CONTENTS

PAGE

Foreword *I-3*

Syllabus *I-5*

Chapter-heads *I-15*

MODULE I : TECHNOLOGY IN BANKS

UNIT 1
BANKING ENVIRONMENT AND TECHNOLOGY

1.1 Introduction *5*

1.2 Evolution of Banking Technology Over the Years *6*

1.3 Core Banking *8*

1.4 Steps in the Implementation of CBS *10*

1.5 Delivery Channels *12*

1.6 Core Banking *vis-à-vis* Standalone Systems *14*

1.7 Conclusion *17*

1.8 Check Your Progress *18*

1.9 Answers to Check Your Progress *19*

PAGE

UNIT 2

OVERVIEW OF PROCESSING INFRASTRUCTURE

2.1 IT Operation Processes *24*
2.2 Various Payment and Settlement Systems *30*
2.3 Process Changes with Technology *38*
2.4 Conclusion *46*
2.5 Check Your Progress *47*
2.6 Answers to Check Your Progress *48*

UNIT 3

ACCOUNTING INFORMATION SYSTEM

3.1 Introduction *51*
3.2 Software Architecture of a Modern AIS *53*
3.3 Advantages and Implications of AIS *53*
3.4 How to effectively implement AIS *54*
3.5 Conclusion *57*
3.6 Check Your Progress *58*
3.7 Answers to Check Your Progress *59*

UNIT 4

INFORMATION ORGANIZATION AND MANAGEMENT

4.1 Introduction *63*
4.2 Advantages *64*
4.3 Importance of Management Information System *64*
4.4 Information Concept *65*
4.5 Information Management Concept *66*
4.6 Information Systems Concept *66*
4.7 Management Information System (MIS) *67*
4.8 Reporting Requirements in Banks *67*

PAGE

4.9 CBS & MIS *68*
4.10 Difference between Data Warehouse & MIS *69*
4.11 Advantages of Using a Data Warehouse *70*
4.12 Transaction Processing *vis-a-vis* Analytical Processing *70*
4.13 Management Functions and Levels *71*
4.14 Nature of Planning and Decision Making and Available Techniques *72*
4.15 Importance of MIS to Management *73*
4.16 Automated Data Flow (ADF) to the Regulator *73*
4.17 Conclusion *75*
4.18 Check Your Progress *76*
4.19 Answers to Check Your Progress *78*

UNIT 5

RISK ASSOCIATED WITH TECHNOLOGY IN BANKING

5.1 Introduction *81*
5.2 Risks Associated with Technology *81*
5.3 Board and Management Oversight *83*
5.4 Security Controls *83*
5.5 Legal and Reputational Risk Management *84*
5.6 Conclusion *87*
5.7 Check Your Progress *88*
5.8 Answers to Check Your Progress *89*

UNIT 6

AUDIT FUNCTION AND TECHNOLOGY

6.1 Introduction *93*
6.2 Conclusion *98*
6.3 Check Your Progress *99*
6.4 Answers to Check Your Progress *100*

PAGE

MODULE II: TECHNOLOGY – SYSTEM, DEVELOPMENT, PROCESS, IMPLEMENTATION

UNIT 7
HARDWARE ARCHITECTURE

7.1 Introduction *105*
7.2 Types of Computers *105*
7.3 Personal Computer *106*
7.4 Components of a Computer *119*
7.5 Various features of the Central Processing Unit *121*
7.6 Conclusion *130*
7.7 Check Your Progress *132*
7.8 Answers to Check Your Progress *133*

UNIT 8
SOFTWARE PLATFORMS

8.1 Operating Systems *137*
8.2 Utility Programs *139*
8.3 Distributed Systems *139*
8.4 Database Management Systems *141*
8.5 DBA (Database Administrator) and his Responsibilities *153*
8.6 Architecture of a Database Management System *155*
8.7 Database Security and Controls *160*
8.8 Structured Query Language (SQL) *169*
8.9 Conclusion *172*
8.10 Check Your Progress *173*
8.11 Answers to Check Your Progress *174*

PAGE

UNIT 9
SYSTEM DEVELOPMENT LIFE CYCLE

9.1 Systems Concept *177*
9.2 Need for Systems Analysis *180*
9.3 Phases of SDLC *182*
9.4 Conclusion *197*
9.5 Check Your Progress *198*
9.6 Answers to Check Your Progress *199*

UNIT 10
COMPUTER NETWORKS

10.1 Computer Network *203*
10.2 Types of Networks *203*
10.3 Basic Function of the OSI Models *228*
10.4 Advantages of the ISO, OSI Model *229*
10.5 Disadvantages of the ISO, OSI Model *229*
10.6 Some Latest Developments in Networking *233*
10.7 Check Your Progress *243*
10.8 Answers to Check Your Progress *244*

MODULE III: BUSINESS CONTINUITY

UNIT 11
BUSINESS CONTINUITY & DISASTER RECOVERY PLANNING

11.1 Business Continuity Plan v. Disaster Recovery Plan *249*
11.2 Business Continuity Planning *250*

PAGE

11.3 RBI Guidelines on Business Continuity Planning *261*
11.4 Disaster Avoidance *263*
11.5 Disaster Recovery Planning *265*
11.6 Summary *275*
11.7 Check Your Progress *275*
11.8 Answers to Check Your Progress *277*

MODULE IV: OVERVIEW OF LEGAL FRAMEWORK

UNIT 12

ONLINE TRANSACTIONS – CONCEPTS, EMERGING TRENDS AND LEGAL IMPLICATIONS

12.1 Nature of Online Transactions *283*
12.2 Limitations of Traditional Money *284*
12.3 Electronic Money - What it Means and its Benefits *284*
12.4 Generic Features of E-Money Models *287*
12.5 Regulatory Framework in India *288*
12.6 Emerging trends in Electronic Payments Infrastructure *292*
12.7 Embedded Banking Solutions *293*
12.8 IT Act, 2000 *296*
12.9 IT (Amendment) Act, 2008 *298*
12.10 IT Governance and its Significance in Financial Sector *303*
12.11 Check Your Progress *310*
12.12 Answers to Check Your Progress *311*

PAGE

MODULE V: SECURITY & CONTROL STANDARDS IN BANKING

UNIT 13
SECURITY

13.1 Information Technology Revolution *319*
13.2 Need for Information Security *320*
13.3 Security Architecture - Elements of Computer Security *329*
13.4 Computer Security Policy *338*
13.5 An overview of Global Level Cyber Security Frameworks and Standards *344*
13.6 Prominent Frameworks Today *349*
13.7 Cyber Security Framework for Financial Institutions by Reserve Bank of India (RBI) *350*
13.8 Check Your Progress *357*
13.9 Answers to Check Your Progress *359*

UNIT 14
CONTROL

14.1 Need for Controls *363*
14.2 Application Control Framework *372*
14.3 Database Controls *393*
14.4 ISO 27001 - Information Security Management System (ISMS) *395*
14.5 ISO 22301 - Business Continuity Management System (BCMS) *397*
14.6 Payment Card Industry Data Security Standard (PCIDSS) *399*
14.7 Check Your Progress *402*
14.8 Answers to Check Your Progress *403*

PAGE

MODULE VI: SECURITIES POLICIES, PROCEDURE AND CONTROLS

UNIT 15
DEVELOPMENT AND REVIEW OF SECURITY POLICIES AND CONTROL STANDARDS

15.1 Introduction *409*
15.2 Need for Information Security Policies *410*
15.3 Computer Security Policy *411*
15.4 Policy, Standards, Guidelines and Procedures *413*
15.5 Key Components of a Security Policy *413*
15.6 Monitoring Security and Monitoring of assets and controls in banks *415*
15.7 Conclusion *423*
15.8 Check Your Progress *423*
15.9 Answers to Check Your Progress *424*

UNIT 16
COMPLIANCE AND INCIDENT MANAGEMENT

16.1 Introduction *427*
16.2 Application Control and Security *429*
16.3 Compliance *431*
16.4 Conclusion *435*
16.5 Check Your Progress *436*
16.6 Answers to Check Your Progress *437*

UNIT 17
NETWORK SECURITY

17.1 Introduction *441*

PAGE

17.2 Factors for Improvement of the Security of Networks *448*
17.3 Conclusion *451*
17.4 Check Your Progress *452*
17.5 Answers to Check Your Progress *453*

MODULE VII: INFORMATION SECURITY AND IS AUDIT

UNIT 18
INFORMATION SECURITY

18.1 Introduction *459*
18.2 Need for Information Security Policy and Guidelines *461*
18.3 Information Security Policy Standards *470*
18.4 Information Security Procedures and Guidelines *481*
18.5 Check Your Progress *520*
18.6 Answers to Check Your Progress *522*

UNIT 19
IS AUDIT

19.1 Introduction to IS Audit *527*
19.2 Audit in Computerized Environment *529*
19.3 Audit Organization and Management *539*
19.4 Risk Based Audit Framework *552*
19.5 IS Audit Standards *569*
19.6 Conclusion *572*
19.7 Check Your Progress *572*
19.8 Answers to Check Your Progress *574*

PAGE

References *575*

Glossary of Abbreviations Used in the Book *577*