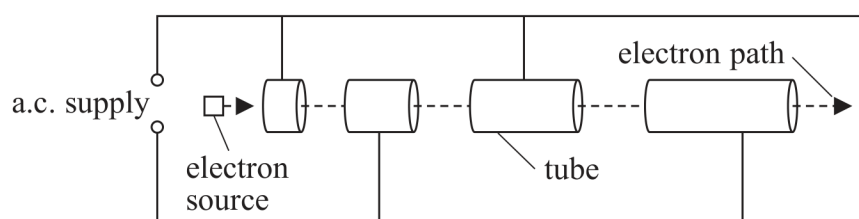


- 13 Some particle physics experiments use electrons which are accelerated to very high energies by a linac. The diagram shows the first section of the linac.



- *(a) Explain why the distances between consecutive tubes increase in the first section of the linac but are almost equally spaced in the last section of the linac.

(6)

- (b) In some experiments, a high-energy electron collides with a stationary atom. In other experiments beams of high-energy electrons, travelling in opposite directions, collide head-on. New particles can be created from collisions.

Deduce which type of collision is more likely to produce new particles with the largest mass.

(3)

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(Total for Question 13 = 9 marks)