Name: _____   Date: _____

[6 pt]   1. Define wavelength, amplitude and frequency. Include the symbol and standard units for each. Draw a
            picture to illustrate the definitions.

[3 pt]   2. Light of different colors have different _____. Light of different amplitudes have different
            _____

[5 pt]   3. Define the relationship (using a mathematical equation) between frequency and wavelength for light.
            Include the standard units for the conversion factor. Is the frequency of light directly proportional to
            or inversely proportional to the wavelength of light? Explain.

[4 pt]   4. Calculate the wavelength of a wave with $\nu = 2.50 \times 10^{15}$Hz.

[4 pt]   5. Calculate the frequency of a microwave with $\lambda = 4.33 \times 10^5$pm.

[4 pt]   6. Define the term Constructive Interference and Destructive Interference. Draw a picture to illustrate
            the definitions.

[4 pt]   7. Define the term Interference Pattern. Draw a picture to illustrate the definition for both waves and particles.

[10 pt]   8. Answer the following questions about the famous scientists in lecture:

(a) Which scientist championed the wave model for light?   8(a) _____

(b) Which scientist championed the particle model for light?   8(b) _____

(c) Which scientist devised an experiment that proved light can't be a particle 8(c) _____
and must be a wave?

(d) Which scientist came up with the mathematics to describe light as a wave? 8(d) _____

(e) Which scientist first determined that light sometimes behaves like a particle? 8(e) _____

(f) Which scientist scientist was the second to decide that light sometimes be- 8(f) _____
haves like a particle?

(g) Performed the double slit experiment   8(g) _____

(h) Performed the black body radiation experiment   8(h) _____

(i) Performed photo electric effect experiment   8(i) _____