

## Exercise 5.1

### Band Theory: An Extension of Molecular Orbital Theory

1. For each of the following molecular orbital theory terms, give the equivalent term from band theory, and explain how they are equivalent, as well as any differences.
  - (a) Molecular orbital
  
  
  
  
  
  
  
  
  
  
  - (b) HOMO
  
2. Question 1 didn't explicitly mention bands. In the context of band theory, what is a band? How does a band form?
  
  
  
  
  
  
  
  
  
  
3. Is there a band-theory equivalent to the LUMO? You may want to consider two different cases:
  - i. normal metals, and
  - ii. semiconductors and insulators.