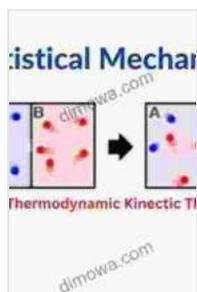


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## Quantum Theory and Statistical Thermodynamics: Principles and Worked Examples (Graduate Texts in Physics) by Peter Hertel

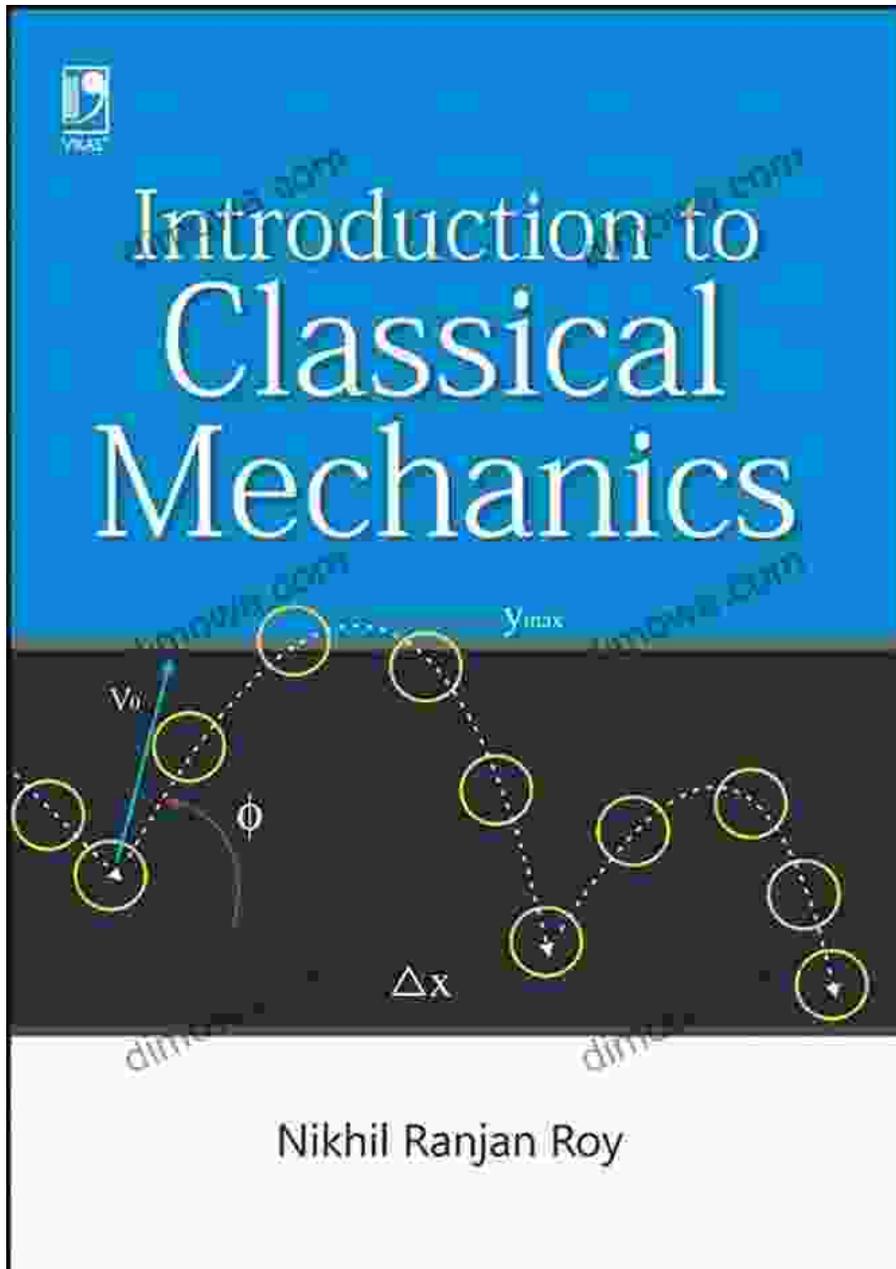
★★★★★ 5 out of 5

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File size : 13287 KB  
Text-to-Speech : Enabled  
Enhanced typesetting : Enabled  
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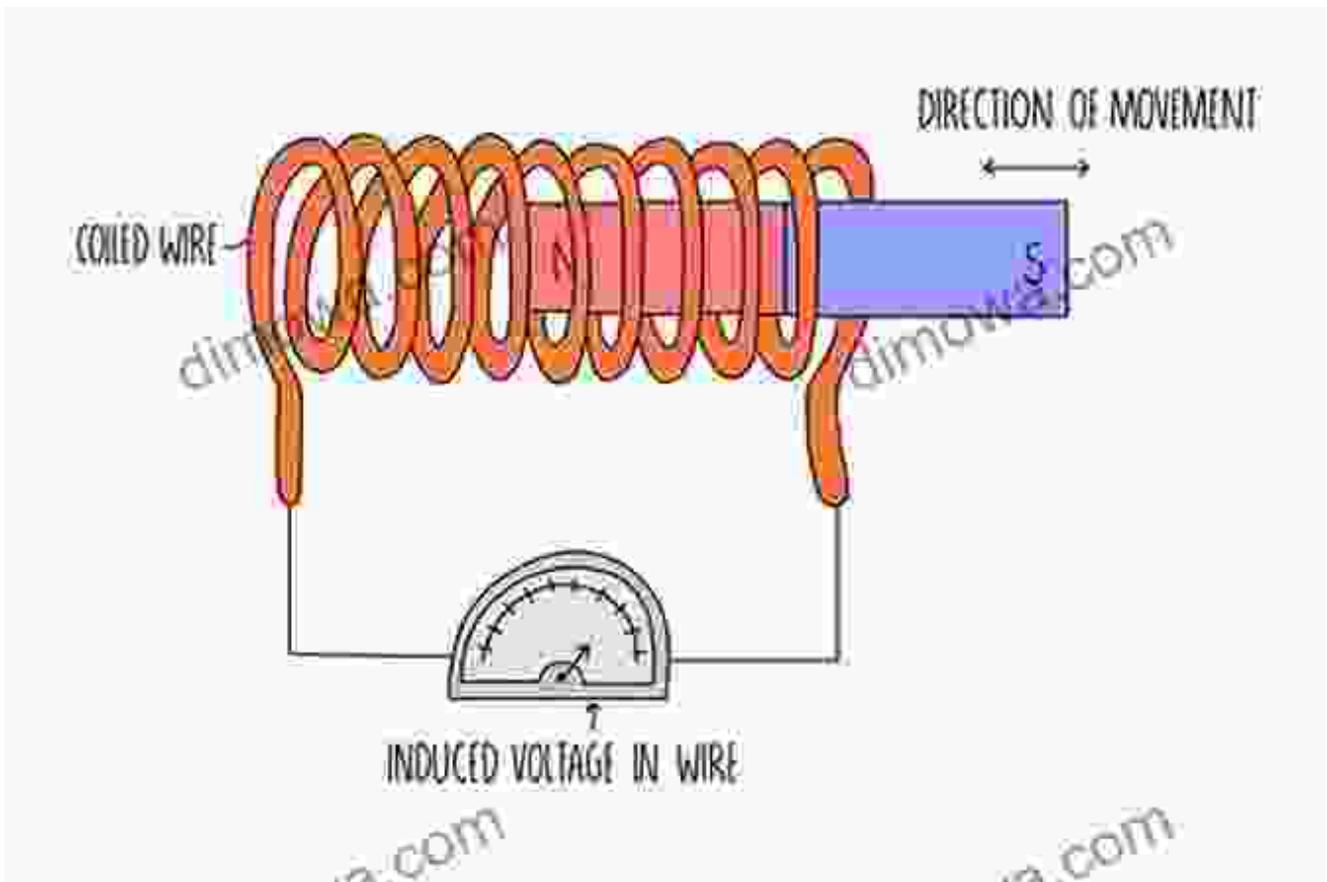
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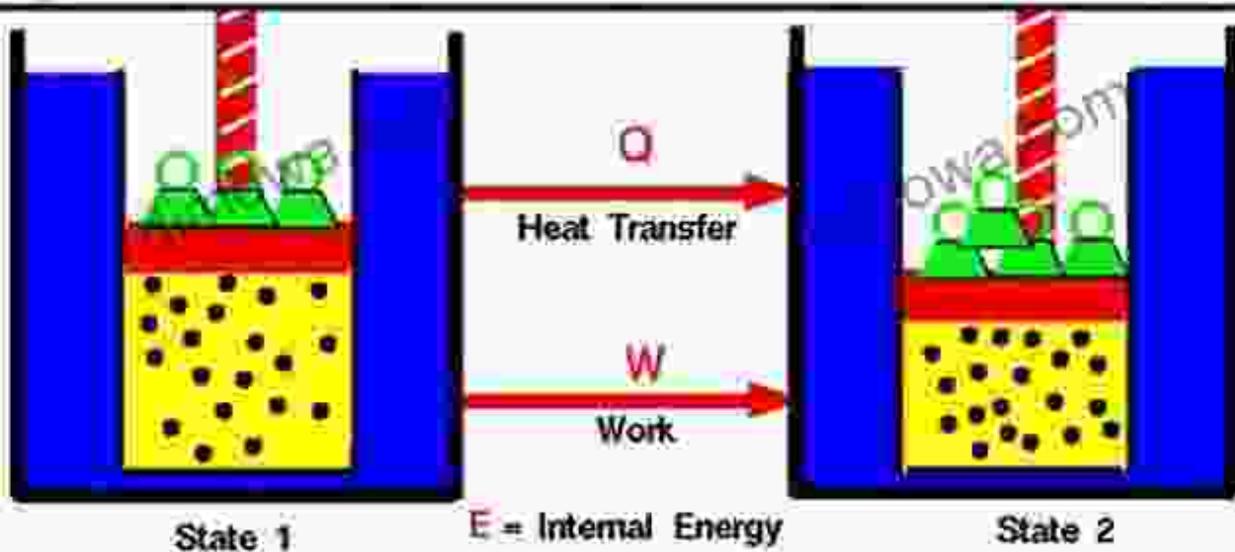


**Uncover the intricate interplay of electric fields, magnetic fields, and electromagnetic waves. Engage with solved problems that demonstrate the practical applications of these principles in real-world scenarios.**



# First Law of Thermodynamics

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$E$  = Internal Energy

$$E_2 - E_1 = Q - W$$

Any thermodynamic system in an equilibrium state possesses a state variable called the internal energy ( $E$ ). Between any two equilibrium states, the change in internal energy is equal to the difference of the heat transfer into the system and work done by the system.

Immerse yourself in the study of heat transfer, energy transformations, and the laws of thermodynamics. Guided by worked examples, explore the applications of these concepts in diverse fields, from power generation to refrigeration.

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"Principles and Worked Examples" goes beyond mere theory by providing an arsenal of problem-solving techniques that equip you to tackle the most challenging questions. Develop analytical skills and deepen your understanding through:

## Step-by-Step Solutions

Follow intricate problem-solving processes, tracing each step from the givens to the final solution. Learn to break down complex problems into manageable chunks and apply relevant equations with accuracy.

### **Numerical Methods**

Gain proficiency in numerical methods, such as finite difference and finite element analysis. Leverage these techniques to solve problems that are difficult to address analytically, expanding your problem-solving repertoire.

### **Dimensional Analysis**

Understand the significance of dimensional analysis in checking solutions and identifying errors. Master the art of converting units and ensuring the validity of your calculations.

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Delve into the interdisciplinary realm of biophysics and medical physics, where physical principles meet biological and medical applications.

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Study the physical aspects of environmental processes, such as air pollution, climate change, and renewable energy. Equip yourself to address environmental challenges with a solid foundation in physics.

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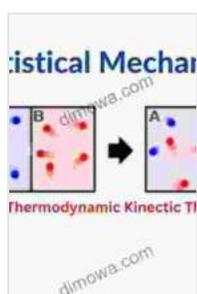
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"An invaluable resource that provides a deep understanding of fundamental physics principles and prepares students for advanced research." - Dr. Maria Garcia, Professor of Physics, University of California, Berkeley

"The worked examples are exceptional, guiding students through complex problems with clarity and precision." - Dr. David Smith, Professor of Physics, Stanford University

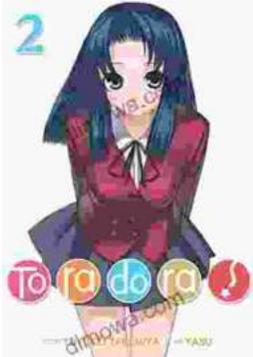


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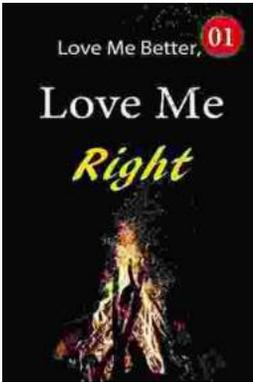
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