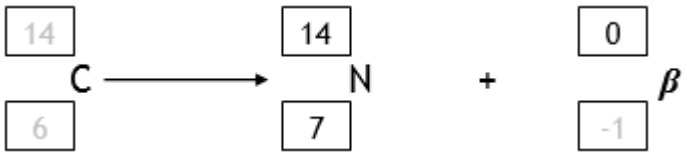
<table>
<tr><th>Question number</th><th>Answer</th><th>Notes</th><th>Marks</th></tr>
<tr><td>1 (a) (i)</td><td>1 mark for each correct property;;

<table><tr><th>Type of Radiation</th><th>Nature</th><th>Relative Charge</th><th>Ionising Ability</th></tr><tr><td>alpha (α)</td><td>helium nucleus</td><td>(+)2</td><td>high</td></tr><tr><td>beta (β)</td><td>(high energy) electron</td><td>-1</td><td>medium</td></tr><tr><td>gamma (γ)</td><td>electromagnetic wave</td><td>0</td><td>low</td></tr></table></td><td>reject -2</td><td>2</td></tr>
<tr><td>(ii)</td><td>alpha / α;</td><td></td><td>1</td></tr>
<tr><td>(iii)</td><td>alpha and beta / α and β;</td><td>both required but can be in either order</td><td>1</td></tr>
<tr><td>(b)</td><td>top line correct;
bottom line correct;

e.g.
 
</td><td>e.g. 14, 0
e.g. 7</td><td>2</td></tr>
</table>

Total for question = 6 marks

Question number	Answer	Notes	Marks
6 (a)	B – energy;		1
(b) (i)	(resultant force =) 6750 (N);		1
(ii)	(resultant) force = mass x acceleration;	allow in standard symbols and rearrangements e.g. F = m x a	1
(iii)	substitution OR rearrangement; evaluation; unit; e.g. acceleration = 6750/2500 (acceleration =) 2.7 m/s^2	allow ecf from (b)(i) unit mark is independent allow $m\,s^{-2}$	3
(c)	any 5 of: MP1. there is a resultant force (to the right); MP2. (so) it accelerates (0 to 50 s); MP3. air resistance (and friction) increase as speed increases; MP4. so acceleration decreases; MP5. eventually air resistance (+ friction) = driving force; MP6. (hence) resultant force is zero (after 50 s); MP7. (hence) car travels at a constant speed (after 50 s);	allow idea that driving force is greater than air resistance and friction the speed/velocity increases forces are equal / balanced no acceleration / terminal velocity	5

Total for question = 11 marks