

HW #19

1. An electron energy diagram is drawn below. Black represents levels filled with electrons and grey represents empty energy levels.



- a) This material is a _____.
When hooked to a battery, some electrons in the lower band will _____.
When hooked to a battery, some electrons in the upper band will _____.
- i. conductor, move, move
 - ii. semi-conductor in the dark, not move, move.
 - iii. semi-conductor in the light, move, move.
 - iv. semi-conductor in the light, not move, move.
 - v. insulator, not move, not move.
- b) Explain your reasoning for your answer above in a few sentences. Include in your answer the fundamental idea behind why some electrons can move when a voltage is applied and why some cannot.