

TL 3-31

Dentist x-rays

$\Delta V = 80 \text{ kV}$ This is the accelerating voltage for electrons

This implies that the x-rays produced have a maximum

energy of $(80 \text{ eV})(1.6 \times 10^{-19}) = 1.28 \times 10^{-17} \text{ J}$

$$\Delta V \quad q \quad = \quad E$$

The x-ray wavelength of photons having this energy is

$$\lambda = \frac{ch}{E} = (3 \times 10^8) \lambda$$

$$= 1.55 \times 10^{-11} \text{ m}$$

$$= 0.155 \text{ \AA}$$

$$= 0.0155 \text{ nm}$$