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### GIGRV9 - SANIYA RICHARD

Divided in two parts, [A Textbook of Fluid Mechanics and Hydraulic Machines] is one of the most exhaustive texts on the subject for close to 20 years. For the students of Mechanical Engineering, it can easily be used as a reference text for other courses as well. Important topics ranging from Fluid Dynamics, Laminar Flow and Turbulent Flow to Hydraulic Turbines and Centrifugal pumps are well explained in this book. A total of 23 chapters (combined both units) followed by two special chapters of [Universities' Questions (Latest) with Solutions] and [GATE and UPSC Examinations' Questions with Answers/Solutions] after each unit also make it an excellent resource for aspirants of various entrance examinations. This is an ideal offering for the complete course on Fluid Mechanics and Hydraulic Machines. Written in a simple and lucid style, the book covers the basic principles and its application to the solution of engineering problems. This book is apt for self-study by the students and lays down a strong foundation for problem-solving abilities.

This textbook offers a unique introduction to hydraulics and fluid mechanics through more than 100 exercises, with guided solutions, which students will find valuable in preparation for their preliminary or qualifying exams and for testing their grasp of the subject. In some exercises two different solution methods are proposed, to highlight the fact that the level of complexity of the calculations is often linked to the choice of method, though in most cases only the simplest method is presented. The exercises are organized by subject, covering forces on planes and curved surfaces; floating bodies; exercises that require the application of linear and angular momentum balancing in inertial and non-inertial

references; pipeline systems, with particular applications to industrial plants; hydraulic systems with machines (pumps and turbines); transient phenomena in pipelines; and uniform and gradually varied flows in open channels. The book also features appendices that contain selected data and formulas of practical interest. Instructors of courses that address one or all of the above topics will find the exercises of great help in preparing their courses, while researchers will find the book useful as an accessible summary of the topics covered.

The entire book has been thoroughly revised by adding adequate text and a large number of typical examples selected from various universities and competitive examinations question papers. Besides this, Laboratory Experiments have also been added at the end of the book to make it still more a comprehensive and complete unit in all respects.

The material in the book has been presented in a very simple but effective language in order to enable students to master the subject matter thoroughly without coming across the hurdle of highly technical language. About 300 solved and unsolved examples have been incorporated. It contains 9 chapters. SI units have been consistently used throughout the book.

In the book a large number of problems from the Examination paper of London University, Institution of Mechanical Engineers (London) Institution of Engineers (India) Union Public Service Commission (India) and Various Indian Universities have been included. -  
CONTENTS : Part- I : Properties of Fluids \* Pressure Measurement \* Hydrostatic Forces on Surfaces \* Buoyancy and Floating \* Fluid Masses in Relative Equilibrium \* Kinematics of Fluid Flow \* Dynamics of Fluid Flow \* Flow Measurement \* Flow Through Orifices and Mouth Pieces \* Flow over Notches and Weirs \* Fundamentals of

Flow Through Pipes \* Fundamentals of Flow through Open Channels \* Flow of Compressible Fluids Part-II : Advance Topics In Fluid Mechanics And Hydraulics : Dimensional Analysis \* Hydraulic Similitude \* Laminar Flow \* Turbulent Flow Through Pipes \* Boundary Layer Theory \* Flow Around Immersed Bodies \* Uniform Flow in Open Channels \* Non Uniform Flow in Open Channels Part- III : Hydraulics Machines : Impacts of Free Jets \* Hydraulic Turbines \* Governing and Performance of Hydraulic Turbines \* Reciprocating Pumps \* Centrifugal Pumps \* Miscellaneous Hydraulic Devices and Machines Part-IV : Iscellaneous Topics : Fluvial Hydraulics \* Elementary Hydrodynamics \* Water Power Engineering \* Laboratory Experiments Part-V : Appendices : Appendix A : Miscellaneous Objective Type Questions \* Appendix B : Cavitation \* Appendix C : Geometrical Properties of Plane Areas \* Appendix D : secondary Flow \* Appendix E : Use Vector Notations \* Appendix F : Computer Programmes \* Reference \* Index.

Hydraulic Machines (Fluid Machinery) has been designed as a textbook for engineering students specializing in mechanical, civil, electrical, hydraulics, chemical and power engineering. The highlights of the book are simple language supported by analytical and graphical illustrations. A large number of theory questions and numerical problems with solution hints have been annexed at the end of every chapter. A large number of objective questions have been included to help the students opting for competitive examinations. Five case studies based on research have been included which can be advantageously used by practising engineers pursuing research design and consultancy careers. Complete design of hydraulic machines has been demonstrated with the help of suitable examples. The book has been divided into six parts containing 13 chapters.

Fluid Mechanics And Hydraulic Machines is designed for the course on fluid mechanics and hydraulic machines offered to the undergraduate students of mechanical and civil engineering. Written in a lucid style, the book lays emphasis on explaining the logic and physics of critical problems to develop analytical skills in the reader.

The favourable and warm reception, which the previous editions and reprints of this popular book has enjoyed all over India and abroad has been a matter of great satisfaction for me.

Following a concise overview of fluid mechanics informed by numerous engineering applications and examples, this reference presents and analyzes major types of fluid machinery and the major classes of turbines, as well as pump technology. It offers professionals and students in hydraulic engineering with background concepts as well as practical coverage of modern turbine technologies, fully explaining the advantages of both steam and gas turbines. Description, design, and operational information for the Pelton, Francis, Propeller, and Kaplan turbines are provided, as are outlines of various types of power plants. It provides solved examples, chapter problems, and a thorough case study.

This treatise on fluid Mechanics, contains comprehensive treatment of the subject matter in simple, lucid and direct language and envelopes a large number of solved problems properly graded, including typical examples from examination point of view. The book comprises 16 chapters. All chapters of the book are saturated with much needed text supported by simple and self-explanatory figures and a large number of worked examples including Typical Examples (for competitive examinations). At the end of each chapter Highlights, objective Type Questions, Theoretical Questions and Unsolved Examples have been added to make the book a comprehensive and a complete unit in all respects.

The popularity of all the earlier thirteen editions of the book among the students as well as the teachers has made it possible to bring out the fourteenth edition of the book so soon. In this edition the book has been brought out in A-4 size thereby considerably enhancing the general get-up of the book. The book in this fourteenth edition is entirely in SI Units and it has been thoroughly revised in the light of the valuable suggestions received from the learned professors and the students of the various Universities. Accordingly several new articles have been added. The answers

of all the illustrative examples and the problems have been checked and corrected. Moreover, several new problems from the latest question papers of the different Universities as well as competitive examinations have been incorporated. Thus, it may be emphatically stated that the book is complete in all respects and it covers the entire syllabus in the subject for degree students in the different branches of engineering for almost all the Universities. Therefore this Single Book fulfills the entire needs of the students intending to appear at the various University Examinations and also for those intending to appear at the various competitive examination such as engineering services and the ICS examinations and for those preparing for AMIE examinations. **OUTSTANDING FEATURES** " Twenty nine chapters covering entire subject matter of Fluid Mechanics, Hydraulics and Hydraulic Machines. " SI Units used for the entire book " More than 200 multiple choice questions with answers " Appendix containing computer programs to solve problems of uniform and critical flows in open channels. " Ten appendixes dealing with some important topics.

**★ABOUT THE BOOK:** This book does not require any introduction now. we thank our readers for entitling the book as best book ever written on " hydraulics & fluid Mechanics" Unlike other books the idea of the author was to clear the basic principles of & the student making it a professional choice The book in this 22nd edition is entirely in SI Units and it has been thoroughly revised in the light of the valuable suggestions received from the learned professors and the students of the various Universities. Accordingly several new articles have been added. The answers of all the illustrative examples and the problems have been checked and corrected. Moreover, several new problems from the latest question papers of the different Universities as well as competitive examinations have been incorporated. Thus it may be emphatically stated that the book is complete in all respects and it covers the entire syllabus in this subject for degree students in the different branches of engineering for almost all the Universities. Therefore this Single Book fulfills the entire needs of the students intending to appear at the various University Examinations and also for those intending to appear at the various competitive examinations such as engineering services and the ICS examinations and for those preparing for AMIE examinations. Unlike other books this book clears the basic principles of the reader. **★OUTSTANDING FEATURES:** Twenty nine chapters covering entire subject matter

of Fluid Mechanics, Hydraulics and Hydraulic Machines. SI Units used for the entire book More than 200 multiple choice questions with answers Appendix containing computer programs to solve problems of uniform and critical flows in open channels Ten appendixes dealing with some important topics. Thank you readers for entitling the best book ever written on hydraulics & fluid mechanics. **★RECOMMENDATIONS:** A textbook for all Engineering Branches, Competitive Examination, ICS, and AMIE Examinations In S.I Units For Degree, Diploma and A.I.M.E. (India) Students and Practicing Civil Engineers. **★ABOUT THE AUTHOR:** By Dr. P.N. Modi B.E., M.E., Ph.D Former Professor of Civil Engineering, M.R. Engineering College, (Now M.N.I.T), Jaipur Formerly Principal, Kautilya Institute of Technology and Engineering, Jaipur & Dr. S.M. Seth B.E., M.E., M.I.E., Ph.D (Manchester) Former Director, National Institute of Hydrology, Roorkee Presently Principal, Kautilya Institute of Technology and Engineering, Jaipur **★BOOK DETAILS:** ISBN: 978-81-89401-26-9 Pages: 1403 + 16 Paperback Edition: 22nd, Year -2019 Size(cms): L-23.5 B-18 H-5.7 **★PUBLISHED BY:** STANDARD BOOK HOUSE Since 1960 Unit of Rajsons Publications Pvt Ltd Regd Office: 4262/3A Ground Floor Ansari Road Daryaganj New Delhi-110002 +91 011 43551185/43551085/43751128/23250212 Retail Office : 1705-A Nai Sarak Delhi-110006 011 23265506 Website: www.standardbookhouse.com A venture of Rajsons Group of Companies

Written in an innovative style, this book in SI system of units is a complete treatise on fluid mechanics and hydraulic machines. It presents the subject matter in an explicit, lucid and comprehensive manner. Simple mathematical models have been used to describe the intricate physical concepts.

This comprehensive book is an earnest endeavour to apprise the readers with a thorough understanding of all important basic concepts and methods of fluid mechanics and hydraulic machines. The text is organised into sixteen chapters, out of which the first twelve chapters are more inclined towards imparting the conceptual aspects of fluids mechanics, while the remaining four chapters accentuate more on the details of hydraulic machines. The book is supplemented with solutions manual for instructors containing detailed solutions of all chapter-end unsolved problems. Primarily intended as a text for the undergraduate students of civil, mechanical, chemical and aeronautical engineering,

this book will be of immense use to the postgraduate students of hydraulics engineering, water resources engineering, and fluids engineering. Key features

- The book describes all concepts in easy-to-grasp language with diagrammatic representation and practical examples.
- A variety of worked-out examples are included within the text, illustrating the wide applications of fluid mechanics.
- Every chapter comprises summary that presents the main idea and relevant details of the topics discussed.
- Almost all chapters incorporate objective type questions of previous years' GATE examinations, along with their answers and in-depth

explanations.

- Previous years' IES conventional questions are provided at the end of most of the chapters.
- A set of theoretical questions and numerous unsolved numerical problems are provided at the chapter-end to help the students from practice point-of-view.
- Every chapter consists of a section Suggested Reading comprising a list of publications that the students may refer for more detailed information.

This textbook attempts to cover all the topics concerning fluid Mechanics, Hydraulics and Hydraulic Machines, keeping in view the requirements of undergraduate engineering students of all branch-

es. Beginning with fundamentals, advanced topics are discussed towards the end of each chapter. This book written in SI System of units should be a single guiding reference material for most university examinations, AMIE and other competitive examinations. While dealing with various aspects, emphasis is on showing a physical picture of the situation with the help of diagrams.

With a large number of objective type multiple-choice questions, this book was written in a simple and easy-to-follow language so that even an average student can grasp the subject matter by self-study. --