

Question number	Answer	Notes	Marks																
1 (a) (i)	<p>1 mark for each correct property;;</p> <table border="1"> <thead> <tr> <th>Type of Radiation</th><th>Nature</th><th>Relative Charge</th><th>Ionising Ability</th></tr> </thead> <tbody> <tr> <td>alpha (<math>\alpha</math>)</td><td>helium nucleus</td><td>(+)2</td><td>high</td></tr> <tr> <td>beta (<math>\beta</math>)</td><td>(high energy) electron</td><td>-1</td><td>medium</td></tr> <tr> <td>gamma (<math>\gamma</math>)</td><td>electromagnetic wave</td><td>0</td><td>low</td></tr> </tbody> </table>	Type of Radiation	Nature	Relative Charge	Ionising Ability	alpha ( $\alpha$ )	helium nucleus	(+)2	high	beta ( $\beta$ )	(high energy) electron	-1	medium	gamma ( $\gamma$ )	electromagnetic wave	0	low	reject -2	2
Type of Radiation	Nature	Relative Charge	Ionising Ability																
alpha ( $\alpha$ )	helium nucleus	(+)2	high																
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(ii)	alpha / $\alpha$ ;		1																
(iii)	alpha and beta / $\alpha$ and $\beta$ ;	both required but can be in either order	1																
(b)	<p>top line correct; bottom line correct;</p> <p>e.g.</p> $\begin{array}{c} \boxed{14} \\ \boxed{6} \end{array} \text{C} \longrightarrow \begin{array}{c} \boxed{14} \\ \boxed{7} \end{array} \text{N} \quad + \quad \begin{array}{c} \boxed{0} \\ \boxed{-1} \end{array} \beta$	e.g. 14, 0 e.g. 7	2																

Total for question = 6 marks