CONTENTS

Chapter No. Pa	
1 FLUID PROPERTIES Basic Attacks and Strategies for Solving Problems Density, Specific Weight 1 Viscosity 6 Vapor Pressure 14 Compressibility 16 Surface Tension 19 Bulk Modulus of Elasticity 23 Acceleration of a Particle 24	1-A
Proces on a Curved Surface 64 Fluid Under Acceleration 77 Buoyancy 97 Stability 108	26-A
3 FLUID KINEMATICS Basic Attacks and Strategies for Solving Problems Coordinate Transformation 120 Velocity and Acceleration 122 Streamline, Pathline and Streakline 139 Radial Flow 148	120-A
4 CONTINUITY EQUATION Basic Attacks and Strategies for Solving Problems Transport Theorem 152 Continuity Equation 158	152-A

5	ENERGY EQUATION	
	Basic Attacks and Strategies for Solving Problems	176-A

Energy Equation 176
Bernoulli's Equation 184

6 MOMENTUM EQUATION

Basic Attacks and Strategies for Solving Problems 238-A

Momentum Equation 238

Moment of Momentum Equation 276

7 PIPE FLOW

Basic Attacks and Strategies for Solving Problems 303-A
Laminar/Turbulent Flow 303
Pipe Flow 322
Head Loss 361
Parallel/Series 373
Branched/Network 398

8 DIMENSIONAL ANALYSIS

Basic Attacks and Strategies for Solving Problems 433-A Dimensional Analysis 433 Similitude 460

9 POTENTIAL AND VORTEX FLOW

Basic Attacks and Strategies for Solving Problems 486-A
Potential Flow 486
Circulation 501
Vortex Flow 507
Velocity Potential and Stream Function 529
Irrotational Flow 560

10 DRAG AND LIFT

Basic Attacks and Strategies for Solving Problems 563-A
Boundary Layer 563
Drag 580
Lift 619

11 CHANNEL FLOW

Basic Attacks and Strategies for Solving Problems 629-A
Open Channel Flow 629

12 COMPRESSIBLE FLOW

Basic Attacks and Strategies for Solving Problems 678-A
Acoustic Velocity and Mach Number 678
Compressible Flow 707

Nozzle 765 Shock 780

13 FLOW METERS

Basic Attacks and Strategies for Solving Problems 807-A

Manometer 807

U Tube 815

Pitot Tube 822

Orifice Meter 827

Venturi Tube 835

Flow Nozzle 846

14 FLOW THROUGH HYDRAULIC STRUCTURES

Basic Attacks and Strategies for Solving Problems 847-A

Flow Over Weirs 847

Flow Through Orifice 852

Culvert and Spillway 859

Seepage 865

Pressure (Surge) Waves 866

15 PROPULSION AND TURBOMACHINES

Basic Attacks and Strategies for Solving Problems 870-A

Propulsion 870

Turbomachines 890

APPENDIX 921

INDEX 940