

- 11 (12) -

1. Petrol is a mixture which includes alkanes of chain length  $C_5$  to  $C_{10}$ . Write an equation for the complete combustion of the alkane of chain length  $C_7$ . Name two other products formed by the incomplete combustion of petrol.

(5 points)

Draw the structural formula of hexane  $C_6H_{14}$  and write out its isomers.

(2 points for every formula and the name of an isomer)

2. The weight of a 11.2 l saturated hydrocarbons (gas) is 22 g. Write the molecular and structural formula and then name of the gas.

(6 points)

3. 100 l of propylene was completely burned. What is the minimum of 10% potassium hydroxide solution required to absorb the volume of the products of combustion (get  $KHCO_3$ ).

(10 points)

4. Write the equations for these reactions. Specify the process conditions.

(3 points for every equation)

5. 21 g of pure ethanol acid reacted with the exactly calculated amount of ethanol and a small quantity of concentrated sulphuric acid. 20 g of ethyl acetate was obtained. What was the percentage yield? Why a higher yield was not obtained?

(8 points)