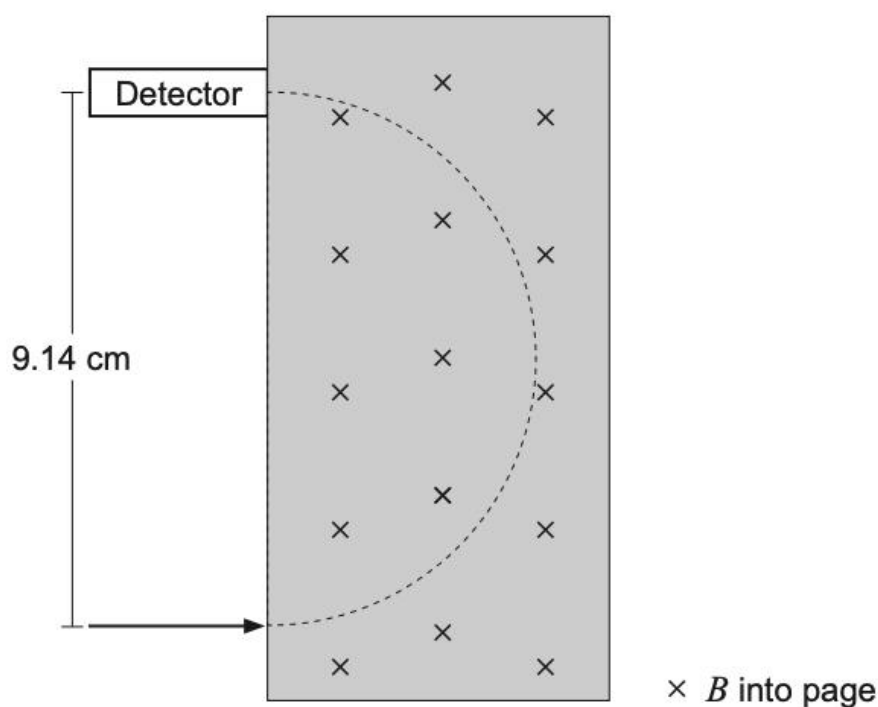**Question 4** (5 marks)

A charged particle enters a 0.350 mT magnetic field at right angles to the field with a velocity of 2.81×10^6 m s^{-1}. The magnitude of the charge of the particle is 1.60×10^{-19} C. It lands on the detector 9.14 cm from where it entered after completing 180° of its circular path.

(a) Calculate the mass of the particle. (4 marks)

Answer: _____ kg

(b) Which of the following could the particle be? Circle your answer. (1 mark)

    A   proton

    B   electron

    C   anti-proton

    D   positron

    E   none of the above