ester	1
(d)(ii)	condensation	1
(d)(iii)		1

Q3.

(c)(i)	H ₂ O / steam	1
(c)(ii)		1
(c)(iii)	condensation	1
(d)(i)	$\text{H}_3\text{PO}_4 + 3\text{CH}_3\text{OH} \rightarrow (\text{CH}_3\text{O})_3\text{PO} + 3\text{H}_2\text{O}$	1

Q4.

(g)(i)	<i>Molecular formula of W</i> C ₃ H ₆ O ₂	1
(g)(ii)	<i>Possible structure of W</i> CH ₃ COOCH ₃ OR HCOOCH ₂ CH ₃	1

Q5.

(a)(i)	oxidation	1
(a)(ii)	M1: potassium dichromate(VI) M2: acid(ified) AND (heat under) reflux	2

Q6.

(a)(ii)	NaOH / sodium hydroxide	1
a(iii)	$\begin{array}{ccccccc} & \text{H} & \text{H} & \text{H} & & & \\ & & & & & & \\ \text{H} & - \text{C} & - \text{C} & - \text{C} & - \text{O} & & \\ & & & & & & \\ & \text{H} & \text{H} & \text{H} & \text{H} & & \end{array}$	1
(a)(iv)	perfume / solvent	1