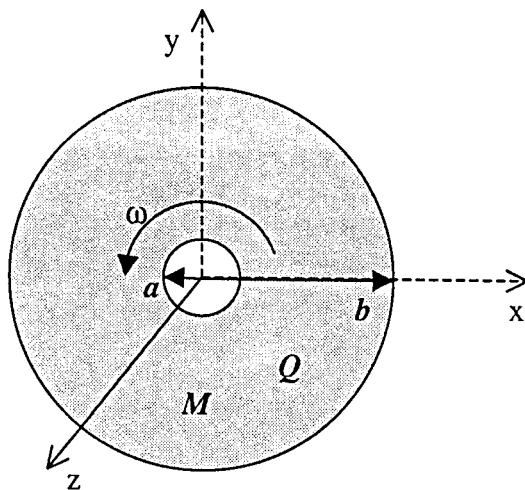A CD (thin insulating disk with a hole in the middle, inner radius $a$, outer radius $b$) spins

counter-clockwise in the x-y plane with angular frequency $\omega$. The mass of the CD is $M$.

A total charge $Q$ is uniformly distributed on the surface of the disk.



(a) Show that the magnetic moment of the spinning CD has the form $\bar{m} = C(a^2 + b^2)\hat{u}$,

and determine both the factor $C$ and the direction of the unit vector $\hat{u}$.

(b) Now suppose a uniform magnetic field $\bar{B}$ is present in the +y direction. What is

the angular velocity with which the CD will precess? Specify both magnitude

and direction.