

# ADMINISTRATION

## **an information systems approach**

John W. Buckley

*University of California, Los Angeles*

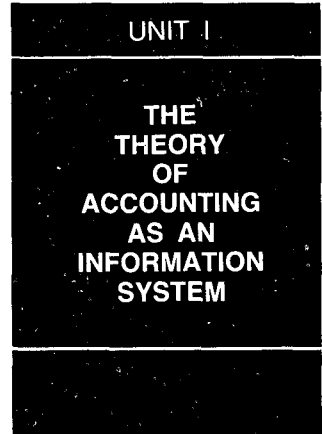
Kevin M. Lightner

*California State University, San Diego*

Dickenson Publishing Company, Inc.  
Encino, California, and Belmont, California

# contents

page 1



CHAPTER

## **1** SYSTEMS AND INFORMATION SYSTEMS 4

- 1.1 ACCOUNTING IS AN INFORMATION SYSTEM 4
- 1.2 THE NEED FOR CLARITY IN DEFINING SYSTEMS 5
- 1.3 GENERAL SYSTEMS THEORY 5
- 1.4 OPERATING SYSTEMS THEORY 6
- 1.5 GPS STRUCTURES 8
- 1.6 GOALS 11
- 1.7 PROCESSES 14
- 1.8 SYSTEMS 18
- 1.9 EFFICIENCY 19
- 1.10 BASIC SYSTEMS CONCEPTS 20
- 1.11 INFORMATION SYSTEMS AND ACCOUNTING 24
- 1.12 SUMMARY 25

<i>REFERENCES AND ADDITIONAL READINGS</i>	26
<i>QUESTIONS, PROBLEMS, AND CASES</i>	27

## CHAPTER

## **2 CONCEPTUAL FOUNDATIONS FOR ACCOUNTING AS AN INFORMATION SYSTEM 30**

2.1	THE ROLE OF THEORY	30
2.2	DECISION THEORY	31
2.3	MEASUREMENT THEORY	32
2.4	COMPLEX DECISIONS	42
2.5	BEHAVIOR AND ORGANIZATION THEORY	47
2.6	SUMMARY	53
	<i>REFERENCES AND ADDITIONAL READINGS</i>	54
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	55

## CHAPTER

## **3 ACCOUNTING AS AN INFORMATION SYSTEM 59**

3.1	ACCOUNTING AS AN INFORMATION SYSTEM	59
3.2	INPUT	60
3.3	TRANSFORMATION <sub>1</sub> ("JOURNALIZING")	62
3.4	TRANSFORMATION <sub>2</sub> ("POSTING")	64
3.5	OUTPUT	66
3.6	LIMITATIONS OF OUTPUT RULES	75
3.7	CONTROL	78

3.8	FEEDBACK	78
3.9	SUMMARY	78
	<i>REFERENCES AND ADDITIONAL READINGS</i>	79
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	80

## CHAPTER

# 4 THE STRUCTURE OF ACCOUNTING 85

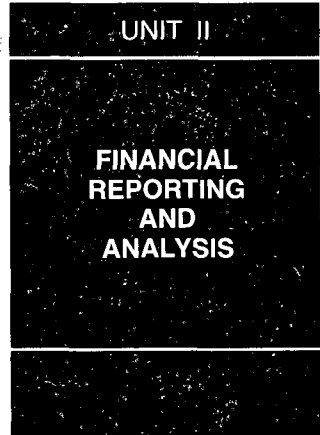
4.1	THE NEED FOR ACCOUNTING	85
4.2	PRIMITIVE ACCOUNTING	86
4.3	SINGLE-ENTRY ACCOUNTING	86
4.4	DOUBLE-ENTRY ACCOUNTING	86
4.5	THE ACCOUNTING EQUATION	88
4.6	CASH ACCOUNTING	88
4.7	ACCRUAL ACCOUNTING	88
4.8	THE ACCOUNT	89
4.9	DEBIT-CREDIT RULES	90
4.10	THE PROCESS-STRUCTURE OF ACCOUNTING	91
4.11	THE ACCOUNTING CYCLE ILLUSTRATED	92
4.12	MANAGEMENT ACCOUNTING	104
4.13	SUMMARY	112
	<i>REFERENCES AND ADDITIONAL READINGS</i>	113
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	114

## CHAPTER

**5 INCOME MEASUREMENT 120**

5.1	PURPOSE OF INCOME MEASUREMENT	120
5.2	MEASUREMENT AND ACCOUNTING	121
5.3	WEALTH AND INCOME	121
5.4	PERMANENT VERSUS PERIODIC INCOME	122
5.5	CONVENTIONAL INCOME MEASUREMENT	123
5.6	INCOME VERSUS CASH FLOW	127
5.7	INCOME PLANNING UNDER THE CONVENTIONAL MODEL	128
5.8	MARGINAL INCOME ANALYSIS	130
5.9	ALTERNATIVE INCOME STATEMENTS	132
5.10	CONTROLS ASSOCIATED WITH CONVENTIONAL INCOME MEASUREMENT	134
5.11	FEEDBACK ASSOCIATED WITH CONVENTIONAL INCOME MEASUREMENT	136
5.12	SOME ALTERNATIVE MODELS FOR MEASURING BUSINESS INCOME	137
5.13	SUMMARY	142
	<i>REFERENCES AND ADDITIONAL READINGS</i>	142
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	143

page 151



CHAPTER

# 6 FINANCIAL STATEMENTS AND CONVENTIONS 158

6.1	FINANCIAL REPORTING	158
6.2	PURPOSE OF FINANCIAL REPORTING	160
6.3	CURRENT FINANCIAL REPORTING	162
6.4	THE BALANCE SHEET	163
6.5	FINANCIAL STATEMENT CONVENTIONS	169
6.6	BALANCE SHEET VALUATION NORMS	170
6.7	THE INCOME STATEMENT	171
6.8	THE STATEMENT OF RETAINED EARNINGS	174
6.9	COMPARATIVE FINANCIAL STATEMENTS	176
6.10	THE STATEMENT OF CHANGES IN FINANCIAL POSITION	180
6.11	THE EVOLUTION OF FINANCIAL REPORTING	187
6.12	SUMMARY	190
	<i>REFERENCES AND ADDITIONAL READINGS</i>	191
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	192
	<i>APPENDIX TO CHAPTER 6</i>	200

## CHAPTER

**7 FINANCIAL STATEMENT ANALYSIS 236**

7.1	FINANCIAL STATEMENT ANALYSIS	236
7.2	RATIO ANALYSIS	237
7.3	BETA AND ALPHA FACTORS	267
7.4	STANDARD RATIOS	269
7.5	THE USE OF STANDARD RATIOS	272
7.6	TREND ANALYSIS	276
7.7	NORMALIZED STATEMENT ANALYSIS	278
7.8	FUNDS ANALYSIS	283
7.9	SUMMARY	286
	<i>REFERENCES AND ADDITIONAL READINGS</i>	287
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	288

## CHAPTER

**8 PRICE-LEVEL ACCOUNTING AND REPORTING 299**

8.1	PRICE-LEVELS	299
8.2	PRICE-LEVEL REPORTING IN FINANCIAL STATEMENTS	304
8.3	THE CONSTRUCTION OF INDEXES	307
8.4	GENERAL PRICE INDEXES IN THE UNITED STATES	309
8.5	SPECIFIC PRICE INDEXES IN THE UNITED STATES	314
8.6	LIMITATIONS OF INDEXES	316

8.7 MEASURING PRICE-LEVEL CHANGES 318

8.8 AN ILLUSTRATION IN ADJUSTING FINANCIAL STATEMENTS FOR PRICE-LEVEL CHANGES 323

8.9 EFFECT OF PRICE-LEVEL CHANGES ON STOCKHOLDERS' EQUITY 329

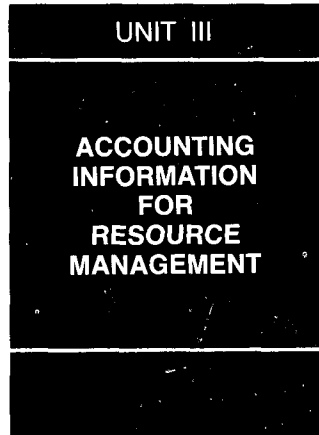
8.10 SUMMARY 332

APPENDIX TO CHAPTER 8 332

REFERENCES AND ADDITIONAL READINGS 335

QUESTIONS, PROBLEMS, AND CASES 336

page 345.



CHAPTER

**9 THE MANAGEMENT OF INVESTED CAPITAL 348**

9.1 THE NATURE OF INVESTED CAPITAL 348

9.2 THE CAPITAL INVESTMENT 349

9.3 TYPES OF CAPITAL INVESTMENT 350

9.4 TYPES OF CAPITAL STOCK 352

9.5 CAPITAL STOCK ACCOUNTS 354

9.6 CAPITAL STOCK TRANSACTIONS ILLUSTRATED 357

9.7 TYPES OF LONG-TERM DEBT 359



9.8	PROCESSING CAPITAL TRANSACTIONS	360
9.9	SYSTEMS CONTROLS FOR CAPITAL TRANSACTIONS	368
9.10	SYSTEMS FEEDBACK FOR CAPITAL TRANSACTIONS	373
9.11	SUMMARY	374
	<i>REFERENCES AND ADDITIONAL READINGS</i>	374
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	375

## CHAPTER

# 10 THE MANAGEMENT OF CASH RESOURCES 382

10.1	THE NATURE OF CASH RESOURCES	382
10.2	THE CASH RESOURCE CYCLE	382
10.3	DEFINITION OF CASH	383
10.4	CASH SOURCES AND USES	385
10.5	CASH FORECASTS AND BUDGETS	385
10.6	PROCESSING CASH TRANSACTIONS	388
10.7	SYSTEMS CONTROLS FOR CASH TRANSACTIONS	397
10.8	SYSTEMS FEEDBACK FOR CASH TRANSACTIONS	409
10.9	MARKETABLE SECURITIES	411
10.10	SUMMARY	412
	<i>APPENDIX TO CHAPTER 10</i>	412
	<i>REFERENCES AND ADDITIONAL READINGS</i>	417
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	418

## CHAPTER

**11 CREDIT MANAGEMENT 429**

11.1	THE NATURE OF CREDIT	429
11.2	PURPOSE OF CREDIT	430
11.3	THE CREDIT CYCLE	431
11.4	TYPES OF CREDIT	432
11.5	PROVIDING FOR DOUBTFUL ACCOUNTS	435
11.6	PROCESSING CREDIT TRANSACTIONS	440
11.7	SYSTEMS CONTROLS FOR CREDIT TRANSACTIONS	446
11.8	SYSTEMS FEEDBACK FOR CREDIT TRANSACTIONS	448
11.9	SUMMARY	450
	<i>APPENDICES TO CHAPTER 11</i>	451
	<i>REFERENCES AND ADDITIONAL READINGS</i>	466
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	466

## CHAPTER

**12 INVENTORY MANAGEMENT 474**

12.1	THE NATURE OF INVENTORY	474
12.2	COMPOSITION AND OWNERSHIP OF INVENTORY	476
12.3	PURPOSES OF INVENTORY	476
12.4	THE INVENTORY RESOURCE CYCLE	478
12.5	INVENTORY VALUATION	478
12.6	PROCESSING INVENTORY TRANSACTIONS	490
12.7	SYSTEMS CONTROLS FOR INVENTORY TRANSACTIONS	494
12.8	SYSTEMS FEEDBACK FOR INVENTORY TRANSACTIONS	503

12.9	SUMMARY	504
	<i>REFERENCES AND ADDITIONAL READINGS</i>	505
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	506

## CHAPTER

# 13 THE MANAGEMENT OF LONG-LIVED ASSETS: PLANT AND EQUIPMENT 517

13.1	THE NATURE OF LONG-LIVED ASSETS	517
13.2	TANGIBLE LONG-LIVED ASSETS	518
13.3	INTANGIBLE LONG-LIVED ASSETS	519
13.4	THE VALUATION OF LONG-LIVED ASSETS	522
13.5	CAPITAL AND REVENUE EXPENDITURES	524
13.6	THE PURPOSE OF LONG-LIVED ASSETS	527
13.7	THE LONG-LIVED ASSET RESOURCE CYCLE	529
13.8	DEPRECIATION OF LONG-LIVED ASSETS	529
13.9	DEPRECIATION AND TAX ALLOCATION	539
13.10	TIMING DIFFERENCES BETWEEN ACCOUNTING AND DEPRECIATION PERIODS	540
13.11	GROUP AND COMPOSITE DEPRECIATION	542
13.12	DEPLETION	547
13.13	PROCESSING LONG-LIVED ASSET TRANSACTIONS	549
13.14	SYSTEMS CONTROLS FOR LONG-LIVED ASSET TRANSACTIONS	555
13.15	SYSTEMS FEEDBACK FOR LONG-LIVED ASSET TRANSACTIONS	559
13.16	SUMMARY	559
	<i>REFERENCES AND ADDITIONAL READINGS</i>	560
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	561

page 573

UNIT IV

ACCOUNTING  
INFORMATION  
FOR  
OPERATIONS  
MANAGEMENT

CHAPTER

# 14 ACCOUNTING INFORMATION FOR PRODUCTION MANAGEMENT 575

- |       |   |     |
|-------|---|-----|
| 14.1  | THE NATURE OF PRODUCTION MANAGEMENT             | 575 |
| 14.2  | ACCOUNTING INFORMATION FOR PRODUCTION DECISIONS | 578 |
| 14.3  | ACCOUNTING RULES AND PROCEDURES                 | 579 |
| 14.4  | PURCHASING                                      | 580 |
| 14.5  | PROCESSING PRODUCTION TRANSACTIONS              | 581 |
| 14.6  | ANALYTICAL TOOLS FOR PRODUCTION MANAGEMENT      | 583 |
| 14.7  | LINEAR PROGRAMMING                              | 584 |
| 14.8  | QUEUEING THEORY                                 | 588 |
| 14.9  | SIMULATION                                      | 592 |
| 14.10 | PRODUCTION AND QUALITY CONTROL                  | 593 |
| 14.11 | TRANSFER PRICING                                | 596 |
| 14.12 | SYSTEMS CONTROLS FOR PRODUCTION OPERATIONS      | 598 |
| 14.13 | SYSTEMS FEEDBACK FOR PRODUCTION OPERATIONS      | 601 |
| 14.14 | SUMMARY   | 602 |

*REFERENCES AND ADDITIONAL READINGS* 603

*QUESTIONS, PROBLEMS, AND CASES* 605

CHAPTER

# 15 ACCOUNTING INFORMATION FOR MARKETING MANAGEMENT 613

15.1 THE NATURE OF MARKETING MANAGEMENT 613

15.2 TIMING REVENUE: RECOGNITION VERSUS  
REALIZATION 615

15.3 THE SCOPE OF MARKETING MANAGEMENT 618

15.4 ANALYTICAL ASPECTS OF MARKETING  
MANAGEMENT 627

15.5 ANALYSIS OF MARKETING BEHAVIOR 639

15.6 ACCOUNTING RULES AND PROCEDURES 640

15.7 PROCESSING SALES TRANSACTIONS 643

15.8 SYSTEMS CONTROLS FOR MARKETING  
OPERATIONS 646

15.9 SYSTEMS FEEDBACK FOR MARKETING  
OPERATIONS 648

15.10 SUMMARY 649

*REFERENCES AND ADDITIONAL READINGS* 650

*QUESTIONS, PROBLEMS, AND CASES* 652

CHAPTER

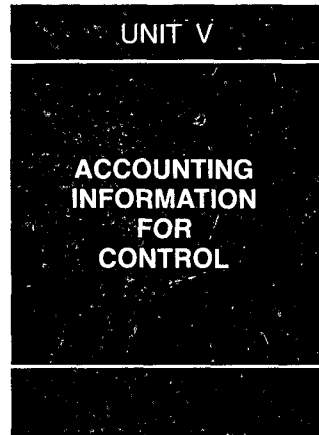
# 16 ACCOUNTING INFORMATION FOR PERSONNEL AND ADMINISTRATIVE OPERATIONS 662

16.1 THE NATURE OF PERSONNEL AND ADMINISTRATIVE  
OPERATIONS 662

16.2 MAJOR ACTIVITIES IN PERSONNEL OPERATIONS 667

16.3	ACCOUNTING RULES AND PROCEDURES	677
16.4	ACCOUNTING FOR PERSONNEL ADMINISTRATION	678
16.5	PROCESSING PERSONNEL AND ADMINISTRATIVE TRANSACTIONS	679
16.6	SYSTEMS CONTROLS FOR PERSONNEL AND ADMINISTRATIVE OPERATIONS	682
16.7	SYSTEMS FEEDBACK FOR PERSONNEL AND ADMINISTRATIVE OPERATIONS	685
16.8	SUMMARY	686
	<i>REFERENCES AND ADDITIONAL READINGS</i>	687
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	689

page 693



CHAPTER

# 17 INVESTMENT ANALYSIS AND CONTROL 696

17.1	THE NATURE OF INVESTMENT DECISIONS	696
17.2	INVESTMENT VERSUS SPECULATION	696
17.3	TYPES OF INVESTMENTS	697
17.4	REASONS FOR INVESTING	699
17.5	THE INVESTMENT CYCLE	702

17.6	THE INVESTMENT DECISION	703
17.7	EXAMPLES OF INVESTMENTS	721
17.8	SUMMARY	731
	<i>APPENDIX TO CHAPTER 17</i>	731
	<i>REFERENCES AND ADDITIONAL READINGS</i>	744
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	745

## CHAPTER

# 18 COST ACCOUNTING CONCEPTS AND RELATIONSHIPS 751

18.1	THE NATURE AND PURPOSE OF COST ACCOUNTING	751
18.2	COST ACCOUNTING TERMS AND CONCEPTS	757
18.3	TIME-ORIENTED COSTS	758
18.4	TRACEABILITY-ORIENTED COSTS	759
18.5	CONTROL-ORIENTED COSTS	761
18.6	BEHAVIORALLY-ORIENTED COSTS	762
18.7	DECOMPOSING SEMI-VARIABLE COSTS	768
18.8	BREAK-EVEN ANALYSIS	773
18.9	COST-VOLUME-PROFIT ANALYSIS	775
18.10	SUMMARY	784
	<i>REFERENCES AND ADDITIONAL READINGS</i>	785
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	786

## CHAPTER

**19****COST ACCOUNTING SYSTEMS 800**

19.1	TYPES OF COST ACCOUNTING SYSTEMS	800
19.2	ACCOUNTING FOR OVERHEAD	801
19.3	APPLYING OVERHEAD	806
19.4	DEPARTMENTAL COST SYSTEMS	808
19.5	JOB VERSUS PROCESS COST SYSTEMS	817
19.6	JOB COSTING SYSTEMS	818
19.7	PROCESS COSTING SYSTEMS	822
19.8	SUMMARY	839
	<i>REFERENCES AND ADDITIONAL READINGS</i>	840
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	841

## CHAPTER

**20****STANDARD COSTS AND VARIANCE ANALYSIS 853**

20.1	THE NATURE OF STANDARD COSTS	853
20.2	SETTING STANDARDS	854
20.3	FIXED AND FLEXIBLE BUDGETS	863
20.4	COMPUTING VARIANCES	869
20.5	AN ILLUSTRATION IN COMPUTING VARIANCES	881
20.6	ANALYSIS AND INTERPRETATION OF VARIANCES	884
20.7	ANALYZING OVERHEAD VARIANCES	885
20.8	INVESTIGATING VARIANCES	886
20.9	PRODUCT-MIX VARIANCES	888



20.10	SUMMARY	890
	<i>REFERENCES AND ADDITIONAL READINGS</i>	891
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	892

page 903

## UNIT VI

**ACCOUNTING  
INFORMATION  
FOR  
PLANNING**

## CHAPTER

# 21 TAX PLANNING AND ADMINISTRATION 906

21.1	THE FUNCTION OF TAXATION	906
21.2	THE TAX STRUCTURE IN THE UNITED STATES	907
21.3	DISTRIBUTING THE TAX BURDEN	922
21.4	PROGRAMS SUPPORTED BY TAX REVENUES	929
21.5	TAX ADMINISTRATION	931
21.6	TAX PLANNING	937
21.7	SUMMARY	942
	<i>APPENDICES TO CHAPTER 21</i>	943
	<i>REFERENCES AND ADDITIONAL READINGS</i>	945
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	947

CHAPTER  
**22** FORECASTING 952

- 22.1 THE FORECASTING PROCESS 952
- 22.2 EFFECTIVENESS 953
- 22.3 RELIABILITY 955
- 22.4 FORECASTING METHODS 957
- 22.5 ESTIMATING THE UNCERTAINTY OF SINGLE-POINT VALUES 977
- 22.6 DETERMINING SINGLE-POINT ESTIMATES FROM SUBJECTIVE UNCERTAINTY 982
- 22.7 SUMMARY 983
- REFERENCES AND ADDITIONAL READINGS* 983
- QUESTIONS, PROBLEMS, AND CASES* 985

CHAPTER  
**23** OPERATIONAL BUDGETING 993

- 23.1 THE BUDGET AS A CONTROL 993
- 23.2 FIXED AND FLEXIBLE BUDGETS 994
- 23.3 BUDGET VALUES—DOLLARS OR UNITS 998
- 23.4 THE BUDGETING PROCESS 998
- 23.5 FUNCTIONAL AND PROGRAM BUDGETING 999
- 23.6 A FUNCTIONAL BUDGETING EXAMPLE 1001
- 23.7 ALTERNATIVE BUDGETING PROCESSES 1005
- 23.8 ANALYSIS IN BUDGET CONSTRUCTION 1005
- 23.9 ANALYSIS OF SEASONALLY ADJUSTED INPUT DATA 1006
- 23.10 ANALYSIS OF CONSTRAINING FACTORS 1009

23.11	SENSITIVITY ANALYSIS APPLIED TO OUTPUT	1024
23.12	SUMMARY	1026
	<i>REFERENCES AND ADDITIONAL READINGS</i>	1027
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	1028

CHAPTER  
**24** CAPITAL BUDGETING 1041

24.1	THE NATURE OF CAPITAL BUDGETING	1041
24.2	INCOME FLOW APPROACH	1044
24.3	CASH FLOW APPROACH	1048
24.4	TIME-ADJUSTED RATE OF RETURN	1052
24.5	MINIMUM DESIRED RATE OF RETURN	1055
24.6	NET PRESENT VALUE METHOD	1057
24.7	OTHER ASPECTS OF DISCOUNTED CASH FLOW ANALYSIS	1062
24.8	MULTIPLE SEQUENCE PROBLEMS	1065
24.9	SUMMARY	1073
	<i>REFERENCES AND ADDITIONAL READINGS</i>	1074
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	1075

CHAPTER  
**25** LEARNING CURVE ANALYSIS 1087

25.1	THE NATURE OF LEARNING CURVES	1087
25.2	SELECTING A THEOREM	1088
25.3	DETERMINING THE LEARNING RATE	1091
25.4	PREDETERMINING THE VALUE OF $k$	1094

25.5	LEARNING CURVE FORMULAE FOR THEOREM. 1	1096
25.6	LEARNING CURVE FORMULAE FOR THEOREM 2	1101
25.7	AN ILLUSTRATION IN THE USE OF LEARNING CURVE ANALYSIS	1105
25.8	SUMMARY	1108
	<i>REFERENCES AND ADDITIONAL READINGS</i>	1109
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	1109

Page 1115

## UNIT VII

DESIGN  
AND  
ANALYSIS  
OF  
ACCOUNTING  
INFORMATION  
SYSTEMS

## CHAPTER

# 26 THE DESIGN OF AN AUTOMATED SYSTEM 1117

26.1	SYSTEM FUNCTIONS	1117
26.2	DATA COLLECTION	1118
26.3	DATA CONVERSION	1119
26.4	DATA AND INFORMATION STORAGE	1121
26.5	FILE PROCESSING	1137
26.6	THE CENTRAL PROCESSING UNIT	1148
26.7	INFORMATION OUTPUT	1157
26.8	MESSAGE TRANSMISSION	1159

26.9	SUMMARY	1162
	<i>REFERENCES AND ADDITIONAL READINGS</i>	1163
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	1164

CHAPTER  
**27** FINANCIAL AND OPERATIONAL  
 AUDITING 1171

27.1	THE NATURE OF AUDITING	1171
27.2	AUDIT PROCESSES	1173
27.3	THE AUDIT EXAMINATION	1174
27.4	EVALUATION	1175
27.5	TRANSACTIONS TESTING	1177
27.6	FUNCTIONAL TESTING	1178
27.7	EDP TRANSACTIONS TESTING	1179
27.8	FUNCTIONAL TESTING OF EDP-RELATED FUNCTIONS	1185
27.9	EVALUATION OF CONTROLS	1186
27.10	VALIDATION	1189
27.11	EDP VALIDATION TESTING	1197
27.12	AUDIT OPINIONS	1198
27.13	SUMMARY	1199
	<i>APPENDICES TO CHAPTER 27</i>	1200
	<i>REFERENCES AND ADDITIONAL READINGS</i>	1203
	<i>QUESTIONS, PROBLEMS, AND CASES</i>	1205
	APPENDIX A: CHART OF ACCOUNTS	1218
	APPENDIX B: PRESENT VALUE, FUTURE VALUE, AND ANNUITIES	1223