

Name: _____

Date: _____

- [3 pt] 1. Define the following terms **AND** sketch a picture illustrating the concept.
- (a) Wavelength:

 - (b) Frequency:

 - (c) Amplitude:
- [2 pt] 2. Light of different colors have different _____. Light of different amplitudes have different _____.
- [4 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. Define the term Constructive Interference and Destructive Interference. Draw a picture to illustrate the definitions.
- [4 pt] 5. Explain why when light is shown through a cold gas of atom it produces a line spectrum instead of a continuous spectrum. Include in your explanation include a sketch showing how an atom absorbs light and emits light.

CHE 101 - Homework - Ch 7a

- [4 pt] 6. Describe **AND** draw a picture illustrating Rutherford's model of the atom. What is the major flaw in his model? Explain.
- [4 pt] 7. Draw a picture illustrating Bohrs model of the atom. How did it address the flaw in Rutherfords model? Explain. What are the **TWO** major flaws in the Bohr model of the atom?
- [4 pt] 8. Draw a picture illustrating De Broglie's model of the atom. How did it address the flaw in Bohrs model? Which flaw did it not solve?
- [3 pt] 9. What are the major differences between Classical Mechanics and Quantum Mechanics (List at least 3)
- [3 pt] 10. Is an electron a particle or a wave? Explain.