

RATU NAVULA COLLEGE
Y12 PHYSICS WORKSHEET 8 QP

2019

A narrow beam of protons (charge 1.6×10^{-19} C) moving with a speed of 2×10^6 ms⁻¹ enters a uniform magnetic field strength of 0.3 T. Calculate the magnetic force on the protons.

(2 marks)

2015

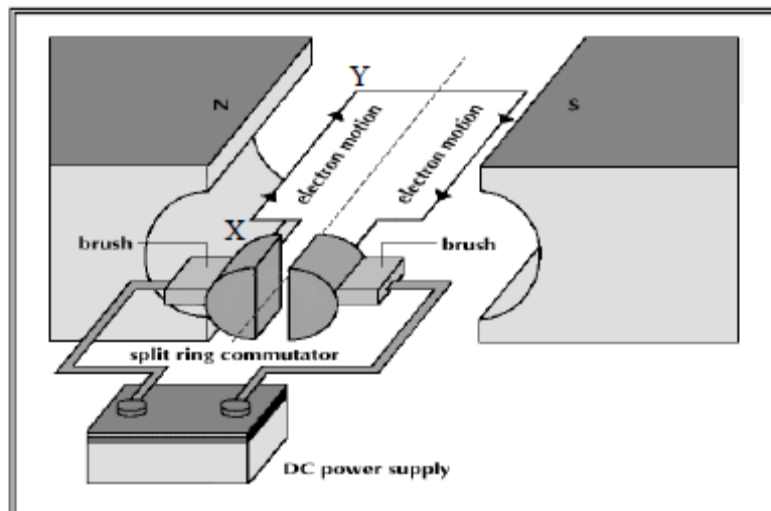
A positive charge of magnitude 1×10^{-10} C enters a magnetic field at right angles with a velocity of 2×10^5 m/s. The magnetic field strength is equal to 0.4 T.

Calculate the force experienced by the charge as it enters the magnetic field.

(2 marks)

2013

The diagram below shows a simplified version of a DC motor.



Source: <http://studyvilla.com>

- (i) What is the purpose of the split ring commutator? (1 mark)
- (ii) Determine if the coil shown above rotates clockwise or anti-clockwise. (1 mark)
- (iii) Calculate the size of the magnetic force experienced by wire XY in the diagram above, using the information given below:
 - Strength of the magnetic field = 2.50 T
 - Current = 3.5 A
 - Length of wire XY in the field = 10.0 cm
 (1 mark)