7 A parallel beam of electrons, all travelling at the same speed, is incident normally on a carbon film. The scattering of the electrons by the film is observed on a fluorescent screen, as illustrated in Fig. 7.1.

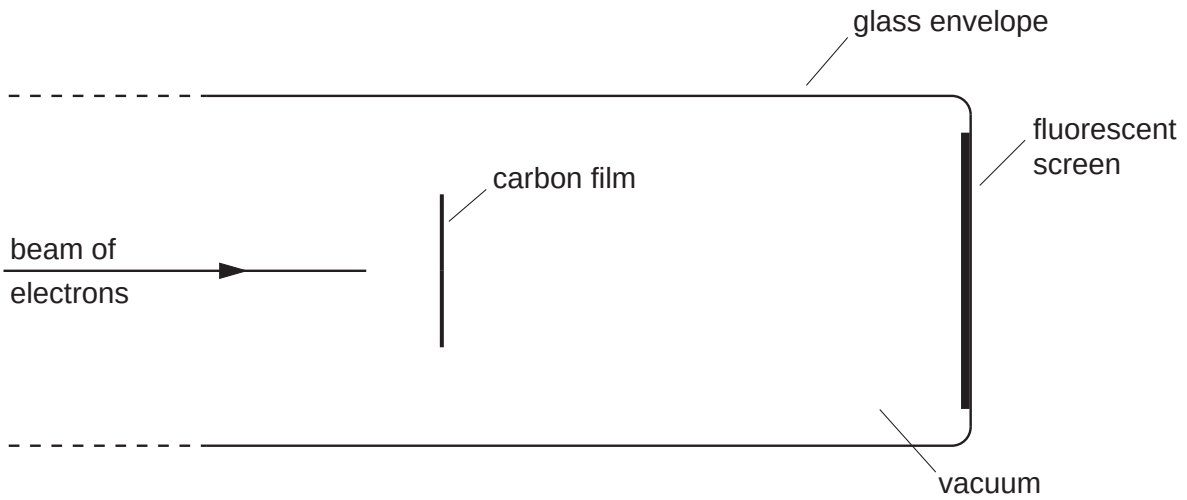

Fig. 7.1

(a) Assuming that the electrons behave as **particles**, predict what would be seen on the screen.

.....

..... [1]

(b) In this experiment, the electrons do **not** behave as particles.

Describe briefly the pattern that is actually observed on the screen. You may draw a sketch if you wish.

.....

..... [1]

(c) The speed of the electrons is gradually increased.

State and explain what change, if any, is observed in the pattern on the screen.

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.....

.....

..... [3]

QUESTION 8 IS ON THE NEXT PAGE