KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
## ELECTRICAL ENGINEERING DEPARTMENT

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EE-306

Key Solution

Quiz 2   Sec.: 7   I.D.:   Ser#:   Name:

The magnetic circuit shown below provides flux in the two air gaps. The coils (N1 =700, N2 =200) are connected in series and carry a current of 0.5 ampere. Neglect leakage flux, reluctance of the iron (i.e., infinite permeability), and fringing at the air gaps.

$l_{g1} = 0.05$ cm, $l_{g2} = 0.1$ cm
$l_1 = l_2 = l_4 = l_5 = 2.5$ cm
$l_3 = 5$ cm
depth of core = 2.5 cm
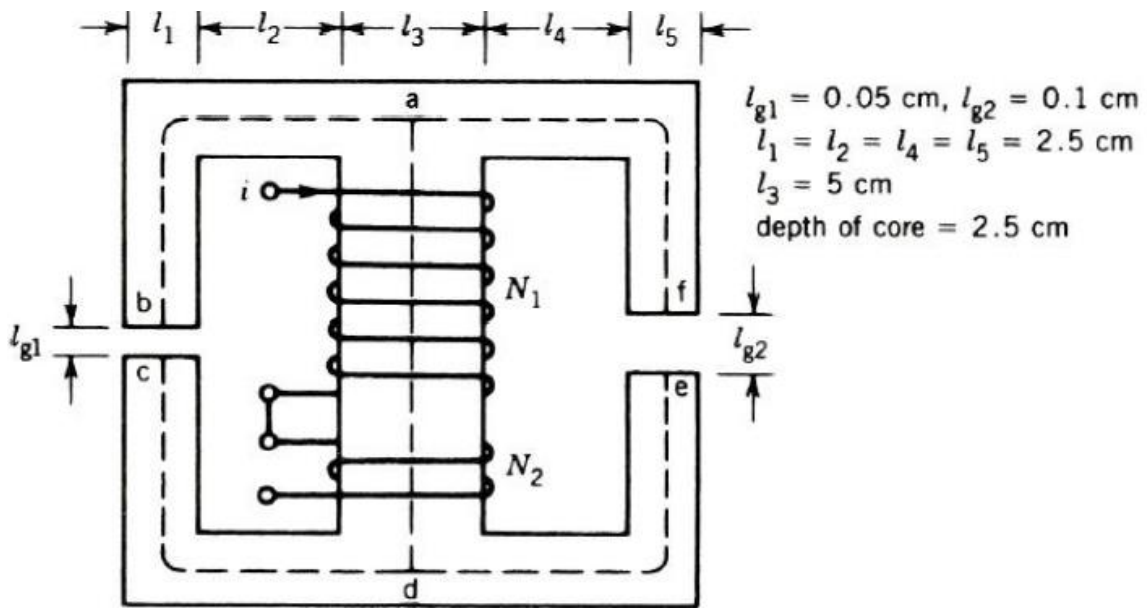
Q.1 The net magnetic flux flowing in the central leg is going from "a" to "d".   (2-points)
   a. True.
   b. **False.**

Q.2 The magnetic flux flowing in the left leg is same as the right leg .   (3-points)
   a. True.
   b. **False.**

Q.3 The cross-sectional area of the two air-gaps is identical.   (2-points)
   a. **True.**
   b. False.

Q.4 The flux density in the left air-gap is smaller than the one in right air-gap.   (3-points)
   a. True.
   b. **False.**