

**BLITZ: Ch 21, 22, 24, Electricity****Form M-R**

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

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

1. Rounding off to one significant digit, **a.** diagram a series circuit with a 2 henry coil, a 0.00002 farad capacitor, and a 1000 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.
2. Diagram and explain how the Microwave Oven works.
3. Diagram a power supply, full wave rectifier, and filter circuit and tell how it smoothes out AC ripple.
4. Diagram and explain the solid state diode rectifier.
5. What is the Domain Theory of Magnetism? Give 10 evidences supporting it.
6. Discuss why power is transmitted at high voltage in terms of the equations of resistance, heat loss, and power.
7. Tell about inductive and capacitive reactances, impedance, and power factor.
8. Define these terms: farad, henry, coulomb, ampere, volt, watt.
9. A step-up transformer is used on a 220v line to give 24000v. If the primary has 75 turns, find the number of turns on the secondary.
10. Diagram and explain the three phase generator, three phase motor and how they are synchronized.
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.**