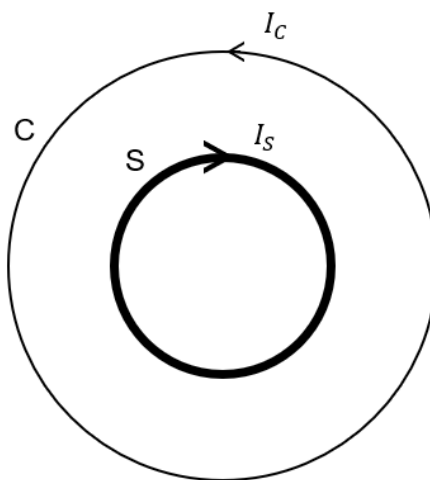


- 23** A long solenoid S has 15 turns per unit length. A circular loop of wire C is placed over S as shown in the diagram below. S and C are coaxial. A current  $I_S$  of 0.20 A is passed through S and a current  $I_C$  of 0.90 A is passed through C in the directions shown.



The radius of S is 0.80 m and the radius of C is 1.6 m.

What is the magnitude of the resultant magnetic flux density at the centre of C?

- A** 0 T                      **B**  $1.0 \times 10^{-6}$  T                      **C**  $3.4 \times 10^{-6}$  T                      **D**  $4.1 \times 10^{-6}$  T