

**King Fahd University of Petroleum & Minerals**  
**Electrical Engineering Department**  
**EE 360: Home Work #3**  
**Due Dates (Oct 14<sup>th</sup> for UT Classes & Oct 15<sup>th</sup> for SMW Classes)**

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From the text book: 2.1(a, c, d, e), 2.2, 2.3, 2.6.

**P1.** Three single-phase, 10kVA, 2400/120-V, 60 Hz transformers are connected to form a three-phase, 2400/208-V transformer bank. The equivalent impedance of each single-phase transformer referred to primary side is  $10+j25\Omega$ . The transformer bank delivers 27kW at 208-V and 0.9 power factor leading.

- (a) Draw the three-phase schematic diagram showing the transformer connection. Draw a per-phase equivalent circuit.
- (b) Determine the primary current and power factor.
- (c) Determine the primary voltage.
- (d) Determine the voltage regulation.