

**BLITZ: Ch 21, 22, 24, AC Electronics, Magnetism, Induction****Form I-L**

Name \_\_\_\_\_ Period \_\_\_\_\_

**EXPLAIN IN COMPLETE SENTENCES AND GIVE EXAMPLES:****You MUST HAND WRITE THIS EXAM!! NO TYPED PAPERS WILL BE ACCEPTED!**

1. Tell about inductive and capacitive reactances, impedance, and power factor.
2. Diagram and explain the three phase generator, the three phase motor and how they are synchronized.
3. A step-up transformer is used on a 240v line to give 2400v. If the primary has 80 turns, find the number of turns on the secondary.
4. Rounding off to one significant digit, **a.** diagram a series circuit with a 3 henry coil, a 0.00001 farad capacitor, and a 700 ohm resistor powered by a 120 volt 60 Hz generator. **b.** Find the inductive reactance,  $X_L$ , **c.** the capacitive reactance,  $X_C$ , **d.** sketch the vector diagram and label it with  $X_L$ ,  $X_C$ , and R, **e.** solve for the impedance, Z, **f.** find the amperage, I, **g.** find the resonant frequency, **h.** find the phase angle. **i.** find the power.
5. Diagram and explain how the Microwave Oven works..
6. Diagram a power supply, full wave rectifier, and filter circuit and tell how it smoothes out AC ripple.
7. What is the Domain Theory of Magnitism? Give 10 evidances supporting it.
8. Explain how the solid state diode rectifier works.
9. A step-down transformer is used on a 110v line to give 2400v. If the primary has 200 turns, find the number of turns on the secondary.
10. Diagram and explain the Edison Hookup for home electricity.
11. Diagram a Cathode Ray Tube, label the parts, and tell how it draws a picture on the screen.
12. Diagram a TV Receiving tube, label the parts.
13. Diagram a TV Color Camera, label the parts.
14. Diagram a Transistor Amplifier and compare it to a Vacuum Tube Amplifier.
15. Diagram an Electron Microscope and label its parts.

**FORMULAS:**

$$X_L = 2\pi fL \quad X_C = \frac{1}{2\pi fC} \quad X = X_L - X_C \quad Z = \sqrt{R^2 + X^2} \quad V = IZ \quad P = VI\cos\theta \quad I = \frac{V}{Z}$$

$$\text{at resonance } X_L = X_C \quad f = \frac{1}{2\pi\sqrt{LC}} \quad \text{phase angle} = \text{invtan} \frac{X}{R} \quad \frac{N_s}{N_p} = \frac{V_s}{V_p}$$

**When finished, please STAPLE this exam onto your papers and turn in on due date.**