

Motion of Charged Particle in Magnetic Field.

When a charged particle having mass m , charge q enters perpendicularly in a magnetic field B , with velocity v then it describes a circular path of radius r .

Because magnetic force (qvB) works in the perpendicular direction of v and it provides required centripetal force

Magnetic force = Centripetal force

$$qvB = \frac{mv^2}{r}$$

\therefore radius of the circular path $r = \frac{mv}{qB}$

