

Name of the Student: _____

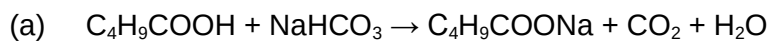
Max. Marks : 22 Marks

Time : 22 Minutes

Mark Schemes

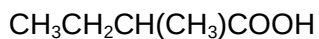
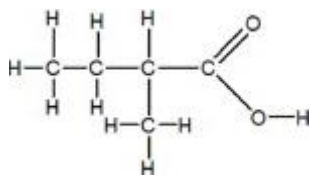
- Q1.
- (a) **M1** + 3 C₂H₆
- M2** Zeolite/Aluminosilicate/Aluminium oxide 2
- (b) Option B 1
- (c) Alkenes 1
- (d) **M1** Initial volume O₂ = 0.21 × 1350 = 283.5 (cm³)
- Alternative route:*
- M1 Vol Air decreases by 6.5 × 20 = 130 cm³*
- M2** Volume of O₂ remaining = M1 - (6.5 × 20) = 153.5 cm³
- M2 = 1220 cm³*
- M3** Volume of CO₂ formed = 20 × 4 = 80 cm³
- M3 Vol CO₂ produced = 4 × 20 = 80 cm³*
- M4** Total volume of gas left = M2 + M3 + (0.79 × 1350) = 1300 cm³
- M4 Total Vol Air + CO₂ = 1220 + 80 = 1300 cm³* 4
- (e) **M1** Acid rain
- M1 Allow damages (limestone) buildings or statues/death of aquatic organisms/air pollution*
- M2** CaO or CaCO₃ 2
- [10]**

Q2.



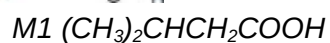
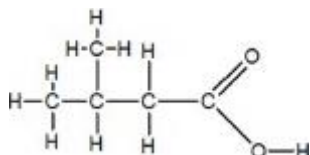
1

(b)



1

(c) **M1**

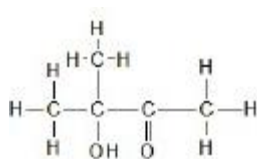


M2 6:1:2:1 (Any order)

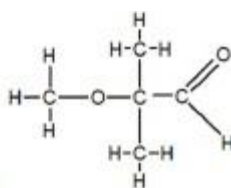
M2 Allow ECF for a 5 carbon carboxylic acid

2

(d) **M1**

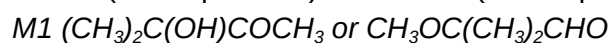


Or



M2

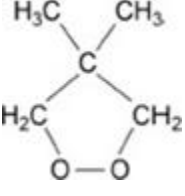
Adjacent C has no (non-equivalent) H attached (so no splitting/spin-spin coupling takes place)



2

(e)

	Scores M1 and M2	Allow M1 for	
	Scores M3 and M4	Allow M3 for	RCH_3
	Scores M5		This structure also scores M5

			
^{13}C peaks	= 3	M6	Allow ECF from their M5 of $\text{C}_5\text{H}_{10}\text{O}_2$

6

[12]