Physics worksheet 5 December 2017.

1. Find V1 for the transformer if V2 = T volts, N1 = k and N2 = s.

2. Calculate the series and the parallel circuits with e.m.f. of T Volts and the resistors L+1, 2 and 3 ohms respectively.

3. Find the electrical current i in the circuit for R = T, L = 1/k, C = 1/s, ω = k, and εm = T.

4. For convex mirror with a radius of curvature of 0.002k meters, determine the location of the image and its magnification for an object 0.0012k meters from the mirror.

5. Find the frequency and the period of the harmonic oscillator. L = k μH and C = T μF.

6 Suppose a star has a surface temperature of 4k degrees. What are the wavelength and the color this star appears?

7. Find energy and momentum of photon of s Hz frequency.

8. Calculate the energy and momentum of a photon for Lambda = 0.05k nanometers.

9. Determine the wavelength of an electron that has been accelerated through the potential difference of T Volts.

10. Calculate the wavelength of k grams desk moving T centimeters per second.

11. What is the matter wave length of T gram book?

12. Find the energy level and angular momentum for hydrogen according to the Bohr Model.

13. Calculate the Schwarzschild radius for the k grams desk.

14. Find the annihilation energy of k grams of matter.

15. Calculate the remaining mass (it is NOT 0) of the decaying substance after k seconds if the decay ratio is T and initial mass is s. Calculate the half-life.

16. T kilowatts of electric power is sent to a town from a power plant. The transmission lines have the total resistance of 0.1T Ohms. Calculate the power loss if the power is transmitted at:

(a) 0.03k Volts (b) s Volts

17. A circular coil of wire has a diameter of 0.002k cm and contains 10 loops. The current in each loop is 3A, and the coil is placed into 2TESLA external magnetic field. Determine the maximum and minimum torque exerted on the coil by the field.

18. A man 0.25k mm tall stands in front of a vertical plane mirror. His eyes are 10 cm bellow the top of his head. What are the sizes and the best location of the smallest possible mirror so that he can see his entire body?

19. A spy satellite camera can recognize T cm objects from the altitude of n meters. If diffraction was the only limitation (the wave length Lambda = 0.1k nanometers), determine what diameter lens the camera has.

20. Perform correlation and regression analyses of the periodic table for T+2 elements and for m7 + 3 elementary particles.

21. Try to solve the newest Zimmermann problem: http://azspcs.com/Contest/PrimorialSoup

22. Try to apply for all grants, scholarships, fellowships, etc. in embassies of USA, Canada, Europe, Australia, Japan, etc.

23. Improve your project.