## CONTENTS

FOREW PREFACE A NOT		iii vii x
СН	APTER 9	
Месн	ANICAL PROPERTIES OF SOLIDS	
9.1	Introduction	231
9.2	Elastic behaviour of solids	232
9.3	Stress and strain	232
9.4	Hooke's law	234
9.5	Stress-strain curve	234
9.6	Elastic moduli	235
9.7	Applications of elastic behaviour of materials	240
СН	APTER 10	
Месн	ANICAL PROPERTIES OF FLUIDS	
10.1	Introduction	246
<b>10.2</b>	Pressure	246
10.3	Streamline flow	253
10.4	Bernoulli's principle	254
10.5	Viscosity	258
10.6	Reynolds number	260
10.7	Surface tension	261
	APTER 11	
THERM	IAL PROPERTIES OF MATTER	
11.1	Introduction	274
11.2	Temperature and heat	274
11.3	Measurement of temperature	275
11.4	Ideal-gas equation and absolute temperature	275
11.5	Thermal expansion	276
11.6	Specific heat capacity	280
11.7	Calorimetry	281
11.8	Change of state	282
11.9	Heat transfer	286
11.10	Newton's law of cooling	290
СН	APTER 12	
THERM	IODYNAMICS	
12.1	Introduction	298
12.2	Thermal equilibrium	299

xii

12.3	Zeroth law of thermodynamics	300
12.4	Heat, internal energy and work	300
<b>12.5</b>	First law of thermodynamics	302
<b>12.6</b>	Specific heat capacity	303
<b>12.7</b>	Thermodynamic state variables and equation of state	304
12.8	Thermodynamic processes	305
12.9	Heat engines	308
12.10	Refrigerators and heat pumps	308
<b>12.11</b>	Second law of thermodynamics	309
<b>12.12</b>	Reversible and irreversible processes	310
<b>12.13</b>	Carnot engine	311
СНА	APTER 13	
Kineti	c Theory	
13.1	Introduction	318
<b>13.2</b>	Molecular nature of matter	318
13.3	Behaviour of gases	320
13.4	Kinetic theory of an ideal gas	323
<b>13.5</b>	Law of equipartition of energy	327
<b>13.6</b>	Specific heat capacity	328
13.7	Mean free path	330
СНА	APTER 14	
Oscili	ATIONS	
14.1	Introduction	336
14.2	Periodic and oscilatory motions	337
14.3	Simple harmonic motion	339
14.4	Simple harmonic motion and uniform circular motion	341
14.5	Velocity and acceleration in simple harmonic motion	343
14.6	Force law for simple harmonic motion	345
14.7	Energy in simple harmonic motion	346
14.8	Some systems executing SHM	347
14.9	Damped simple harmonic motion	351
14.10	Forced oscillations and resonance	353
O II /		
Waves	APTER 15	
15.1	Introduction	363
<b>15.2</b>	Transverse and longitudinal waves	365
<b>15.3</b>	Displacement relation in a progressive wave	367
15.4	The speed of a travelling wave	369
<b>15.5</b>	The principle of superposition of waves	373
<b>15.6</b>	Reflection of waves	374
10.0	Tellection of waves	0.1

30	÷	÷.	ï
-Х	ı	ı	

	Beats Doppler effect	379 381
ANSW	ERS	391
BIBLIOGRAPHY		401
INDEX	ζ	403