

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

ELECTRICAL ENGINEERING DEPARTMENT

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EE-306

Key Solution

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

A single-phase 2300/230-V transformer has the following data obtained from open-circuit test (measurements from the low-voltage side) and short-circuit test (measurements from high-voltage side):

$$V_{oc} = 230 \text{ V (rated-voltage)}$$

$$I_{oc} = 2.0 \text{ A}$$

$$P_{oc} = 50 \text{ W}$$

$$V_{sc} = 47 \text{ V}$$

$$I_{sc} = 6.0 \text{ A (rated-current)}$$

$$P_{sc} = 160 \text{ W}$$

Q.1 The kVA rating is (3-points)

- a. 13.8
- b. 1.38
- c. 4.6
- d. 0.46

Q.2 The core loss is (2-points)

- a. 210 W.
- b. 160 W.
- c. 110 W.
- d. 50 W.

Q.3 The percentage efficiency of the transformer when delivering rated power (full-load output power) at unity power factor is (5-points)

- a. 100.00
- b. 99.64
- c. 98.85
- d. 98.50