CONTENTS

		Page
СН	APTER 1. The Eye and Vision	1
1.1	Introduction	1
1.2	The levels of brightness (luminance) which the eye can use	2
1.3	Value of contrast	2
1.4	Rays of light and brightness	3
1.5	Light measurement	4
1.6	Illumination	4
1.7	Reflection and transmission factors	6
1.8	The use of the eye to measure brightness	7
1.9	Bench photometers	8
1.10	Portable illumination photometers	10
	Radial photometers	13
	The flicker photometer	14
	Light distribution diagrams	15
	Brightness	21
	Some special aspects of the response of the eye	27
CHA	APTER 2. Sources of Light	31
2.1	Electric lighting	31
2.2	Colour	36
2.3	Discharge lighting	37
2.4	Types of starter	44
2.5	Efficiency and costs	46
CHA	APTER 3. Lighting Installations and Lighting Fittings	49
3.1	General	49
3.2	Dwelling houses	49
3.3	Public buildings	49
3.4	Industrial lighting	51
3.5	Lighting of streets and roads	51
3.6	Lanterns	55
3.7	Uniform illumination on matt surface	63
	Problems	65
	Answers	71
CHA	APTER 4. Industrial Motor Drives	73
4.1	Introduction: types of drive	73
4.2	A.C. motors for industrial drives	75
4.3	D.C. motors	91
CHAPTER 5. The Use of Storage Batteries for Power Supply		94
5.1	Types of cells	95
5.2	Electrical characteristics of lead-acid batteries	96
5.3	Electrical characteristics of nickel-cadmium alkaline batteries	97
5.4	A general comparison of lead-acid and alkaline batteries	98
5.5	Battery charging systems	99
5.6	Battery systems for emergency supplies	101
5.7	Battery hosing	103
CH	APTER 6. Heat Transfer and Heating-System Design	104
6.1	Heating-system design	104
6.2	Calculation of quantities of heat	107

6.3 Conduction of heat through materials and structures	111
6.4 Temperature distribution in a composite structure	117
6.5 Other factors influencing the heat requirements for a building	118
6.6 An example of a heat-loss calculation for a simple complete building	119
Appendix	122
CHAPTER 7. Electric Heating	124
7.1 Electric space-heating appliances and systems	124
7.2 Water-heating plant	131
7.3 Industrial heating processes	135
7.4 Electric welding (arc, resistance)	137
CHAPTER 8. Industrial Semiconductor Rectifiers	139
8.1 Types of rectifiers	139
8.2 Choice and application of rectifiers	140
8.3 Electrical characteristics of semiconductor rectifiers	142
8.4 Typical applications : semiconductor rectifiers and controlled rectifiers	146