AQA – Introduction to organic chemistry – AS Chemistry P2

1. June/ 2020/Paper_2/No.10

Which statement is **not** correct about ozone?

[1 mark]

A It absorbs harmful ultraviolet radiation in the upper atmosphere. ⬭

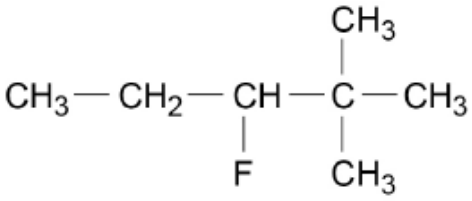
B It decomposes to form oxygen. ⬭

C Its decomposition is catalysed by chlorine molecules. ⬭

D Ozone holes are regions of the upper atmosphere where there is a reduced concentration of ozone. ⬭

2. June/ 2020/Paper_2/No.11

What is the IUPAC name for this compound?



[1 mark]

A 2-dimethyl-3-fluoropentane ⬭

B 2,2-dimethyl-3-fluoropentane ⬭

C 3-fluoro-2,2-dimethylpentane ⬭

D 3-fluoro-2-dimethylpentane ⬭

3. June/ 2020/Paper_2/No.12

What is the IUPAC name of the major product of the reaction between 2-ethylbut-1-ene and hydrogen bromide?

[1 mark]

A 1-bromo-2-ethylbutane ⬭

B 2-bromo-2-ethylbutane ⬭

C 2-bromo-2-methylpentane ⬭

D 3-bromo-3-methylpentane ⬭

4. June/ 2020/Paper_2/No.15

In which reaction does the inorganic reagent act initially as an electrophile?

[1 mark]

A bromoethane with ethanolic potassium hydroxide ⬭

B chloroethane with aqueous sodium hydroxide ⬭

C ethane with chlorine ⬭

D ethene with concentrated sulfuric acid ⬭

5. June/ 2019/Paper_2/No.4

0 4 This question is about fossil fuels.

0 4 . 1 The petrol fraction from crude oil contains octane (C_8H_{18}).

Give an equation for the complete combustion of octane.

[1 mark]

0 4 . 2 The combustion of petrol in car engines produces the pollutant nitrogen monoxide.

Give an equation for a reaction that removes nitrogen monoxide in a catalytic converter.

[1 mark]

0 4 . 3 Sulfur dioxide is produced in the combustion of fossil fuels. The total emissions of sulfur dioxide in the UK have fallen dramatically since 1970.

Sulfur dioxide is now removed from the flue gases in power stations by reaction with calcium oxide.

$$CaO + SO_2 \rightarrow CaSO_3$$

In 1970, the total UK emissions of sulfur dioxide were 6.49 million tonnes (1 tonne = 1000 kg).

Calculate the mass, in kilograms, of calcium oxide needed to react with this mass of sulfur dioxide.

Give your answer in standard form.

[2 marks]

Mass of calcium oxide _____ kg

6. June/ 2019/Paper_2/No.19

Which species can act as a nucleophile?

[1 mark]

A NH_4^+ ⬭

B CH_3OH ⬭

C CH_4 ⬭

D H^+ ⬭

7. June/ 2019/Paper_2/No.21

Which compound has the highest boiling point?

[1 mark]

A $CH_3CH_2CH_2Br$ ⬭

B $CH_3CH_2CH_2F$ ⬭

C CH_3CH_2CHO ⬭

D CH_3CH_2COOH ⬭

8. June/ 2021/Paper_2/No.17

Which compound has the same empirical formula and molecular formula?

[1 mark]

A butane ⬭

B but-1-ene ⬭

C propane ⬭

D propene ⬭

Questions **18**, **19** and **20**

Methanol is made in this equilibrium reaction, using a catalyst.

$$CO(g) + 2H_2(g) \rightleftharpoons CH_3OH(g) \qquad \Delta H = -91 \text{ kJ mol}^{-1}$$