## Contents

Introduction	xi
Unit 1 Engineering Materials	
I: READING AND COMPREHENSION	1
Solutions to the comprehension problems	2
EXERCISE A: Rephrasing	3
EXERCISE B: Contextual reference	3
II: USE OF LANGUAGE	4
EXERCISE A: Classification of engineering materials	4
EXERCISE B: Classification (cont.)	4
EXERCISE C: However, therefore and because	5
EXERCISE D: Language of measurement	
(i) Basic metric units	6
EXERCISE E: Language of measurement	
(ii) Derived metric units	8
EXERCISE F: Language of measurement	0
(iii) Compound metric units	8
	10
	10
	11
O T T T T T T T T T T T T T T T T T T T	11
Stage 2: Paragraph building	12
V: FREE READING: Corrosion	12
Unit 2 Vectors	
I: READING AND COMPREHENSION	14
Solutions to the comprehension problems	15

## vi Contents

	EXERCISE A: Rephrasing	16
	EXERCISE B: Contextual reference	16
	EXERCISE C: Relationships between statements	16
II:	USE OF LANGUAGE	17
	EXERCISE A: Classification of physical quantities	17
	EXERCISE B: Making definitions	17
	EXERCISE C: Making generalizations	18
	EXERCISE D: Lower-level and higher-level generalizations	18
III:	INFORMATION TRANSFER	19
	EXERCISE A: Changing vector diagrams to written descriptions	19
	EXERCISE B: Sentence building	20
IV:	GUIDED WRITING	21
	Stage 1: The use of the passive in the description of an	
	experiment	21
	Stage 2: Paragraph building	22
V:	FREE READING: Scales and graphs	22
Unit	3 Force	
т.	READING AND COMPREHENSION	24
1.		25
	Solutions to the comprehension problems	26
	EXERCISE A: Rephrasing	26
	EXERCISE B: Contextual reference	27
TT.	EXERCISE C: Relationships between statements	27
11:	USE OF LANGUAGE	27
	EXERCISE A: Instructions and results	
	EXERCISE B: Making observations (i)	28
	EXERCISE C: Making observations (ii)	28
	EXERCISE D: Relative clauses (defining)	28
	EXERCISE E: Relative clauses (non-defining)	29
	EXERCISE F: Relative clauses (defining and non-defining)	30
TIT.	EXERCISE G: Noun modification (i)	31
111:	INFORMATION TRANSFER	33
	EXERCISE A: Mathematical symbols used in engineering	33
TV.	EXERCISE B: Greek letters and abbreviations used in engineering	33
IV:	GUIDED WRITING	34
	Stage 1: Sentence building	34
	Stage 2: Paragraph building	35
37.	Stage 3: Using diagrams to illustrate the passage	35
v :	FREE READING: Gravity	36
Unit	4 Friction	
т.	READING AND COMPREHENSION	37
1.	Solutions to the comprehension problems	38
		39
	EXERCISE A: Rephrasing	29

	Contents	vii
	EXERCISE B: Contextual reference	40
	EXERCISE C: Relationships between statements	40
II:	USE OF LANGUAGE	40
	EXERCISE A: Instructions and results	40
	EXERCISE B: Making observations (iii)	41
	EXERCISE C: Making inductions	41
	EXERCISE D: Short-form relative clauses (i)	43
	EXERCISE E: Short-form relative clauses (ii)	44
	EXERCISE F: Short-form relative clauses (iii)	45
***	EXERCISE G: Noun modification (ii) INFORMATION TRANSFER	45
ш:	EXERCISE A: Making recommendations based on a graph	46
	EXERCISE B: Making recommendations based on a table	46
TX7.	GUIDED WRITING	48
IV.	Stage 1: Sentence and paragraph building	48
v.	FREE READING: Lubrication	49
	I KEE KEITE III O' ENGINEER	
Unit	5 Levers	
т.	READING AND COMPREHENSION	50
1.	Solutions to comprehension problems	51
	EXERCISE A: Rephrasing	53
	EXERCISE B: Contextual reference	54
	EXERCISE C: Relationships between statements	54
П:	USE OF LANGUAGE	54
-	EXERCISE A: Completing a diagram	54
	EXERCISE B: Interpretation of diagrams	54
	EXERCISE C: Paragraphs based on diagrams	54
	EXERCISE D: Describing the function of an object	56
	EXERCISE E: Combining sentences with an -ing clause	56
	EXERCISE F: Relative clauses with prepositions	57
	EXERCISE G: Noun modification (iii)	58
III:	INFORMATION TRANSFER	59
	EXERCISE A: Making comparisons based on a diagram	59
IV:	GUIDED WRITING	60
	Stage 1: Writing a report of an experiment	60
	Stage 2: Illustrating the report with a diagram	60
	Stage 3: Completing the report	61
V:	FREE READING: Beams	61
Unit	6 Stress and Strain	
I:	READING AND COMPREHENSION	63
	Solutions to the comprehension problems	64
	EXERCISE A: Rephrasing	66

	EXERCISE B: Contextual reference	66
	EXERCISE C: Relationships between statements	67
II:	USE OF LANGUAGE	67
	EXERCISE A: Definitions	67
	EXERCISE B: If-sentences	68
	EXERCISE C: Predictions based on the properties of materials	68
	EXERCISE D: Noun modification (iv)	68
	EXERCISE E: Prepositions	69
	EXERCISE F: Making inductions	70
III:	INFORMATION TRANSFER	71
	EXERCISE A: Inductions based on diagrams and tables	71
	EXERCISE B: Stating laws	72
IV:	GUIDED WRITING	74
	Stage 1: Sentence building	74
	Stage 2: Paragraph building	75
**	Stage 3: Using diagrams to illustrate the paragraphs	75
V :	FREE READING: Factor of safety	76
TT-1	47 Med and Descript Markins	
Uni	t 7 Ideal and Practical Machines	
I:	READING AND COMPREHENSION	78
	Solutions to the comprehension problems	80
	EXERCISE A: Rephrasing	82
	EXERCISE B: Contextual reference	82
	EXERCISE C: Relationships between statements	83
II:	USE OF LANGUAGE	83
	EXERCISE A: Predictions based on laws, generalizations and	
	proven facts	83
	EXERCISE B: Predictions based on unlikely suppositions	85
15,000	EXERCISE C: Toughen, harden, soften, etc.	86
III:	INFORMATION TRANSFER	87
	EXERCISE A: Design specifications. $be+to$ , have+to, must	87
	EXERCISE B: Design specifications (cont.)	88
IV:	GUIDED WRITING	88
	Stage 1: Sentence and paragraph building	88
	Stage 2: Using diagrams to illustrate the paragraphs	89
V:	FREE READING: Cranes	90
** .		
Uni	t 8 The Four-Stroke Petrol Engine	
I:	READING	92
	PART 1: The carburettor	92
	PART 2: The valves	92
	PART 3: The four-stroke cycle	93
II:	USE OF LANGUAGE	95
	EXERCISE A: Cause and effect	95

	Contents ix
EXERCISE B: Problems and solutions	95
EXERCISE C: -tight, -proof, -resistant	97
III: INFORMATION TRANSFER	
EXERCISE A: Describing the shapes of objects	98
IV: GUIDED WRITING	100
Stage 1: Sentence and paragraph building	100
Stage 2: Using diagrams to illustrate the passage	101
V: FREE READING: The Wankel engine	101
Questions on Free Reading Passages	103