Practice Question Set For A-Level
Subject : Chemistry
Paper-2 Topic: Alkanes

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Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

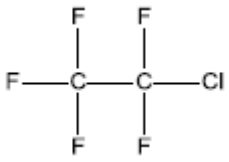
Mark Schemes

Q1.

(a) M1 $\bullet Cl + O_3 \longrightarrow \bullet ClO + O_2$ **1**

M2 $\bullet ClO + O_3 \longrightarrow \bullet Cl + 2O_2$ **1**

M1 and M2 could be in either order
Credit the dot anywhere on the radical
Penalise absence of dot once only
Individual multiples acceptable but both need to be doubled if two marks are to be awarded
Ignore state symbols

(b) 

Must be displayed formula **1**

(c) Does not contain Cl or does not release Cl (atoms/radicals)
or no C-Cl bonds
or C-F bond(s) strong / does not break / no F (atom/radicals) released **1**

(d) M1 $CHF_2CH_3 + \bullet F \longrightarrow \bullet CF_2CH_3 + HF$ **1**

M2 $\bullet CF_2CH_3 + F_2 \longrightarrow CF_3CH_3 + \bullet F$ **1**

M1 and M2 could be in either order
Credit the dot anywhere on the radical
Penalise absence of dot once only

(e) M1 moles CF_3CH_3 = 1410/84(.0) (=16.8, 16.79 mol) **1**

M2 molecules = M1 × $6.022 \times 10^{23} = 1.01 \times 10^{25}$ (3sf only) **1**

Correct answer scores both marks
Allow M2 for M1 × Avogadro with answer to 3 sf (but must have

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attempted to calculate moles for M1)
Ignore incorrect units

(f) (bonds) vibrate/stretch/bend OR (as bonds) are polar
NOT polar molecules; 'they' = bonds

1

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Q2.

(a) (i) Alk**ane(s)**

Ignore C_nH_{2n+2}

1

(ii) $C_8H_{18} + 12.5O_2 \rightarrow 8CO_2 + 9H_2O$

Allow multiples

1

(iii) 2, 2, 4-trimethylpentane

1

(b) (i) But-1-ene

Ignore (E or Z)

1

(ii) $C_{14}H_{30}$

1

(iii) Thermal

If catalytic CE = 0

1

High pressure / 7000kPa / 70 atms
and
High temperature/temperature in range 400-1000°C (673–1273K)

(Allow ≥1000 kPa or ≥10 atms – no upper value)

Allow high temperature and pressure or high pressure and temperature

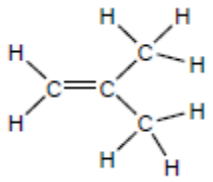
If no units for temperature allow 673-1000

Must show unambiguous structure

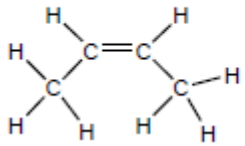
Penalise lack of displayed formula once only

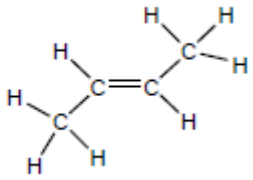
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(iv)

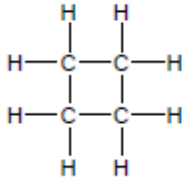


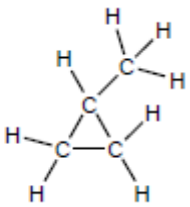
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1





1

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