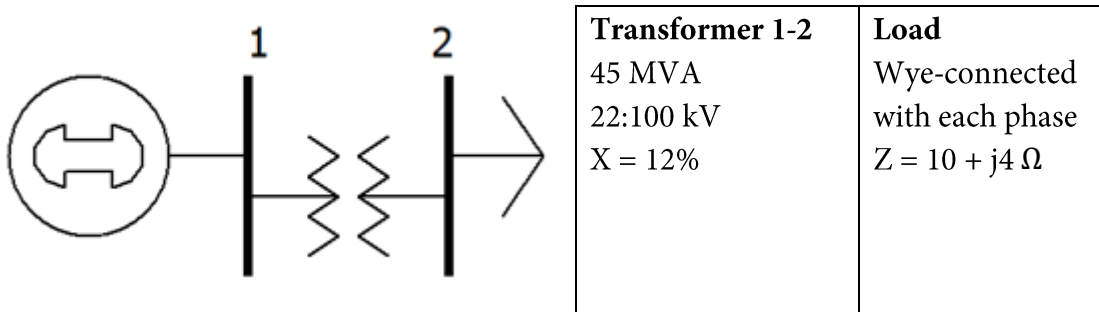


Name: \_\_\_\_\_ UIN: \_\_\_\_\_ Section: \_\_\_\_\_ Score: \_\_\_\_\_

For the following three-phase system:



1. Fill out the below table of system per-unit base values, starting with the two bases given.

	Bus 1	Bus 2
$S_{3\phi \text{ base}}$	100 MVA	100 MVA
$V_{LL \text{ base}}$	22 kV	100 kV
$Z_{\text{base}}$	4.84 Ω	100 Ω
$I_{\text{base}}$	2624 A	577 A

2. Calculate the per-unit impedance of the transformer on the system bases.

$$Z_{pu,sys} = Z_{pu,dev} \cdot \frac{S_{base,sys}}{S_{base,dev}} = j0.12 \cdot \frac{100}{45} = j0.267$$

3. Calculate the per-unit impedance of the load.

$$Z_{pu} = \frac{Z}{Z_{base}} = \frac{10 + j4 \Omega}{100 \Omega} = 0.1 + j0.04$$