

CONTENTS

I.	PURE SUBSTANCES AND MIXTURES	1
II.	ELEMENTS, COMPOUNDS AND SOLUTIONS	13
III.	THE COMPOSITION OF THE AIR AND THE THEORY OF COMBUSTION	31
IV.	THE COMPOSITION OF WATER	45
V.	THE PHYSICAL PROPERTIES OF GASES AND VAPOURS	58
VI.	SOLUTIONS AND THE PHASE RULE	77
VII.	THE LAWS OF STOICHIOMETRY	91
VIII.	THE ATOMIC THEORY	104
IX.	AVOGADRO'S HYPOTHESIS AND THE MOLECULE	114
X.	OXYGEN	129
XI.	HYDROGEN	146
XII.	WATER	165
XIII.	COMMON SALT. HYDROCHLORIC ACID. CHLORINE	181
XIV.	VALENCY AND THE STRUCTURE OF COMPOUNDS	206
XV.	THE KINETIC THEORY	218
XVI.	ELECTROLYSIS	236
XVII.	THE MOLECULAR WEIGHTS OF SUBSTANCES IN SOLUTION	263
XVIII.	OZONE	284
XIX.	HYDROGEN PEROXIDE	296
XX.	CHEMICAL EQUILIBRIUM AND THE LAW OF MASS-ACTION	306
XXI.	THE OXIDES AND OXY-ACIDS OF CHLORINE	329
XXII.	THE HALOGENS	353
XXIII.	ATOMIC HEATS AND ISOMORPHISM	382
XXIV.	THE PERIODIC LAW	404
XXV.	THE STRUCTURE OF THE ATOM	422
XXVI.	SULPHUR AND ITS COMPOUNDS WITH HYDROGEN AND HALOGENS	484
XXVII.	THE OXYGEN COMPOUNDS OF SULPHUR	500
XXVIII.	SELENIUM AND TELLURIUM	532
XXIX.	NITROGEN AND ITS COMPOUNDS WITH HYDROGEN	538
XXX.	THE OXIDES AND OXY-ACIDS OF NITROGEN	563
XXXI.	THE INACTIVE ELEMENTS	595
XXXII.	PHOSPHORUS	602
XXXIII.	ARSENIC	635
XXXIV.	CARBON AND THE HYDROCARBONS	648
XXXV.	OXYGEN COMPOUNDS OF CARBON, ETC	676
XXXVI.	BORON AND SILICON	716

XXXVII. SPECTRUM ANALYSIS	738
XXXVIII. METALS AND ALLOYS	745
XXXIX. THE ALKALI METALS	750
XL. COPPER, SILVER AND GOLD	784
XLI. THE ALKALINE-EARTH METALS	817
XLII. THE METALS OF THE ZINC GROUP	834
XLIII. VOLTAIC CELLS	861
XLIV. THE METALS OF GROUP III OF THE PERIODIC SYSTEM	873
XLV. THE METALS OF THE FOURTH GROUP	893
XLVI. THE METALS OF THE FIFTH GROUP	913
XLVII. THE METALS OF THE SULPHUR GROUP	927
XLVIII. MANGANESE	942
XLIX. IRON	955
L. COBALT AND NICKEL	981
LI. THE PLATINUM METALS	990
QUESTIONS	995
ANSWERS TO QUESTIONS	1039
INDEX	1043