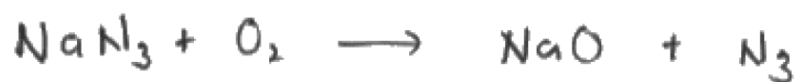


# ACTIVITY 4b – AO2a in Exams – Student Answers

## UNIT 1, Q24(a)

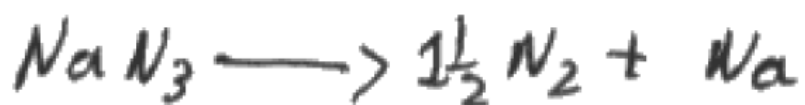
Student 1



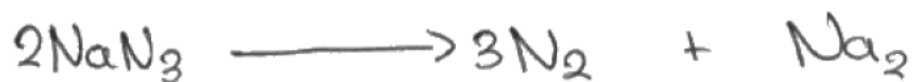
Student 2



Student 3



Student 4



## UNIT 2, Q20(b)

### Student 1

Thermal stability of group 2 carbonates decreases down the group. Because the size of the cation increases as the inner shielding increases with the same no. of ~~valency~~ valency electron. The atomic radius increases down the group. The size of the cation ~~is~~ remain the same. The charge density ~~increases~~ decreases.  $\therefore$  the distortion of electron cloud by group 2 carbonates decreases down the group and  $\therefore$  thermal stability decreases down the group.

### Student 2

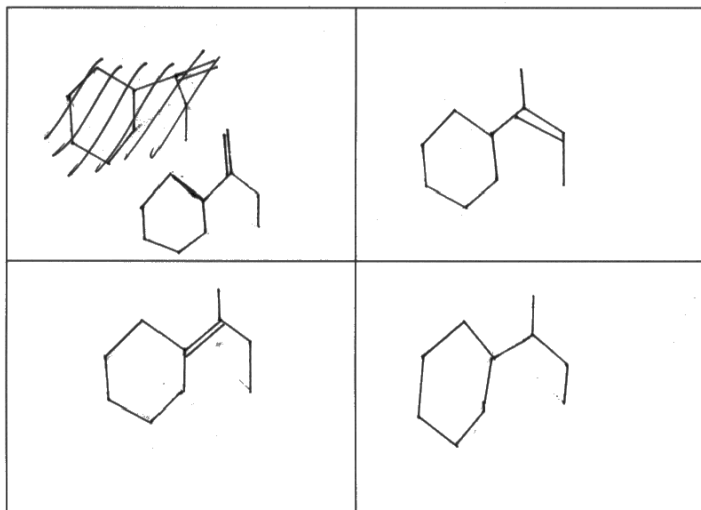
Down the group, the number of shells increase, therefore size increases. Charge ~~increases~~ as the number of protons increases. Charge density remains the same. ~~So~~ Polarisation decreases, i.e. the distortion of  $\text{CO}_3^{2-}$  decreases. Thus down <sup>the</sup> group  $\propto$  the thermal stability of group 2 carbonates increases.

### Student 3

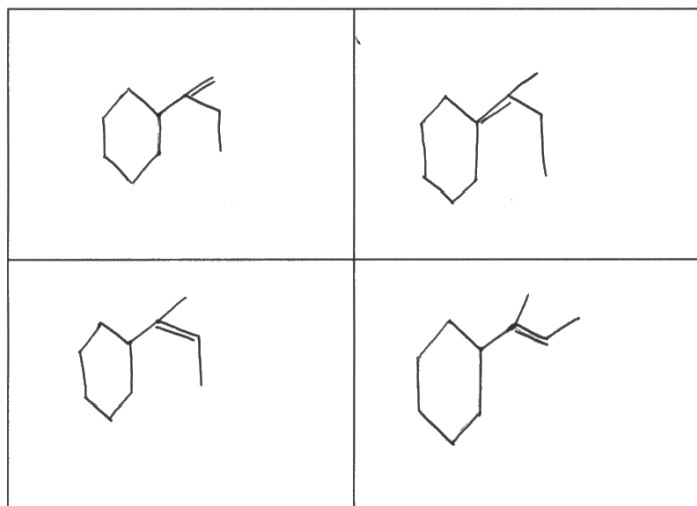
- Going down the group 2, thermal stability of carbonates increases.
- This is because going down the group, the ionic radius of cations increase, and the charge stays +2, so the charge density of the cations decrease.
- This causes the anion ( $\text{CO}_3^{2-}$ ) to be less distorted, so the C-O bond is less weakened and decomposition ability decrease.

## UNIT 2, Q22(b)(i)

### Student 1



### Student 2



### Student 3

