*Electromagnetic Waves – Problems and Questions:* ***Do these in Journal 5.*Conceptual Questions:**

1. If all objects radiate energy as electromagnetic radiation, why can’t we see objects in a darkened room?
2. Are the wavelengths of radio waves longer or shorter than those detectable by your eyes?
3. Can we see radio waves? Can we hear radio waves? Why or Why not?
4. Do radio waves or sound waves travel faster? Explain your answer.
5. Is space empty or full of electromagnetic waves? Give an explanation.
6. Suppose a light wave and a sound wave have the same frequency. Which has the longer wavelength?

**Problems:**

1. Electromagnetic radiation has been detected with a frequency as low as 0.01 Hz. What is the wavelength of such a wave? (show work)
2. Radiation emitted in outer space by hydrogen atoms have a wavelength of 21 centimeters. What is the frequency of this radiation? (show work)
3. Using the table for metric prefixes below, and using the electromagnetic spectrum wavelengths, determine what part of the spectrum each of the following wavelengths belong to:
4. 2.6 µm, b.) 34 m, c.) 0.54 nm, d.) 0.0032 nm, e.) 0.620 µm, f.) 310 nm

