The two spheres of equql mass m are able to slide along the rotating horizontal black rod. If they are initially latched in position a distance r from the axis of rotation with the assembly rotating freely with an angular velocity of Wo determine thw new angular velocity Wf after the spheres are released and assume positions at the end of the horizontal rotating rod a distance 2r from the axis of rotation.

m

m

2r

2r

r

r

Also find the fraction n of the kinetic energy that was lost

Direction of rotation

Show all work, assumptions and FBD

Ans. Wf = Wo/4

n=3/4