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### Quiz 3 – A Brief Reminder of Solid-State Physics

**Question 1.** Very briefly explain the Bloch's theorem.

Bloch's theorem states that for a periodic potential energy, solutions to the Schrödinger's equation will be periodic as well.

**Question 2.** What is a “band gap” and how is it related to the materials electronic properties?

Band gap is a collection of inaccessible energy states for any momentum value. Position of the Fermi Level with respect to the band gap determines the electronic properties of the material. For instance if the Fermi level is in the band gap and the band gap then the material is insulating.