6 A 10 m long, hollowed concrete cylinder of outer radius 0.30 m and inner radius 0.15 m, with uniform density 2.0×10^3 kg m^{-3} is lifted 5.0 m vertically by a crane.

What is the change in potential energy of the hollowed concrete cylinder?

A 69 kJ

B 140 kJ

C 210 kJ

D 280 kJ