Quiz-11

Ques An electron confined in a box of dimension of 0.5 nm. Estimate the lowest energy level and energy difference between first & second level.

$$E_n = \frac{n^2 h^2}{8mL^2}$$

lowest energy level :- $E_1 = \frac{h^2}{8mL^2}$

$$= \frac{(6.36 \times 10^{-34})^2}{8 \times 9.1 \times 10^{-31} \times (0.5 \times 10^{-9})^2}$$

$$= \frac{40.449 \times 10^{-37} \times 4}{8 \times 9.1 \times 10^{-18}}$$

$$= 2.22 \times 10^{-19}$$

difference b/w 2nd & 1st level is

$$E_2 - E_1 = 4E_1 - E_1$$

$$= 3E_1$$

$$= 6.67 \times 10^{-19}$$