KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

ELECTRICAL ENGINEERING DEPARTMENT

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EE520 -171

Quiz 1 ser#: I.D.: Name:

Q.1 A 40-MVA, 400-kV/20-kV, single-phase transformer has the following series impedances: 0.9 + *j*1.8 Ohm (referred to the low-voltage side) and 40 + *j*80 Ohm (referred to the high-voltage side). Using the transformer ratings as the selected bases, determine the per unit equivalent impedance of the transformer referred to the low-voltage side. (3 points)

a. 400 + j 800
b. 4.0 + j 8.0
c. 1.0 + j 2.0
d. 0.10 + j 0.20

Q.2 A 40-MVA, 400-kV/20-kV, single-phase transformer has the following series impedances: 0.9 + *j*1.8 Ohm (referred to the low-voltage side) and 40 + *j*80 Ohm (referred to the high-voltage side). Using the transformer ratings as the selected bases, determine the per unit equivalent impedance of the transformer referred to the high-voltage side. (3 points)

a. 400 + j 800
b. 4.0 + j 8.0
c. 1.0 + j 2.0
d. 0.10 + j 0.20

Q.3 A 40-MVA, 400-kV/20-kV, single-phase transformer has the following series impedances: 0.9 + *j*1.8 Ohm (referred to the low-voltage side) and 40 + *j*80 Ohm (referred to the high-voltage side). Using the transformer voltage ratings as the voltage base, and 400-MVA as the MVA base; determine the per unit equivalent impedance of the transformer referred to the low-voltage side. (4 points)

a. 400 + j 800
b. 4.0 + j 8.0
c. 1.0 + j 2.0
d. 0.10 + j 0.20