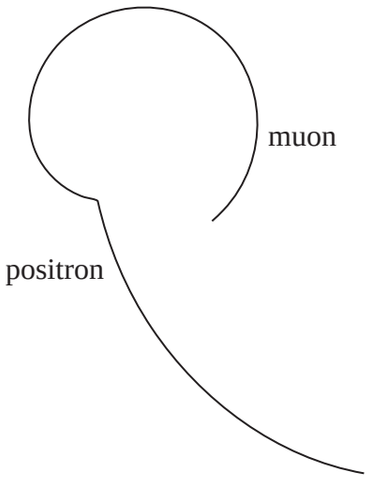
14 The decay of a positive muon produced a positron, an electron neutrino and a muon antineutrino. The diagram shows the tracks formed in a particle detector.



(a) A muon belongs to a family of particles called leptons.

State two features that all particles in the lepton family have in common.

(2)

(b) Write a nuclear equation for the decay of the muon (μ) described above.

(2)

(c) Describe the role of the magnetic field in a particle detector.

(3)

(d) Explain how the diagram gives evidence that a particle or particles, other than the positron, were produced in this decay.

(4)

(Total for Question 14 = 11 marks)