

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

Place the cyclohexane & cyclohexene into separate test tubes. Add Bromine water [$\text{Br}_2(\text{aq})$] to each and place in a sunny spot so that the solutions receive UV light.

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

No immediate discolouration will occur between the cyclohexane and $\text{Br}_2(\text{aq})$ due to the fact it is a saturated compound thus making the bonds difficult to break. On the other hand, the highly reactive $\text{C}=\text{C}$ bond in the cyclohexene allows for Br_2 to break the double bond. Therefore, in the presence of UV light the solution will immediately discolour. The Bromine water's brown/orange colour will begin to discolour.