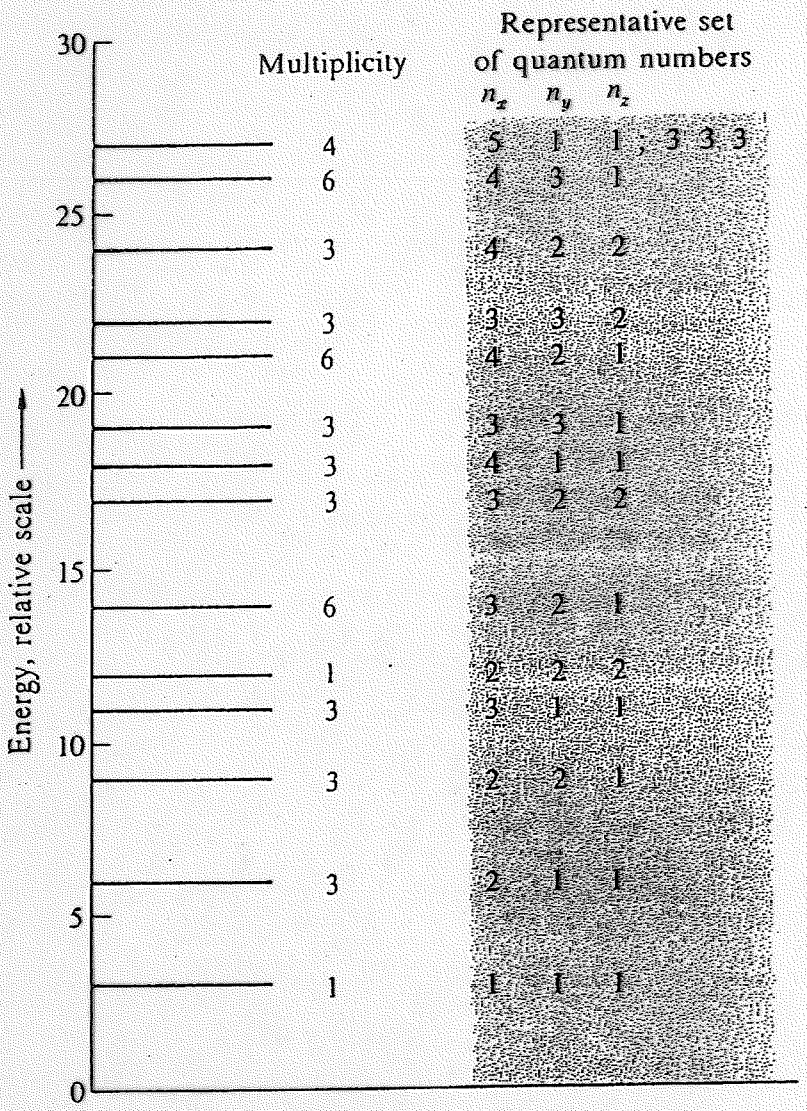

Figure 1.2 Energy levels, multiplicities, and quantum numbers n_x, n_y, n_z of a particle confined to a cube.

other electrons. The energies of the levels of lithium shown in the figure are the collective energies of the entire system. The energy levels shown for boron, which has five electrons, are also the energies of the entire system.

The energy of a system is the total energy of all particles, kinetic plus potential, with account taken of interactions between particles. A quantum state of the system is a state of all particles. Quantum states of a one-particle system are called **orbitals**. The low-lying energy levels of a single particle of mass M confined to a cube of side L are shown in Figure 1.2. We shall find in Chapter 3