

Question 35 (Answer: **A**)

- Alkaline hydrolysis of an ester gives the sodium *salt* of the acid plus the alcohol.
- The acyl part here is $\text{CH}_3\text{CO}-$, so the salt is sodium ethanoate.
- The alcohol formed is propan-1-ol, which is neutral – not an alkoxide.

Question 36 (Answer: **C**)

- In an ester the acyl part (before the O) comes from the acid and the part after the O comes from the alcohol.
- $\text{CH}_3\text{CH}_2\text{CO}-$ comes from propanoic acid.
- $-\text{OCH}_2\text{CH}_3$ comes from ethanol.

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 + $\text{NH}_3(\text{aq})$	red-brown / brown ppt AND insoluble in excess *	white ppt AND insoluble in excess *
	3 + $\text{Na}_2\text{CO}_3(\text{aq})$	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 + $\text{BaCl}_2(\text{aq})$ / $\text{Ba}(\text{NO}_3)_2(\text{aq})$	white ppt AND	white ppt *
	5 + $\text{H}^+ / \text{KMnO}_4(\text{aq})$	stays purple / no change AND	stays purple / no change *

3(a)(ii)	<i>ions</i>	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)		
	<i>test</i>	<i>observations</i>	
		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 ₂ CO 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 $-\text{CH}(\text{OH})\text{CH}_3$ group
3(c)	Correct equation $\text{CH}_3\text{CH}_2\text{COOH} + \text{CH}_3\text{CH}_2\text{OH} \rightarrow \text{CH}_3\text{CH}_2\text{COOCH}_2\text{CH}_3 + \text{H}_2\text{O}$ OR $\text{C}_2\text{H}_5\text{COOH} + \text{C}_2\text{H}_5\text{OH} \rightarrow \text{C}_2\text{H}_5\text{COOC}_2\text{H}_5 + \text{H}_2\text{O}$