



On point A which is the most left point atom H has most potential energy. As the atom moves, its potential energy is gradually converted to kinetic energy. On point B,  $KE = PE$ . On the middle point which is point C, its potential energy is completely converted to kinetic energy. Then, its kinetic energy starts converting to potential energy. On point D, the middle point,  $PE = KE$ . On the most right point which is point E, its kinetic energy is completely converted to potential energy. Therefore, atom H gets its most potential energy on point A, E. For points B, D,  $KE = PE$ . On point C,  $PE = 0$ .

2.

$$f = 2\pi \sqrt{\frac{K}{m}} = 2\pi \sqrt{\frac{480}{1.626 \times 10^{-27}}} \approx 3.41 \times 10^{15} \text{ Hz}$$

$$3. \quad E_0 = \frac{1}{2} hf = \frac{1}{2} \times 2.15 \times 10^{-15} \times 3.41 \times 10^{15} = 3.6675 \text{ eV}$$

$$E_1 = \frac{3}{2} hf = 3E_0 \approx 11 \text{ eV}$$

$$E_2 = \frac{5}{2} hf = 5E_0 \approx 18.34 \text{ eV}$$

$$E_3 = \frac{7}{2} hf = 7E_0 \approx 25.67 \text{ eV}$$

4. According to its frequency which is  $3.41 \times 10^{15} \text{ Hz}$ , it should emit microwave.