

# Contents

<b>Preface</b>	<b>xi</b>
<b>You Are a Data Processor</b>	<b>1</b>
Importance of Information Processing to Modern Organizations	1
Focus on Concepts	5
 <b>PART ONE CONCEPTS</b>	
<b>Chapter One Organizations and the Need for Information Systems</b>	<b>9</b>
The Need for Information	11
The Systems Approach to Understanding Organizations	16
The Business Organization as a System	19
Information Systems	24
Summary	31
Glossary	32
Discussion Questions	32
Exercises	33
Problem	34
Reading	35
<b>Chapter Two Information and Data Concepts</b>	<b>36</b>
Information Objects: Entities and Events	37
Definitions of Data and Information	41
Recorded Information	42
Format Specifications	49
Files and Data Bases	52
Summary	55
Glossary	56
Discussion Questions	57
Exercises	58
Problem	59
Reading	60
<b>Chapter Three Processing Concepts</b>	<b>61</b>
Processing Primitives	62
OUTPUT Primitive	63
INPUT Primitive	65
SAVE Primitive	67

RETRIEVE Primitive	70
ASSIGN Primitive	71
COMPARE Primitive	74
DERIVE Primitive	76
DISCARD Primitive	82
Summary	84
Glossary	84
Discussion Questions	85
Exercises	86
Problem	87
BASIC Language Equivalents to Primitive Processes	88
COBOL Language Equivalents to Primitive Processes	89
Pascal Language Equivalents to Primitive Processes	91
Reading	94

<b>Chapter Four</b>	<b>Processing Procedures</b>	<b>95</b>
Connecting Processes	97	
Techniques for Describing Logical Connections:		
Flowcharting and Pseudocode	99	
Building Blocks for Procedures: Logic Structures and Macroprocesses	110	
Programming	115	
Summary	118	
Glossary	119	
Discussion Questions	120	
Exercises	121	
Problem	124	
BASIC Language Equivalents to Procedural Connections	125	
COBOL Language Equivalents to Procedural Connections	125	
Pascal Language Equivalents to Procedural Connections	127	
Reading	129	

## PART TWO    **HARDWARE**

<b>Chapter Five</b>	<b>The Computer Interface</b>	<b>133</b>
Role of a Computer Interface	135	
Dialogue Concepts	135	
Encoding Data	141	
Interface Media and Devices	147	
Summary	159	
Glossary	160	
Discussion Questions	161	
Exercises	162	
Problem	163	
Reading	165	
<b>Chapter Six</b>	<b>The Computer Processor</b>	<b>166</b>
Processor Subsystem	168	
Memory Hardware Technology	178	

Measuring Memory Performance	181
Processor Architectures	183
Processing of Binary Data	184
Summary	187
Glossary	187
Discussion Questions	189
Exercises	189
Problem	190
Reading	191
<b>Chapter Seven The Computer Data Bank</b>	<b>193</b>
Job of the Data Bank	195
Commonly Used Technology	196
Physical Layout of Data Records on Direct-Access Media	207
Logical Data Storage Structures	211
Summary	220
Glossary	221
Discussion Questions	222
Exercises	223
Problem	224
Reading	225
<b>PART THREE SOFTWARE</b>	
<b>Chapter Eight Software Concepts and Capabilities</b>	<b>229</b>
What Is Software?	230
Categories of Computer Software	247
Operating System Software	247
Language Software	249
Application Software	252
Summary	253
Glossary	254
Discussion Questions	255
Exercises	256
Problem	256
Reading	258
<b>Chapter Nine Programming: The Art and Science of Creating Software</b>	<b>259</b>
Programming Languages	260
Program Development Sequence	277
Common Routines	282
Documentation	284
Summary	285
Glossary	286
Discussion Questions	287
Exercises	287
Problem	288
Reading	289

## **PART FOUR INFORMATION SYSTEMS**

<b>Chapter Ten</b>	<b>Systems Development: Analysis, Design, and Implementation</b>	<b>293</b>
Systems Development		295
Systems Analysis		302
Systems Design		311
Systems Implementation		318
Summary		319
Glossary		320
Discussion Questions		321
Exercises		321
Problem		323
Reading		324
<b>Chapter Eleven</b>	<b>Information Systems: Making Information Available</b>	<b>325</b>
Bringing Together the Components of an Information System		327
Data Processing Centers		328
Elements of a Distributed Data Processing System		331
Data Bases		333
Data Communications Channels		337
Data Communications Networks		340
Integrated Management Information Systems		346
Example of an Information System		350
Summary		355
Glossary		357
Discussion Questions		358
Exercises		358
Problem		360
Reading		361
<b>Chapter Twelve</b>	<b>Information Resources Management</b>	<b>363</b>
A Close Look at Today's Office		365
A New Office Environment		366
Information Resources of the Modern Office		369
Using the Technology		375
Tasks of Information Resources Management		377
Summary		386
Glossary		387
Discussion Questions		387
Exercises		388
Problem		389
Reading		391

## **PART FIVE BASIC PROGRAMMING**

<b>Chapter Thirteen</b>	<b>Programming in BASIC</b>	<b>395</b>
Output		397
Input and Assignment		401

Saving, Retrieving, and Assignment	403
Direct Assignment of Values	407
Deriving Mathematical Values	407
Deriving Text Values	414
Logical Connections	415
Demonstration Problem	431
Summary	433
Glossary	433
Discussion Questions	434
Exercises	434
Problems	437
Reading	439

<b>Chapter Fourteen Advanced BASIC</b>	<b>441</b>
Program Documentation	443
Arrays	448
Subroutines	454
More on Selective Connections	457
File Processing	459
Demonstration Problem	465
Summary	473
Glossary	473
Discussion Questions	474
Exercises	474
Problems	477
Reading	478

## PART SIX THE FUTURE

<b>Chapter Fifteen Impact of Information Technology on Society</b>	<b>483</b>
Work at Home	485
Education at Home	486
New Information Services	487
Political, Social, and Economic Impacts	488
Enough, Stop!	491
Summary	492
Discussion Questions	492
Reading	493
<b>Appendix A Careers in Data Processing</b>	<b>494</b>
Job Opportunities	494
Preparing for Data Processing Careers	497
Data Processing Curricula	498
<b>Appendix B History of Data Processing</b>	<b>500</b>
<b>Appendix C Answers to Odd-Numbered Exercises</b>	<b>512</b>
<b>Index</b>	<b>525</b>