

1. (3 points) Ideal Transformer. A small transformer rated at 250VA, 930V:120V provides power to a 200 Watt, 120V AC rms lighting load. If the load is entirely resistive, find the input current of the transformer. Use an ideal transformer assumption.
 - a. 1.67 Amps
 - b. 0.215 Amps
 - c. 7.75 Amps
 - d. 0.129 Amps
 - e. Other _____

2. (3 points) For the same small ideal transformer rated at 250VA, 930V:120V, determine the input electrical power.
 - a. 200 Watts
 - b. 1.55 kW
 - c. 25.8 Watts
 - d. 250 VA
 - e. Other _____

3. (3 points) One of the problems with autotransformers is that they tend to get rather hot at the bottom end of the coil, particularly when the tap setting is close to the bottom of the coil. For 120V and 2.0A AC rms input, determine the output voltage and current of an autotransformer when the tap is 15% above the lower end of the coil.
 - a. 15.3 Amps
 - b. 2.0 Amps
 - c. 13.3 Amps
 - d. 11.3 Amps
 - e. Other _____

4. (3 points) A transformer rated at 1.0MVA, 12kV:480V is given an open circuit test. Its parameters are given as:

| | |
|-----------|---|
| 5.7 Ohms | Series resistance referred to the high voltage side |
| 22.8 Ohms | Series leakage reactance referred to the high voltage side |
| 20.0 Ohms | Parallel magnetizing reactance referred to the low voltage side |
| 80 Ohms | Parallel core loss resistance referred to the low voltage side |

If the test is performed according to procedures in the textbook, what should we expect for current reading that we record?

 - a. 3.2 Amps
 - b. 510 Amps
 - c. 24.7 Amps
 - d. 618 Amps
 - e. Other _____

5. (8 points) A 1.0 MVA, 13.8kV: 1kV transformer has the following parameters:
- | | |
|-----------|---|
| 5.7 Ohms | Series resistance referred to the high voltage side |
| 22.8 Ohms | Series leakage reactance referred to the high voltage side |
| 20.0 Ohms | Parallel magnetizing reactance referred to the low voltage side |
| 150 Ohms | Parallel core loss resistance referred to the low voltage side |
- a. (2 points) Draw an appropriate equivalent circuit for this transformer and label each circuit element.
- b. (6 points) For a load of 0.15 Ohms, find the input current.