

ORGANIC 1

1.

(a) Only single bonds between carbon atoms 1 [1]

(b) (i) Water

Carbon dioxide [2]

(ii) No carbon or soot produced

No nitrogen oxides produced

No sulphur oxides produced

No carbon monoxide produced

[2]

Total [5]

2.

any two of: [2]

family of similar (organic) compounds /

with similar chemical properties /

presence of same functional group /

same general formula /

allow: compounds with a trend in physical properties

allow: difference of CH_2 between one member and another

[2]

3.

One general formula / same general formula;

differ by CH_2 ;

similar chemical properties;

gradual change in physical properties;

Award [1] for any two from last three

functional group: atom or group of atoms responsible for the characteristic reactions of the molecule / homologous series;

3

4.

(a) (i) boiling point increases as number of carbons increases / *OWTTE*;
increased surface area / greater Van der Waals' forces / increased M_r /

increased intermolecular forces / *OWTTE*; 2

(ii) exothermic / energy released / products have less energy than reactants; 1

(b) carbon dioxide; 2
water;

Accept formulas.

[5]

5.

(a) (i) breaking down of molecules substances using heat [1]

(ii) substance which speeds up a reaction [1]

NOT: alters/changes rate of reaction

NOT: speeds up and slows down rate

(b) ethene/ethylene [1]

NOT: formula

(c) (i) paraffin [1]

(ii) 4000g/4kg [1]

(correct unit needed)

(iii) C_2H_4 ; H_2 [2]

(d) (i) two units polymerised with continuation bonds at either end and hydrogen atoms drawn [1]

ALLOW: $\text{--CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{--}$

ALLOW: $\text{--[CH}_2\text{CH}_2\text{--}]_n$

ALLOW: $\text{--[CH}_2\text{--}]_n$

(ii) addition (polymerisation) [1]

[Total 10m]