

THEORY

1. The first part of the theory discusses the basic principles of quantum mechanics, including the wave-particle duality and the uncertainty principle. It also covers the Schrödinger equation and its applications to various systems.

2. The second part of the theory focuses on the properties of atoms and molecules, such as the Bohr model and the quantum theory of the atom. It also discusses the structure of molecules and the nature of chemical bonds.

3. The third part of the theory deals with the properties of solids, including the band theory of solids and the properties of semiconductors and insulators. It also discusses the properties of superconductors and the quantum Hall effect.

Topic	Chapter
Quantum Mechanics	1-3
Atomic Structure	4-6
Molecular Structure	7-9
Solids	10-12

EXERCISES

1. A particle of mass m is confined to a one-dimensional box of length L . Calculate the energy levels and the wave functions for the first three energy levels.

2. A particle of mass m is confined to a two-dimensional box of length L_x and L_y . Calculate the energy levels and the wave functions for the first three energy levels.

3. A particle of mass m is confined to a three-dimensional box of length L_x , L_y , and L_z . Calculate the energy levels and the wave functions for the first three energy levels.