

A man hangs from a rope attached to a hot-air balloon. The mass of the man is greater than the mass of the balloon and its contents. The system is stationary in air. If the man now climbs up to the balloon using the rope, the centre of mass of the 'man plus balloon' system will

- (a) remain stationary
- (b) move up
- (c) move down
- (d) first move up and then return to its initial position