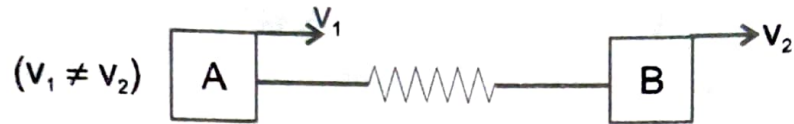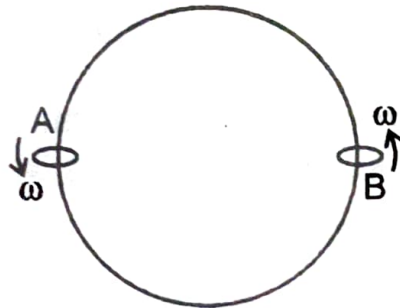$(V_1 = V_2)$

System behaves as a rigid body
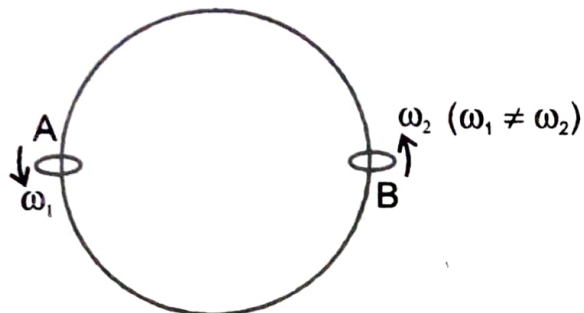
$(V_1 \neq V_2)$

System behaves as a non-rigid body

☞ A & B are beads which move on a circular fixed ring

A + B is a rigid body system
but A + B + ring is non-rigid system

$\omega_2 \ (\omega_1 \neq \omega_2)$

A + B is non-rigid system

→ Moment of inertia plays same role in the rotation rotational motion as mass plays in translational motion

→ Torque is vector quantity and its direction is determined using right hand thumb rule and its always perpendicular to the plane of rotation of the body