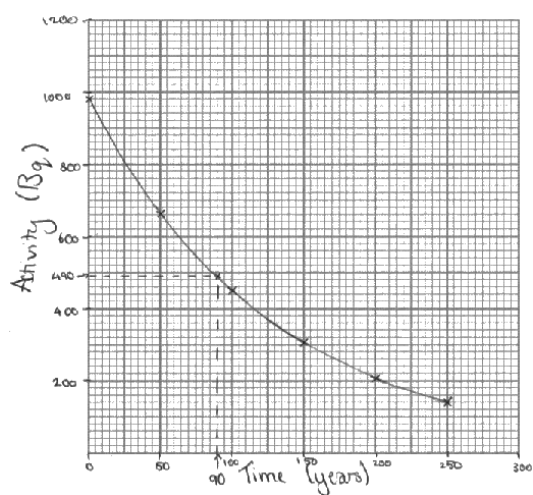


Question number	Answer	Notes	Marks														
6 (a) (i)	suitable linear scale chosen (>50% of grid used); axes labelled with quantities and units; plotting correct to nearest half square;;	orientation needs to be correct -1 for each mistake to a maximum of -2	4														
(ii)	line (curve) of best fit acceptable;  <table data-bbox="317 1039 836 1128"><tr><td>Time in years</td><td>0</td><td>50</td><td>100</td><td>150</td><td>200</td><td>250</td></tr><tr><td>Activity in Bq</td><td>980</td><td>660</td><td>450</td><td>305</td><td>205</td><td>140</td></tr></table>	Time in years	0	50	100	150	200	250	Activity in Bq	980	660	450	305	205	140	allow ECF from plotting i.e. smooth curve with points evenly distributed about it	1
Time in years	0	50	100	150	200	250											
Activity in Bq	980	660	450	305	205	140											
(iii)	appropriate working shown on graph or numerically; 90 years;	allow ECF from graph answer within range of 85-95 (years) gets 2 marks	2														
(b) (i)	(0.56 X 2.7 =) 1.5 (W);	allow 1.51, 1.512	1														
(ii)	idea that alpha has short range / low penetrating power; and 1 of; <ul style="list-style-type: none">alpha absorbed by the casealpha does not reach the skin	ignore 'alpha is weak' ignore 'alpha can't penetrate paper' allow 'cannot penetrate the case' allow 'cannot penetrate the skin'	2														
(c)	longer half-life means plutonium decays more slowly; idea that it generates electricity / power for longer;	accept RA allow idea that energy does not 'run out'	2														

Total for question 6 = 12 marks