

First part will be questions with simple answers and/or word answers. **Closed book, No notes, No Calculator.**

When you hand in the first part, you will get the second part, which will be problems worked out with your calculator. **Closed book**, except for the "**Exam 1 Information**" sheet handed out in class (you may add to this single sheet). **Calculator is allowed.**

The exam will cover

Possible questions

1. HW 1 Energy sources, plant efficiencies

All

2. HW 2 AC steady-state review, used extensively throughout class

3. HW 3 RMS & Single-phase AC power. P Q S $|S|$ pf correction of pf

Basic relationships and units
What is "good"

4. HW 4&5 3-phase AC power.

Basic magnitude and phase relationships

$$V_L \quad V_{LL} \quad V_{LN} \quad I_L \quad I_{LL} \quad I_Y \quad S_{3\phi} \quad S_{1\phi}$$

$$Z_Y = \frac{Z_{\Delta}}{3} \quad Z_{\Delta} = 3 \cdot Z_y \quad \text{pf correction of pf}$$

Basic one-Line diagrams

5. HW 6 Magnetic circuits

Flux density, Field intensity, Permeability, B-H curve.

$$B = \mu \cdot H \quad H = \frac{N \cdot i}{l_c}$$

7. HW 7 Ideal transformers

Transformer basics, including ratings and impedance transformation.

8. Non-ideal transformer model

Open-Circuit and Short-Circuit tests

Calculations $\%VR$ η

9. Lab 1

Electrocution Safety. Deadly current, body resistance, etc. Basic concepts

You can download old exams from HW page on class web site. But remember, they may cover more (or less) than we did in our class.