

- 6 Electrons are accelerated in a vacuum before passing through a graphite film, as illustrated in Fig.6.1. The electrons are then incident on a fluorescent screen.

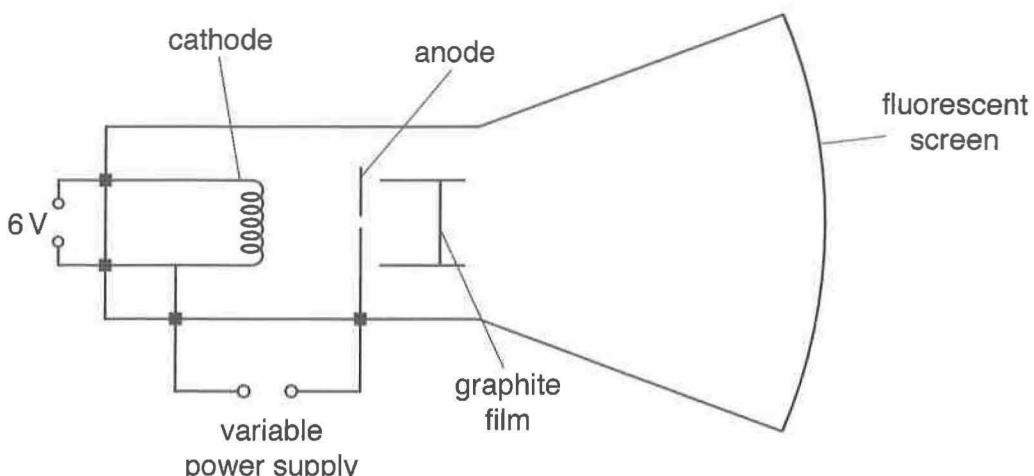


Fig.6.1

Concentric rings of light are observed on the screen.

- (a) Explain why the electrons produce concentric rings after passing through the graphite film.

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 [1]

- (b) The potential difference (p.d.) between the anode and the cathode is increased. This increases the brightness of the rings.

State and explain another effect of this change in p.d. on the pattern observed on the fluorescent screen.

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 [3]





(c) The electrons are accelerated from rest through a potential difference of 1.2 kV.

Calculate the de Broglie wavelength of the accelerated electrons.

wavelength = m [4]

