Question Number	Answer		Mark
15(a)	Electrons can exhibit wave behaviour	**(1)**	
	Electrons diffract as they pass through the graphite **Or** graphite acts as a diffraction grating	**(1)**	
	Structure of graphite must be ordered/ regular / layered	**(1)**	
	The (de Broglie) wavelength of the electrons is similar to the spacing of gaps between atoms	**(1)**	**4**
15(b)(i)	Use of $V = W/Q$	**(1)**	
	$W = 3.8 \times 10^{-16}$ (J)	**(1)**	**2**
	Example of calculation $W = 1.6 \times 10^{-19}\text{C} \times 2400\text{ V} = 3.84 \times 10^{-16}$ J		
15(b)(ii)	Use of $E_k = \frac{1}{2}mv^2$	**(1)**	
	$v = 2.9 \times 10^7$ m s^{-1}	**(1)**	**2**
	(allow ecf from (b)(i))		
	Example of calculation $E_k = 3.8 \times 10^{-16}\text{ J} = \frac{1}{2}9.11 \times 10^{-31}\text{kg} \times v^2$ $v = 2.90 \times 10^7$ m s^{-1}		
15(b)(iii)	(Increasing the accelerating p.d.) would increase the (maximum) momentum of the electrons **Or** (Increasing the accelerating p.d.) would increase the (maximum) velocity of the electrons	**(1)**	
	Use of $\lambda = \frac{h}{p}$ so (de Broglie) wavelength of the electrons decreases	**(1)**	
	So the diameter of the circles would decrease **Or** Distance between maxima decreases	**(1)**	**3**
	Total for question 15		**11**