

Chemistry

Section I (continued)

Part B – 60 marks

Attempt Questions 16–27

Allow about 1 hour and 45 minutes for this part

Answer the questions in the spaces provided.

Show all relevant working in questions involving calculations.

Marks

Question 16 (6 marks)

You have carried out a first-hand investigation to compare the reactivity of an alkene with its corresponding alkane.

- (a) State the name of the alkene. 1

Cyclohexene.....

- (b) Outline a procedure to compare the reactivity of this alkene with its corresponding alkane. 2

This experiment was conducted in a fume cupboard where in two test tubes - one containing cyclohexene and the other cyclohexane. ^{none} Each were mixed with the same amount of bromine water and the reactions observed

- (c) Describe the results obtained from this first-hand investigation and include relevant chemical equations. 3

In test tube one, that contained cyclohexene the brown bromine water turned colourless as the ^{alkenes} reactive double bond opened. ^{CH₂}

$$\begin{array}{c}
 \text{H} \\
 | \\
 \text{C} = \text{C} \\
 | \quad | \\
 \text{H} \quad \text{H}
 \end{array}
 + \text{Br}_2 \rightarrow
 \begin{array}{c}
 \text{H} \quad \text{C} \quad \text{C} \quad \text{H} \\
 | \quad | \quad | \quad | \\
 \text{H} \quad \text{Br} \quad \text{Br} \quad \text{H}
 \end{array}$$

The cyclohexane however remained as a brown solution with no bromine water reacting with the alkane.