

$$\lambda = \frac{h}{mu}$$

$$h = 6.626 \times 10^{-34} \text{ J}\cdot\text{sec} \quad c = 3.00 \times 10^8 \text{ m/sec}$$

C Question 1 (1 point): Which of the following is responsible for the theory that it is impossible to know the exact position and energy of an electron?

- A. Shrodinger
- B. Bohr
- C. Heisenberg
- D. Planck
- E. deBroglie

B Question 2 (1 point): If an electron has been irradiated by a photon and moves to energy level 4, the electron is said to be

- A. in ground state
- B. in an excited state
- C. in orbit
- D. in a place of bliss an happiness
- E. emitting light

Question 3 (3 points): Alpha emission is when the nucleus of an atom emits an alpha particle (mass =  $6.64 \times 10^{-27}$  kg ). If an alpha particle travels at  $\frac{1}{4}$  the speed of light what will be the de Broglie wavelength of the alpha particle?

$$\lambda = \frac{h}{mu} = \frac{6.626 \times 10^{-34} \text{ J}\cdot\text{sec}}{(6.64 \times 10^{-27} \text{ Kg})(7.5 \times 10^7 \text{ m/sec})} = 1.33 \times 10^{-15} \text{ m} \text{ or } 1.33 \times 10^{-6} \text{ nm}$$