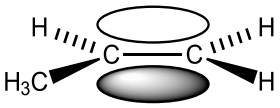
3(a)(i)	
3(a)(ii)	yellow precipitate
3(a)(iii)	elimination
3(a)(iv)	
3(b)(i)	$(CH_3)_2CHOH + Na \rightarrow (CH_3)_2CHO^{(-)}Na^{(+)} + \frac{1}{2}H_2$
3(b)(ii)	**M1** correct dipole on $^{\delta+}C—Br^{\delta-}$ **AND** curly arrow from C—Br bond to Br **M2** intermediate  **M3** curly arrow from lone pair of $(CH_3)_2CHO^-$ to C^+
3(b)(iii)	**M1** rate would decrease **M2** C—Br is weaker (than C—C*l*, so breaks more easily)
3(b)(iv)	$C_6H_{14}O + 9O_2 \rightarrow 6CO_2 + 7H_2O$

3(a)(i) 2 * = 1 mark (round down). Max 5 marks.

test	*observations*	
	FA 4	**FA 5**
1 + NaOH(aq)	red-brown / brown ppt **AND** insoluble in excess *	white ppt * soluble in excess *
2 + NH_3(aq)	red-brown / brown ppt **AND** insoluble in excess *	white ppt **AND** insoluble in excess *
3 + Na_2CO_3(aq)	fizzing * gas gives white ppt with limewater * red-brown ppt *	white ppt * fizzing * gas gives white ppt with limewater (award if not awarded for **FA 4**)
4 + $BaCl_2$(aq) / $Ba(NO_3)_2$(aq)	white ppt **AND**	white ppt *
5 + H^+ / $KMnO_4$(aq)	stays purple / no change **AND**	stays purple / no change *

3(a)(ii)

ions	**FA 4**	**FA 5**
cations	Fe^{3+}; H^+	Al^{3+}
anions	SO_4^{2-}	SO_4^{2-}

5 ions correct = 3 marks
3 or 4 ions correct = 2 marks
2 ions correct = 1 mark

3(b)(i)

2 * = 1 mark (round down)

test	*observations*	
	FA 6	**FA 7**
1 + H^+ / $KMnO_4$(aq)	(turns paler pink)	(purple fades slightly)
and warm	decolourises / turns colourless / turns (pale) yellow *	decolourises / turns colourless / turns (pale) yellow *
2 + I_2(aq) + NaOH (and warm)	no change *	ppt * that is (pale) yellow *
3 + Na_2CO_3(aq)	fizzing *	no change *

3(b)(ii)

M1 (**FA 6** is) methanoic acid because it produces CO_2 / reacts with sodium carbonate
AND it can be oxidised / it reacts with $KMnO_4$

M2 (**FA 7** is) propan-2-ol as it gives a ppt in test 2
OR gives a positive tri-iodomethane/iodoform test
OR has the $-CH(OH)CH_3$ group

3(c)

Correct equation
$CH_3CH_2COOH + CH_3CH_2OH \rightarrow CH_3CH_2COOCH_2CH_3 + H_2O$
OR
$C_2H_5COOH + C_2H_5OH \rightarrow C_2H_5COOC_2H_5 + H_2O$