

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

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**EE-360**

**Key Solution**

Quiz # 2    Serial #

Name:

I.D.#

Circle the correct answer.

1) The ferromagnetic materials that are best suited for making the core of transformers and machines are those which have (...) permeance and (...) amount of current flows within the core.

- a. **high, low**
- b. low, high
- c. low, low
- d. high, high

(2 Marks)

2) A magnetic circuit has hysteresis loss of 100 W at rated voltage and frequency. If the frequency is reduced by 20 % (assuming constant magnetic flux density), the hysteresis loss will be :

- a. 64 W
- b. **80 W**
- c. 100 W
- d. 125 W

(2 Marks)

3) Although most of the flux produced by an excited coil in a ring core remains inside the core, there are small amount of the flux that do leave the core and known as

- a. The fringing effect.
- b. The flux intensity.
- c. **The flux leakage.**
- d. The flux residual.

(2 Marks)

4) The strength of the magnetic flux produced in a rectangular core made of a ferromagnetic material and wrapped by a coil around one of its leg depends on

- a. The type of the ferromagnetic material.
- b. The shape of the core.
- c. The magnetomotive force of the coil.
- d. **All of above.**

(2 Marks)

5) A ring core has a cross-sectional area of  $12 \text{ cm}^2$  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 1.5 T, the flux flowing in the core is

- a. **1.8 mWb**
- b. 1250 Wb
- c. 0.8 mWb
- d. 0.18 Wb

(2 Marks)