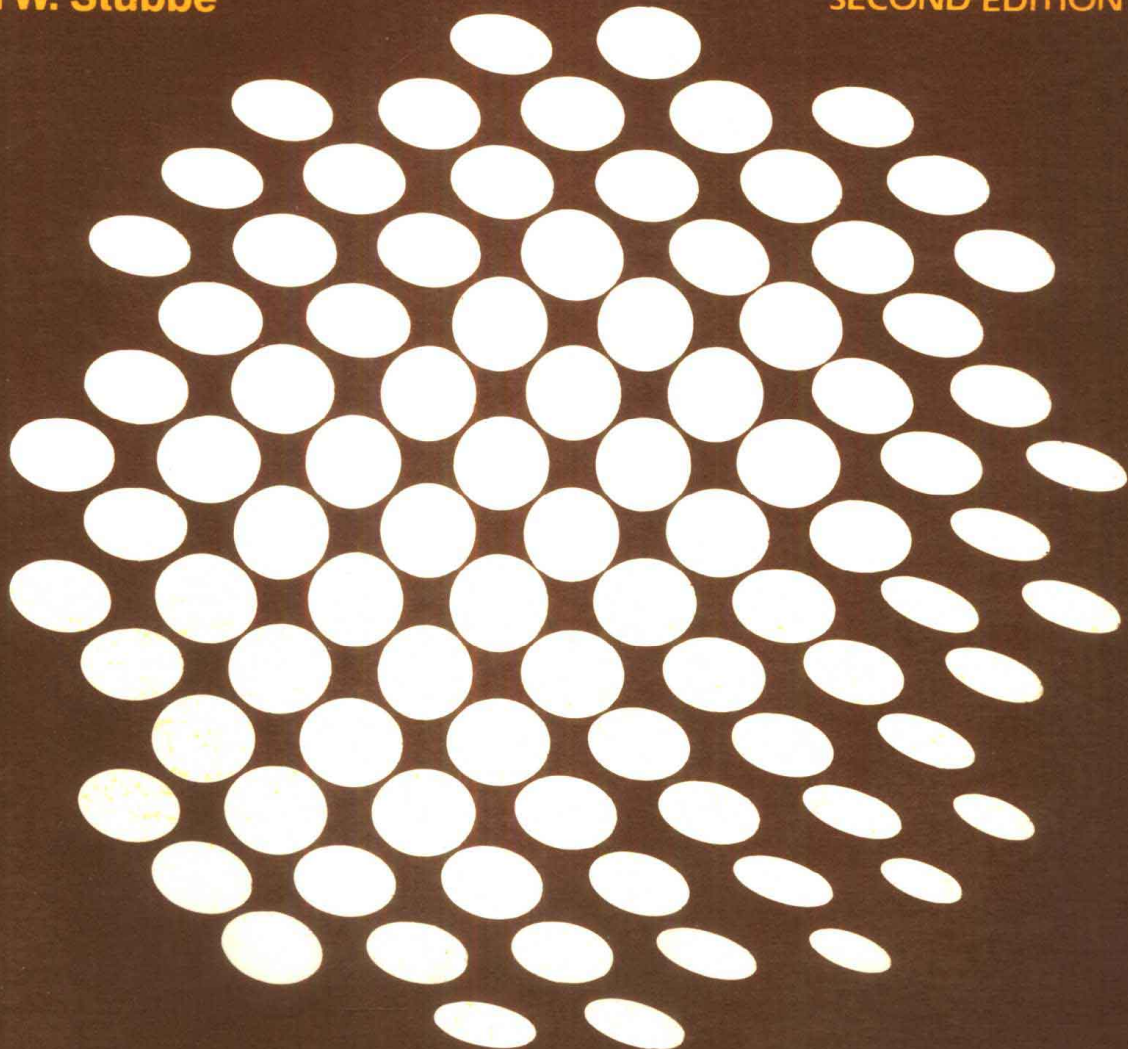


COMPUTERS AND INFORMATION SYSTEMS

Marvin R. Gore
John W. Stubbe

SECOND EDITION



INTERNATIONAL STUDENT EDITION

COMPUTERS AND INFORMATION SYSTEMS

INTERNATIONAL STUDENT EDITION

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PREFACE

In the information society, we have systematized the production of knowledge and amplified our brainpower. To use an industrial metaphor, we now mass produce knowledge and this knowledge is the driving force of our economy.

John Naisbitt, *Megatrends*, 1982

By the middle of the 20th century the United States completed a more than 100-year shift from an agricultural to an industrial economy. Today, it is evident that another major shift occurred within the 25 years that followed. This is the change from an industrial, goods-producing society to a postindustrial, predominantly service-oriented society. At present, over 60 percent of the work force in this nation is engaged in creating, processing, storing, communicating, and otherwise working with information. Computers have become commonplace in homes, offices, stores, schools, and factories. For these reasons the postindustrial society is called the *information society*.

Fueled by a continuing revolution in high technology, information has become our dominant commodity, and the requirements of the workplace are changing at an ever-increasing rate. Through telecommunications, work is being distributed to locations remote from central corporate sites, even moving to the home. Jobs in fields unheard of a few years ago, such as robotics, telemarketing, computer graphics, and artificial intelligence, are providing new career opportunities. Two major challenges of the coming decade are for us to learn to adjust to continuing changes in the nature of work and to acquire the knowledge needed to use computers and the information-related technologies in ways that can improve the quality of life and increase the productivity of business and industry. In order to accomplish these tasks, we must become a computer-literate society. Individuals must develop an understanding of computers and an awareness of what they can and cannot do. A major objective of

Computers and Information Systems is to provide the reader with this understanding and awareness.

Computers and Information Systems is a significant update of the well-received text *Computers and Data Processing*. The term “information” in the title focuses upon the useful output of a data processing system. The systems perspective, which is essential to the effective use of computers as an aid to decision making, was an important characteristic of the predecessor textbook, and this perspective is retained in *Computers and Information Systems*. The textbook is designed to correspond to the systems-oriented, computer information systems curriculum requirements of a growing number of college and university schools of business. Although written to meet the needs of business and information systems majors, the textbook also is suitable for any student who wishes to acquire a basic knowledge of computer systems and components, of their applications in our economy, and of their present and potential impact upon society. No prior knowledge of business methods or of computers is required.

Computers and Information Systems is current and pertinent. Examples of relevant content are:

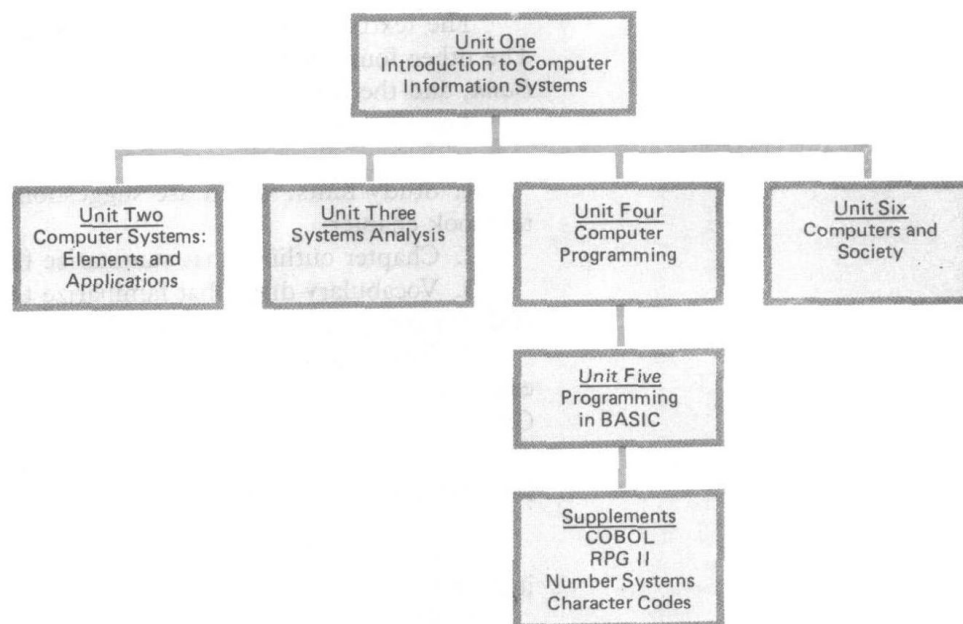
1. An extensive chapter on personal computers, which describes present and emerging families of popular microcomputers and their many applications. A feature of this chapter is a set of useful guidelines for the selection of a personal computer.
2. Two chapters designed to provide a comprehensive introduction to the BASIC programming language. These chapters allow many opportunities for students to perform meaningful laboratory exercises using popular microcomputers.
3. An integrated coverage of the merging technologies of data processing, communications, and the automated office. Important topics fully described are word processing, distributed data processing, and information resource management.
4. An in-depth introduction to the methods of systems analysis, a skill needed not only by programmers and analysts but also by all business majors and other potential users of computer-related business systems. A chapter on computer information systems identifies their principal characteristics and introduces the concept of the system development life cycle. Subsequently, an entire unit reinforces the systems orientation of the text by describing, in sequence, the computer-related information system life-cycle phases: study, design, development, and operation.
5. Four chapters that provide the student with an understandable overview of computer systems; explain the functions performed by their principal elements; and present up-to-date descriptions of the devices used for data input, storage, processing, communications, and output.
6. A unit that introduces students to computer programming. This unit includes chapters that explain computer program planning, flowcharting, struc-

tured programming, pseudocode, common programming languages, and running and testing computer programs. These chapters not only present the principles and practices of computer programming but also provide many opportunities for hands-on experiences and laboratory exercises.

7. A unit on computers and society that describes careers in information systems and provides a basis for stimulating discussions of “tomorrow and beyond” topics, such as smart machines, the knowledge industries, the high-tech home, supercomputers, robots, and artificial intelligence.

8. In-text supplements that can easily be integrated into the course to provide additional levels of learning. The supplements are: COBOL, RPG II, number systems, and character codes.

Computers and Information Systems is organized into seven units. As shown in the figure below, there are six units of text and a unit of in-text supplements. The sequence in which major topics are presented parallels the sequence of activities, called the system development life cycle, followed by organizations that have successfully developed computer-related business information systems to solve problems and to assist managers in decision making. Unit One is an overview chapter designed to provide students with important background knowledge about data processing concepts, the information society, computer systems and elements, and computer information systems. Unit Two has two practical purposes. The first of these is to familiarize students with the physical characteristics of the major elements of computer systems. The second is to acquaint students with important, real-world applications of computers. Unit Three presents a comprehensive introduction to systems analysis, including the



major activities associated with each of the life-cycle phases. Unit Four is designed to familiarize students with important aspects of computer programming. The topics covered range from planning the program to testing it. Unit Five provides those instructors who wish to do so with an opportunity to follow Unit Four with a comprehensive introduction to the BASIC programming languages. Unit Six contains informative discussions of topics related to careers in information systems and to the socioeconomic impact of computers, now and in the future.

The in-text supplements that comprise the seventh unit are complete chapters, all of which are programming-related. However, the organization of the text is such that an instructor has complete flexibility in determining when and to what depth to present the material in these chapters. Indeed, instructional flexibility is an important feature of *Computers and Information Systems*. As the figure on the preceding page shows, Unit Two, Three, Four, or Six could follow Unit One, with the sequence of presentation determined by the emphasis desired by an instructor.

Computers and Information Systems is written to encourage hands-on assignments from the outset of a course and to provide extensive learning reinforcement. Numerous learning aids have been incorporated into the format of the text to assist students in understanding major concepts. Each chapter opens with a capsule preview and a list of key terms to watch for and remember. Each concludes with a concise summary. Major sections of each chapter are followed by feedback questions that permit students to test their comprehension as they proceed through the text. Answers to the feedback questions appear at the end of each chapter, where there also are additional questions for review and discussion.

The textbook is one of five components of a complete learning package. The other four are the *Student Study Guide*, the *Instructor's Manual*, the *Test Bank*, and the *Learning Activity Diskette*.

The *Student Study Guide* is designed to assist the student by providing:

1. Study hints, which are suggestions to help the student to master the textbook chapter.
2. Chapter outlines that summarize the main points of each chapter.
3. Vocabulary drills that familiarize the student with the important terms and concepts introduced in each chapter.
4. Test-yourself questions that help the student to prepare for quizzes and examinations. The answers to these questions are contained in the *Student Study Guide*.
5. Additional practice exercises designed to provide students with an opportunity to reinforce their knowledge.

The *Instructor's Manual* identifies unit and chapter goals. For each chapter it includes:

1. Measurable student performance objectives.
2. Key points, indexed to text page and text figure numbers.

3. Transparency masters for all important figures.
4. Answers to the review and discussion questions in the textbook and to the additional practice exercises in the *Student Study Guide*.
5. A chapter quiz and quiz answers.
6. A comprehensive examination for each unit.

The *Test Bank* contains a large selection of matching, true/false, and multiple choice questions for each chapter and the in-text supplements. The diskette is designed to provide instructors with flexibility in selecting questions and preparing examinations.

The *Learning Activity Diskette* is designed to provide demonstrations and “hands on” activities that use the graphics and display capabilities of popular microcomputers to augment in-text explanations of key topics and concepts.

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CONTENTS

<i>Preface</i>	xv
UNIT ONE INTRODUCTION TO COMPUTER INFORMATION SYSTEMS	2
CHAPTER 1 DATA PROCESSING CONCEPTS	5
Preview	5
Key Terms to Watch for and Remember	5
Computer Literacy	6
Data Processing and Data Processing Systems	7
Basic Data Processing Operations	9
Data Storage Hierarchy	10
Today, Tomorrow, and the Day After	12
Summary	15
Answers to Feedback Questions	15
For Review and Discussion	16
CHAPTER 2 THE INFORMATION SOCIETY	17
Preview	17
Key Terms to Watch for and Remember	17
Computer Data Processing	18
Principles of Computer Data Processing / Advantages of Computer Data Processing	
The Postindustrial Society	23
The Knowledge Industries / The Computer Generations / Classification of Computers / Measures of Change / Employment Opportunities	

Information Resource Management	31
Merging Technologies / The Management Challenge	
Summary	34
Answers to Feedback Questions	35
For Review and Discussion	36
 CHAPTER 3 COMPUTER INFORMATION SYSTEMS	 37
Preview	37
Key Terms to Watch for and Remember	37
Business System Characteristics	38
Goals and Objectives / The Business: A System of Systems /	
Product Flow and Information Flow / Information Generators /	
Business Levels and Information Uses	
Computer-Based Business Systems	44
Early Problems / Computer Information System—A Definition	
The Life-Cycle Method	47
The Life-Cycle Phases / The Life-Cycle Flowchart /	
Systems Analysis and the Systems Analyst	
Summary	51
Answers to Feedback Questions	51
For Review and Discussion	52
 CHAPTER 4 COMPUTER SYSTEMS: AN OVERVIEW	 55
Preview	55
Key Terms to Watch for and Remember	55
Computer System Architecture	56
Types of Computers / Functional Units of Digital Computers /	
Hardware, Software, and Firmware	
Storage Units	60
Primary Storage / Data Storage: Bytes and Words / Storage	
Size, K / Instruction Storage / Secondary Storage /	
Control Storage and Local Storage	
Central Processing Unit	66
Control Unit / Arithmetic Logic Unit	
Input and Output Units	70
Input-Output Environment / I/O Interfaces	
Multiple Processors	70
Summary	72
Answers to Feedback Questions	73
For Review and Discussion	75

UNIT TWO	COMPUTER SYSTEMS: ELEMENTS AND APPLICATIONS	76
CHAPTER 5	STORAGE AND PROCESSING	79
	Preview	79
	Key Terms to Watch for and Remember	79
	The Business Data Processing Cycle	79
	Storage: Components and Criteria	81
	Solid-State Circuits / Cost, Capacity, and Access Time	
	Primary Storage	83
	Magnetic-Core Storage / Semiconductor Memory	
	Electromechanical Secondary Storage	85
	Magnetic Tape / Magnetic Disk / Magnetic Drum /	
	Mass Storage / Optical-Disk Systems	
	Electronic Secondary Storage	97
	Magnetic Bubble Memory / Charge-Coupled Devices /	
	Electron-Beam-Addressed Memory / Advanced Memory Systems	
	Memory Hierarchies	100
	Processing Units	100
	Summary	103
	Answers to Feedback Questions	104
	For Review and Discussion	105
CHAPTER 6	INPUT AND OUTPUT	107
	Preview	107
	Key Terms to Watch for and Remember	107
	Using Input-Output Devices	108
	I/O Device Speed	108
	Magnetic Media Devices	109
	Magnetic Disk, Diskette, and Tape / Magnetic Data Recorders	
	Printers	111
	Characters Printers / Line Printers / Page Printers	
	Keyboard Devices	115
	Visual Display Terminals / Teleprinter Terminals / Point-of-Sale Devices	
	Scanners	119
	Optical Scanners / Magnetic Ink Character Recognition	
	Other Devices	124
	Card Readers / Computer Output Microfilm / Digitizers /	
	Plotters / Voice Recognition and Response Devices	
	Summary	127
	Answers to Feedback Questions	128
	For Review and Discussion	130

CHAPTER 7	COMMUNICATIONS, DISTRIBUTED DATA PROCESSING, AND THE AUTOMATED OFFICE	131
	Preview	131
	Key Terms to Watch for and Remember	131
	Elements of Data Communications	133
	Data Transmission / Data Communications Services / Trends in Computer-Communications Processing	
	Distributed Data Processing	139
	Distributed Data Processing: A Concept and a Definition / Data Entry Systems / Stand-Alone Systems / Computer Networks / Management Considerations	
	The Automated Office	144
	Data Processing / Data Communications / Word Processing / Electronic Mail / Voice Store-and-Forward Systems / Problems in the Automated Office	
	Toward the Electronic Office	149
	Office Functions / Careers / Administrative Structure	
	Summary	151
	Answers to Feedback Questions	151
	For Review and Discussion	153
CHAPTER 8	PERSONAL COMPUTERS	155
	Preview	155
	Key Terms to Watch for and Remember	155
	Everyone's Computer	156
	What Is a Personal Computer? / Anatomy of a Personal Computer	
	Uses for Personal Computers	163
	Home and Hobby / Word Processing / Professional / Educational / Small Business / Engineering and Scientific	
	Trends in Microcomputer Architecture	168
	Microcomputer Generations / Software Evolution	
	Selecting Your Personal Computer	174
	Steps in Selecting a Personal Computer / A Personal Computer Selection Checklist	
	Summary	179
	Answers to Feedback Questions	179
	For Review and Discussion	181
UNIT THREE	SYSTEMS ANALYSIS	182
CHAPTER 9	SYSTEM STUDY PHASE	185
	Preview	185
	Key Terms to Watch for and Remember	185

System Selection Process: An Overview	186
Problem Identification	186
Problem Statement / Information Service Request	
Initial Investigation	190
Data Flow Diagrams / Personal Interviews / Modified Information Service Request	
Performance Definition	193
General Constraints / Specific Objectives / Output Descriptions	
Feasibility Analysis	196
Step 1: Form the Systems Team / Step 2: Describe System Data Flows / Step 3: Select Candidate Systems / Step 4: Evaluate Candidate Systems	
System Recommendation	204
Project Plan and Cost Schedule	205
Summary	208
Answers to Feedback Questions	209
For Review and Discussion	210
 CHAPTER 10 SYSTEM DESIGN AND DEVELOPMENT PHASES	 211
Preview	211
Key Terms to Watch for and Remember	211
System Design	211
General System Design / Input Design / Output Design / File Design / Data Base Management Systems (DBMS) / Test Requirements / Design-Phase Documentation / Design-Phase Review	
System Development	223
Development Phase Activities: An Overview / Implementation Plan / Equipment Acquisition / Computer Program Preparation / Personnel Training and Preparation for Conversion / Development-Phase Documentation and Acceptance Review	
Summary	225
Answers to Feedback Questions	226
For Review and Discussion	227
 CHAPTER 11 SYSTEM OPERATION PHASE	 229
Preview	229
Key Terms to Watch for and Remember	229
Converting to the New System	229
Conversion of Procedures, Programs, and Files / Changeover to the New System	
Evaluating the System	232

Managing Change	235
Change Control Procedures / Baseline Documents	
Summary	237
Answers to Feedback Questions	238
For Review and Discussion	239
 UNIT FOUR COMPUTER PROGRAMMING	 240
 CHAPTER 12 PLANNING THE COMPUTER PROGRAM	 243
Preview	243
Key Terms to Watch for and Remember	243
The Computer Program	244
The Controlling Function / Computer Instructions / Programming a Human	
The Purposes of Program Planning	244
Structuring Program Logic / Documenting the Completed Program	
Flowcharts	245
Flowcharting Standards / The IBM Template / The Basic Process Loop / Process Loops with Calculations / The Use of Connectors / Loops with Multiple Exits / End-Time Calculations / Titles and Column Headings	
Pseudocode	257
Why Not Flowchart? / Program Design Language (PDL) / Basic Pseudocode Structures	
Summary	262
Answers to Feedback Questions	263
For Review and Discussion	264
 CHAPTER 13 PROGRAMMING LANGUAGES	 265
Preview	265
Key Terms to Watch for and Remember	265
Writing Program Instructions	265
The Development of Programming Languages	266
Machine Code / Symbolic Code / Problem-Oriented Languages	
Common Problem-Oriented Languages	270
COBOL / FORTRAN IV / PL/I / RPG II / BASIC / PASCAL	
The Conversion of Symbolic Languages	275
Summary	275
Answers to Feedback Questions	276
For Review and Discussion	277

CHAPTER 14	RUNNING THE COMPUTER PROGRAM	279
	Preview	279
	Key Terms to Watch for and Remember	279
	Control Programs	280
	Control Program Functions	
	Language Processors	283
	Service Programs	284
	The Linkage Editor / The Librarian / Utility Programs /	
	The Sort/Merge Program	
	Summary	286
	Answers to Feedback Questions	287
	For Review and Discussion	287
CHAPTER 15	TESTING THE COMPUTER PROGRAM	289
	Preview	289
	Key Terms to Watch for and Remember	289
	Types of Program Errors	290
	Coding Errors / Logic Errors	
	Summary	297
	Answers to Feedback Questions	298
	For Review and Discussion	299
UNIT FIVE	PROGRAMMING IN BASIC	300
CHAPTER 16	GETTING STARTED IN BASIC	303
	Preview	303
	Key Terms to Watch for and Remember	303
	Standard ANSI BASIC	304
	Averaging Two Numbers / An Improved Solution /	
	Compound-Interest Problem / A Compound-Interest Solution	
	for Multiple Problems / Calculation Loops	
	Basic Library Functions	320
	Summary	322
	Answers to Feedback Questions	322
	For Review and Discussion	323
CHAPTER 17	CONTINUING WITH BASIC	325
	Preview	325
	Key Terms to Watch for and Remember	325

Printed Listings and the Disk Operating System (DOS)	326
Printed Listings / Disk Commands	
Structured Programs in BASIC	329
The GOSUB and RETURN Instructions / The READ and DATA Instructions / The CLS or HOME Statement / The TAB Function / The IF-THEN-ELSE Instruction / A Program To Calculate Average Sales	
Formatting Numeric Output	338
The PRINT USING Instruction / An Improved Solution to Calculate Average Sales	
The DO-WHILE Construct	341
The WHILE and WEND Instructions	
Printer Output	345
The LPRINT Instruction / The LPRINT Using Instruction	
Interactive Programs	347
The INPUT Instruction / The Last Record Test / Program to Average a Series of Numbers	
Summary	350
Answers to Feedback Questions	350
For Review and Discussion	351
 UNIT SIX COMPUTERS AND SOCIETY	 352
 CHAPTER 18 PEOPLE IN INFORMATION SYSTEMS	 355
Preview	355
Key Terms to Watch for and Remember	355
The Location of Information Services	355
Careers in Information Services	357
Jobs In Corporate Systems / Jobs in Data Processing Operations / Salaries in Information Services	
Information Services and the User	366
The User's View of Information Services / Customer Relations	
Summary	368
Answers to Feedback Questions	369
For Review and Discussion	370
 CHAPTER 19 TOMORROW AND BEYOND	 373
Preview	373
Key Terms to Watch for and Remember	373
The Challenge of Change	374

Ten Socioeconomic Trends	374
The Knowledge Industries	375
Computer Information Systems	377
Computer System Architecture / Software and Firmware / Input, Output, and Communications / Computer Information System Development	
The High-Tech Home	380
Supercomputers	382
Cybernetics: Robots and Artificial Intelligence	383
Robots / Artificial Intelligence	
Summary	388
Answers to Feedback Questions	388
For Review and Discussion	389
Further Reading	390
SUPPLEMENTS SPECIAL TOPICS	392
SUPPLEMENT I COBOL	395
Preview	395
Key Terms to Watch for and Remember	395
The COBOL Coding Form	396
Punching Instructions / COBOL Instructions	
COBOL Program Structure	398
Divisions	
A COBOL Example Program	400
The Problem Statement / COBOL Names / The Identification Division / The Environment Division / The Data Division / The Procedure Division	
Summary	423
Answers to Feedback Questions	423
For Review and Discussion	424
SUPPLEMENT II RPG II	425
Preview	425
Key Terms to Watch for and Remember	425
RPG Coding Forms	426
The RPG Cycle	427
An RPG Example Program	427
Control Card Specifications / File Description Specifications / Input Specifications / Calculation Specifications / Output- Format Specifications / The Output / Arithmetic Calculations	

Summary	435
Answers to Feedback Questions	435
For Review and Discussion	436
SUPPLEMENT III NUMBER SYSTEMS	437
Preview	437
Key Terms to Watch for and Remember	437
Basics of Number Systems	438
Decimal Characteristics / Binary Characteristics / Octal Characteristics / Hexadecimal Characteristics	
Converting from One Number System to Another	440
Converting to Base 10 / Converting from Base 10	
Shortcut Notations	448
Octal Notation / Hexadecimal Notation	
Arithmetic	452
Addition / Subtraction	
Fixed-Length Fields	463
Summary	463
Answers to Feedback Questions	464
For Review and Discussion	464
SUPPLEMENT IV CHARACTER CODES	465
Preview	465
Key Terms to Watch for and Remember	465
Hollerith Code	466
Binary-Coded Decimal Interchange Code (BCDIC)	469
Extended Binary-Coded Decimal Interchange Code (EBCDIC)	470
Numeric EBCDIC Characters	
American Standard Code for Information Interchange (ASCII)	474
American Standard Code for Information Interchange-8 (ASCII-8)	475
Memory Dumps	476
Summary	478
Answers to Feedback Questions	479
For Review and Discussion	479
 <i>Glossary</i>	 480
<i>Index</i>	493