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Solutions; 5.2.1 Equations for the Exact Solutions and the Ideal Equation; 5.2.2 Thermoelectric Generator; 5.2.3 Thermoelectric Coolers; 5.3 Compatibility Factor; 5.4 Thomson Effects; 5.4.1 Formulation of Basic Equations; 5.4.2 Numeric Solutions of Thomson Effect; 5.4.3 Comparison between Thomson Effect and Ideal Equation; Problems; Projects; References; 6: Thermal and Electrical Contact Resistances for Micro and Macro Devices; 6.1 Modeling and Validation 6.2 Micro and Macro Thermoelectric Coolers 6.3 Micro and Macro Thermoelectric Generators; Problems; Computer Assignment; References; 7: Modeling of Thermoelectric Generators and Coolers With Heat Sinks; 7.1 Modeling of Thermoelectric Generators With Heat Sinks; 7.2 Plate Fin Heat Sinks; 7.3 Modeling of Thermoelectric Coolers With Heat Sinks; Problems; References; 8: Applications; 8.1 Exhaust Waste Heat Recovery; 8.1.1 Recent Studies; 8.1.2 Modeling of Module Tests; 8.1.3 Modeling of a TEG; 8.1.4 New Design of a TEG; 8.2 Solar Thermoelectric Generators; 8.2.1 Recent Studies 8.2.2 Modeling of a STEG 8.2.3 Optimal Design of a STEG (Dimensional Analysis); 8.2.4 New Design of a STEG; 8.3 Automotive Thermoelectric Air Conditioner; 8.3.1 Recent Studies; 8.3.2 Modeling of an Air-to-Air TEAC; 8.3.3 Optimal Design of a TEAC; 8.3.4 New Design of a TEAC; Problems; References; 9: Crystal Structure; 9.1 Atomic Mass; 9.1.1 Avogadro's Number; Example 9.1 Mass of One Atom; 9.2 Unit Cells of a Crystal; 9.2.1 Bravais Lattices; Example 9.2 Lattice Constant of Gold; 9.3 Crystal Planes; Example 9.3 Indices of a Plane; Problems; 10: Physics of Electrons; 10.1 Quantum Mechanics 10.1.1 Electromagnetic Wave
