

# HEAT ENGINES

## VOL. I

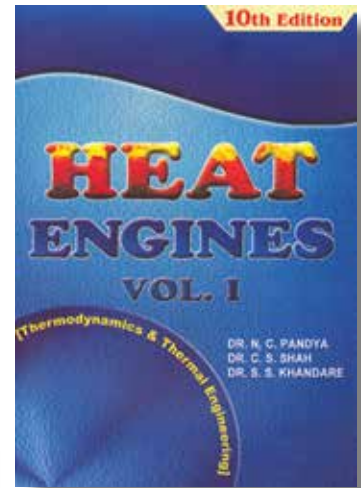
[ THERMODYNAMICS AND THERMAL ENGINEERING ]



By

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### ABOUT THE BOOK

The tenth edition of this standard text-book is now organised in two volumes. The Volume I now covers the complete syllabi of the subjects of Thermodynamics and Thermal Engineering; while Volume II covers mainly I. C. Engines, Air Compressor and Gas Turbine.

This is one of the most comprehensive revisions since the book was first published in 1959. At the same time the text matter is thoroughly revised, extensively enlarged, completely updated, restructured and reorganised. This book is now, in a new form, in a different size and adding plenty of new matter, examples and drawings.

The outline of the book is:

- Chapters 01 to 05 Engineering Thermodynamics
  - Chapters 06 to 08 Steam boilers; Boiler Mountings and Accessories; Testing and Performance of Steam Boiler
  - Chapter 09 Draught
  - Chapter 10 Fuels and Combustion
  - Chapters 11 and 12 Steam Engines, Testing and Performance of Steam Engines
  - Chapters 13 and 14 Steam Nozzle and Steam Turbine
  - Chapter 15 Condenser
  - Appendix A Short Questions for Viva Voce
  - Appendix B Steam Tables and Mollier Diagram
- Each chapter consists ample Exercises and Objective Questions.

The book within its 735 + 16 pages, now comprises the following:

- \* 304 Self-explanatory and neatly drawn sketches
- \* 252 Solved numerical examples
- \* 788 Exercises for practice
- \* 300 Objective questions
- \* 78 Useful tables
- \* 211 Short Questions for Viva Voce.

The following new Chapters are now added in this volume:

- \* Air Standard Cycles
- \* Flow Processes and Thermodynamic Relations
- \* Testing and Performance of Boilers
- \* Testing and Performance of Steam Engines
- \* Steam Nozzle
- \* Steam Turbine.

The book is intended to serve as an introductory text-book for the students of Engineering Degree courses of all the Indian Universities. It will also be equally useful to the students studying for Diploma Examinations conducted by various Boards of Technical Education, Certificate courses, as well as for the A.M.I.E., U.P.S.C., G.A.T.E., I.E.S., other similar competitive and professional Examinations.

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**Appendix A SHORT QUESTIONS FOR VIVA-VOCE**

**Appendix B STEAM TABLES**





Heat engine in engineering and thermodynamics , performs the conversion of heat energy to mechanical work by exploiting the temperature gradient between a hot " source " and a cold " sink ". Heat is transferred to the sink from the source, and in this process some of the heat is converted into work . Examples of everyday heat engines include: the steam engine , the diesel engine , and the gasoline (petrol) engine in an automobile . All of these familiar heat engines are powered by the expansion of

Heat Engines, Refrigerators, and Cycles: Crash Course Engineering #11. Heat Engines: Crash Course Physics #24. A Heat Engine Can Use Heat to do Work. But It Can't Be Perfectly Efficient! | Doc Physics. Heat Engines, Thermal Efficiency, & Energy Flow Diagrams - Thermodynamics & Physics Problems. Carnot Heat Engines, Efficiency, Refrigerators, Pumps, Entropy, Thermodynamics - Second Law, Physics. Transcription. To succeed in engineering, you have to master the art of repetition. Heat engines such as automobile engines operate in a cyclic manner, adding energy in the form of heat in one part of the cycle and using that energy to do useful work in another part of the cycle. For a cyclic heat engine process, the PV diagram will be a closed loop. The area inside the loop is a representation of the amount of work done during a cycle. Some idea of the relative efficiency of an engine cycle can be obtained by comparing its PV diagram with that of a Carnot cycle, the most efficient kind of heat engine cycle. Index.