KING FAHD UNIVERSITY OF PETROLEUM & MINERALS ELECTRICAL ENGINEERING DEPARTMENT

EE-463

Key Solution

Quiz # 1 Serial # Name:

I.D.#

A three-phase transformer rated 5 MVA, 115/13.2 kV has per-phase series impedance of (0.007 + j0.075) per unit. The transformer is connected to a short distribution line which can be represented by a series impedance per phase of (0.02 + j0.10) per unit on a base of 10 MVA, 13.2 kV. The line supplies a balanced three-phase load rated 4 MVA, 13.2 kV, with lagging power factor 0.85.

Draw an equivalent circuit of the system indicating all impedances in per unit. Choose 10 MVA, 13.2 kV as the base at the load.

