

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

ELECTRICAL ENGINEERING DEPARTMENT

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EE-306

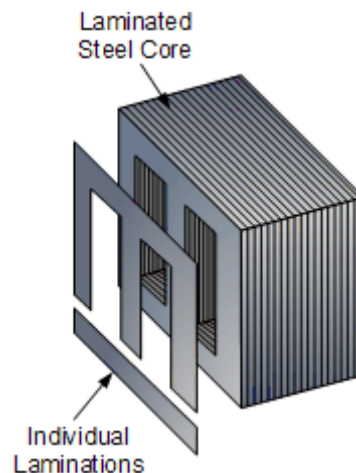
Key Solution

Quiz 2 Sec.: 3 I.D.: Ser#: Name:

Q.1 Choose either True or False (3-points)

Consider an oil transformer, at which the magnetic core is surrounded by oil. When excited (i.e., energized by a current), most of the produced magnetic flux tends to circulate in the ferromagnetic core and only little flux leaks out to the oil. This is because the reluctance of the core is much higher than that of oil. True **False**

Q.2 Circle the best answer (3-points)



Laminations are used in the cores of electromagnetic devices to:

- a. Reduce hysteresis losses
- b. Reduce Eddy current losses**
- c. Increase flux permeability.
- d. Reduce flux leakage

Q.3 A ring core has a cross-sectional area of 15 cm^2 and mean length of 40 cm. A coil of 350 turns is placed on its left leg. The relative permeability of the core is 50,000. If the magnetic flux density in the core is 1.6 T, the flux flowing in the core is (4-points)

- a. 0.24 Wb
- b. 2.4 mWb**
- c. 36 mWb
- d. 1,067 Wb