

8(a)	(radioactive) substance introduced into the body
	substance absorbed by the tissues being studied
8(b)(i)	$P = 15$ and $R = 0$
	$Q = 7$ and $S = (+)1$
8(b)(ii)	(electron) neutrino
8(c)(i)	<u>number</u> of nuclear disintegrations per unit time
8(c)(ii)	decay constant $= \ln 2 / (2.04 \times 60)$
	$= 5.66 \times 10^{-3} \text{ s}^{-1}$
8(c)(iii)	$N = (2.85 \times 10^{-6}) / (15 \times 1.66 \times 10^{-27})$
	$A = \lambda N$
	rate $= (5.66 \times 10^{-3}) \times (2.85 \times 10^{-6}) / (15 \times 1.66 \times 10^{-27})$
	$= 6.48 \times 10^{17} \text{ s}^{-1}$
8(d)(i)	gamma photons
8(d)(ii)	positron collides with electron (in body)
	annihilation results in their masses becoming photon energy