

6(a)	plate X marked as negative and plate Y marked as positive
6(b)(i)	$E = V / x$
	$= (58 \times 10^3) / 0.041$
	$= 1.4 \times 10^6 \text{ N C}^{-1}$
6(b)(ii)	$ma = eE$
	$a = (1.60 \times 10^{-19} \times 1.41 \times 10^6) / (9.11 \times 10^{-31})$
	$= 2.5 \times 10^{17} \text{ m s}^{-2}$
6(c)(i)	$eV = hc / \lambda$ or $eV = hf$ and $f = c / \lambda$
	$(1.60 \times 10^{-19} \times 58 \times 10^3) = (6.63 \times 10^{-34} \times 3.00 \times 10^8) / \lambda$
	clear conversion from m to pm leading to $\lambda = 21 \text{ pm}$
6(c)(ii)	X-rays
6(c)(iii)	Any two points from: • waves are passed into structure and transmitted waves detected • different parts of the structure absorb different fractions of energy • difference in detected / transmitted <u>intensities</u> used (to form image)