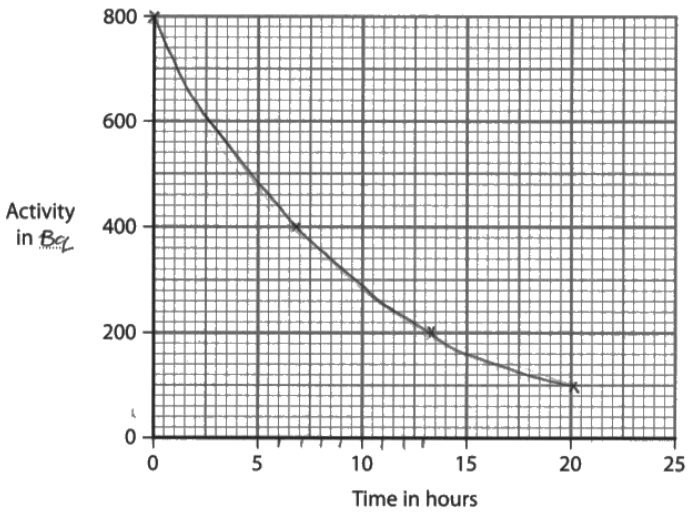
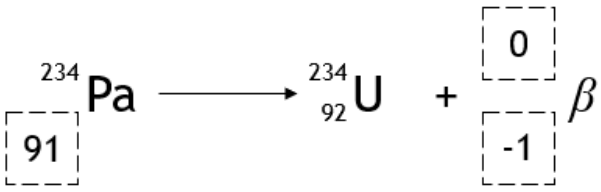
Question number	Answer	Notes	Marks
7 (a) (i)	becquerel(s);	allow kilobecquerels, Bq, kBq, curie, Ci allow recognisable spelling allow mixed case letters	1
(ii)			3
	evidence that sketch starts at (0,800)	accept plotted point	
	evidence sketch passes through (6.7,400)	accept plotted point	
	smooth curve decreases with decreasing steepness 		
(iii)	both numbers for beta correct; atomic number of protactinium = 91; e.g. 		2

(b)	(i)	A (count measured by the detector); B is incorrect because this is a control variable C is incorrect because this is the independent variable D is incorrect because this is a control variable		1
	(ii)	idea of removing source (from the experiment); measure count(for a minute); subtract background count from results;	e.g. pointing source away, keeping source in its box, (huge) increase in distance, take count before using source	3
	(iii)	idea of repeating measurements (of count); to determine a mean value;	 allow idea of using repeats to identify anomalies condone average for mean	2
	(iv)	count decreases (significantly) using paper; no (additional) effect on the count when using aluminium AND lead / eq; radiation must be alpha consistent with candidate's discussion;	 both must be mentioned for this mark allow idea that count with aluminium and lead is background radiation / in the range of 11-14	3

Total for Question 7 = 15 marks