25 A wire is tightly wound in a single layer to form a hollow solenoid of 4000 turns and resistance of 3.26 kΩ. The resulting solenoid resembles a tube of length 200 mm and diameter 30 mm.
The solenoid is connected in series to a battery of e.m.f. 6.0 V and has negligible internal resistance.

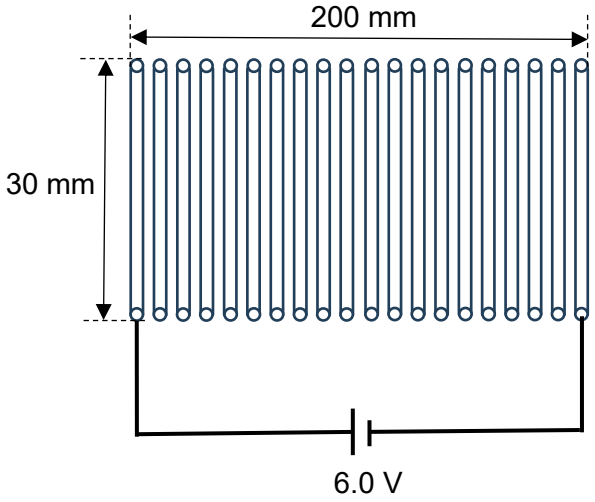

diagram not drawn to scale

Determine the largest possible magnetic flux density at the center of the solenoid due to the current through the solenoid.

A 4.6×10^{-2} T

B 4.6×10^{-5} T

C 9.3×10^{-3} T

D 9.3×10^{-6} T