ACTIVITY 4a – AO2a in Exams

UNIT 1, Q24(a)

In some airbags, solid sodium azide (NaN_3) decomposes forming nitrogen gas and sodium as the only products.

(a) Write an equation for the decomposition of sodium azide. (1)
State symbols are not required.

Question Number	Answer	Additional guidance	Mark
24(a)	• correct equation	$2NaN_3 \rightarrow 2Na + 3N_2$ Accept $NaN_3 \rightarrow Na + 1.5N_2$ Accept $NaN_3 \rightarrow Na + 3/2\ N_2$ Allow multiples Ignore state symbols even if incorrect Do not award Na_2	(1)

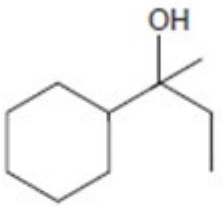
UNIT 2, Q20(b)

20 (b) (iii) Explain the trend in thermal stability of Group 2 carbonates. (4)

Question Number	Answer	Additional guidance	Mark
20(b)(iii)	An explanation that makes reference to the following points • Group 2 carbonates increase in (thermal) stability as you go down the group **(1)** • size of the (metal) **ion** increases / charge density (of ion) decreases **(1)** • so metal ion is less polarising or (electron cloud of) anion less distorted **(1)** • so weakens (covalent) bonds in carbonate ion less / more energy needed to break (covalent) bonds in carbonate **(1)**	Accept reverse argument Each marking point is independent Ignore 'atomic radius" Allow C-O or C=O as alternative for 'bonds in carbonate'	(4)

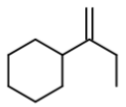
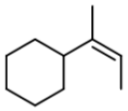
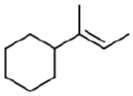
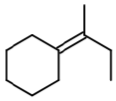
UNIT 2, Q22(b)(i)

22 An alcohol **Y** has the structure shown.



(b) **Y** reacts with concentrated phosphoric(V) acid, H_3PO_4, to form four isomers with the molecular formula $C_{10}H_{18}$.

(i) Draw the skeletal formulae of the **four** isomers formed in this reaction. (4)

Question Number	Answer	Additional guidance	Mark
22 (b)(i)	 **(1)**  **(1)**  **(1)**  **(1)**	Allow any unambiguous type of structure	**(4)**