

Contents at a Glance

<i>Introduction</i>	1
<i>Part I: Basic Components</i>	5
Chapter 1: Protecting Yourself and Your PC.....	7
Chapter 2: Motherboards and CPUs.....	17
Chapter 3: Memory, BIOS, and CMOS.....	35
Chapter 4: Disk Storage.....	55
Chapter 5: Power Supplies and Portable PCs	75
<i>Part II: Peripherals</i>	97
Chapter 6: Ports, Cables, and Connectors.....	99
Chapter 7: Monitors and Display Adapters	117
Chapter 8: Printers	135
Chapter 9: Multimedia and Input Devices	153
<i>Part III: Operating System Basics</i>	169
Chapter 10: Installing and Upgrading Windows.....	171
Chapter 11: Files, Folders, and Command Prompts	185
Chapter 12: Installing and Configuring Applications.....	205
Chapter 13: System Resources and Device Drivers.....	217
<i>Part IV: Maintaining and Troubleshooting the Operating System</i>	233
Chapter 14: Monitoring and Optimizing Windows	235
Chapter 15: Understanding the System Files and Boot Sequences	249
Chapter 16: Troubleshooting Hardware Problems	261
Chapter 17: Troubleshooting Boot and Startup Problems	277
<i>Part V: Networking</i>	293
Chapter 18: Understanding and Selecting Network Types	295
Chapter 19: Managing Windows Networking	317
Chapter 20: Configuring Internet Access and Security	333
<i>Part VI: The Part of Tens</i>	347
Chapter 21: Ten Things End-Users Do to Mess Up Their PCs (And How to Fix Them)	349
Chapter 22: Ten (More or Less) Windows System Files You Need to Know About.....	355
Chapter 23: Ten Command-Prompt Commands That Can Save the Day	359

<i>Appendix A: About the A+ Certification Exams</i>	<i>365</i>
<i>Appendix B: About the CD-ROM</i>	<i>373</i>
<i>Index.....</i>	<i>375</i>
<i>End-User License Agreement.....</i>	<i>Back of Book</i>

Table of Contents

<i>Introduction</i>	1
How to Study	1
How This Book Is Organized	2
Part I: Basic Components.....	2
Part II: Peripherals.....	2
Part III: Operating System Basics.....	2
Part IV: Maintaining and Troubleshooting the Operating System.....	2
Part V: Networking.....	3
Part VI: The Part of Tens.....	3
Appendixes	3
Icons Used in This Book	3
Where to Go from Here	4
<i>Part 1: Basic Components</i>	5
Chapter 1: Protecting Yourself and Your PC	7
Preventing ESD Damage.....	7
Cleaning a PC.....	9
Disposing of Hazardous Components.....	11
Identifying Good Ergonomic Practices	12
Answers to Questions in This Chapter	14
Chapter 2: Motherboards and CPUs	17
Identifying Parts of a Motherboard.....	17
Identifying Motherboard Form Factors	19
Understanding Bus Architectures and Slots	20
Differentiating between CPUs	22
Identifying CPU Sockets.....	24
Installing a CPU.....	24
Cooling a CPU.....	26
Answers to Questions in This Chapter	28
Chapter 3: Memory, BIOS, and CMOS	35
Understanding Memory Types	35
Identifying and Selecting RAM	37
Installing RAM.....	40
Examining Memory Usage	42
Working with Virtual Memory.....	44
Understanding the BIOS and CMOS	46
Troubleshooting and Updating a BIOS	49
Answers to Questions in This Chapter	51

Chapter 4: Disk Storage	55
Understanding Hard Drive Terminology.....	55
Understanding IDE Standards	57
Understanding Hard Drive Capacity Limitations.....	58
Configuring PATA Disk Drives.....	61
Understanding SCSI Drives.....	64
Configuring SCSI Drives	66
Answers to Questions in This Chapter	70
Chapter 5: Power Supplies and Portable PCs	75
Understanding Electricity.....	75
Selecting Appropriate Power Supplies	76
Testing Power Supply Voltages	79
Replacing a Power Supply	83
Working with UPSes and Surge Suppressors	85
Configuring Power Management.....	86
Selecting and Handling Batteries.....	88
Expanding a Notebook PC with PC Card Devices.....	90
Answers to Questions in This Chapter	92
Part II: Peripherals	97
Chapter 6: Ports, Cables, and Connectors	99
Identifying Common Computer Ports.....	99
Comparing Cable Connector Types	103
Selecting and Installing Adapters	107
Using a Pinout Diagram and Doing Pin Testing	109
Understanding USB and FireWire Standards.....	111
Answers to Questions in This Chapter	112
Chapter 7: Monitors and Display Adapters	117
Identifying Display Adapter Features.....	117
Selecting an LCD Monitor	121
Selecting a CRT Monitor	123
Adjusting Display Settings in Windows	125
Cleaning and Adjusting a Monitor	128
Answers to Questions in This Chapter	130
Chapter 8: Printers	135
Identifying Types of Printers.....	135
Understanding the Laser Printing Process.....	136
Selecting a Printer Connection Type.....	138
Setting Up a Printer in Windows	140
Setting Printer Options	141
Managing a Windows Print Queue.....	144
Troubleshooting Printing Problems.....	145
Answers to Questions in This Chapter	148

Chapter 9: Multimedia and Input Devices	153
Working with Scanners	153
Understanding Sound Cards	156
Installing and Configuring a Sound Card	159
Selecting a Keyboard or Mouse	161
Adjusting Input Device Settings in Windows	162
Answers to Questions in This Chapter	164
Part III: Operating System Basics	169
Chapter 10: Installing and Upgrading Windows	171
Identifying Windows System Requirements.....	171
Identifying Valid Upgrade Paths	173
Performing an Installation.....	174
Setting Up Multibooting.....	177
Transferring User Data Files.....	178
Answers to Questions in This Chapter	180
Chapter 11: Files, Folders, and Command Prompts	185
Understanding File-Naming Rules	185
Changing File Attributes	189
Using Command-Line File Management.....	191
Using Command-Line System Utilities	193
Managing Disks from the Command Prompt	195
Changing Text Files with EDIT	196
Answers to Questions in This Chapter	198
Chapter 12: Installing and Configuring Applications	205
Troubleshooting Application Installation and Removal.....	205
Identifying Background Running Programs	207
Configuring Legacy Applications in Windows	209
Answers to Questions in This Chapter	214
Chapter 13: System Resources and Device Drivers	217
Understanding System Resources	217
Viewing and Changing Device Resource Assignments	219
Viewing Device Driver Details	223
Updating or Rolling Back a Device Driver	225
Answers to Questions in This Chapter	228
Part IV: Maintaining and Troubleshooting the Operating System	233
Chapter 14: Monitoring and Optimizing Windows	235
Monitoring System Performance with Task Manager	235
Monitoring System Performance with Performance Monitor.....	238
Monitoring System Performance with Event Viewer	240



Optimizing Virtual Memory Usage242
Running Disk Cleanup243
Running the Disk Defragmenter245
Answers to Questions in This Chapter246

Chapter 15: Understanding the System Files and Boot Sequences249

Understanding the Major System Files249
Reviewing the Windows 9x Boot Sequence253
Reviewing the Windows XP Boot Sequence255
Answers to Questions in This Chapter257

Chapter 16: Troubleshooting Hardware Problems261

Troubleshooting No-Power Problems261
Troubleshooting Blank-Screen Errors263
Troubleshooting Common System Problems265
Troubleshooting Problems with Peripheral Devices269
Answers to Troubleshooting Hardware Problems272

Chapter 17: Troubleshooting Boot and Startup Problems277

Troubleshooting Missing or Corrupt Startup File Issues277
Creating an Emergency Repair Disk279
Using the Recovery Console280
Starting Windows in Safe Mode282
Disabling Programs That Load at Startup285
Setting and Using a Restore Point287
Answers to Questions in This Chapter289

Part V: Networking293

Chapter 18: Understanding and Selecting Network Types295

Understanding Client/Server and Peer-to-Peer Networks295
Understanding Network Topologies297
Identifying Network Cables301
Comparing Network Architectures304
Understanding and Selecting Network Devices307
Answers to Questions in This Chapter310

Chapter 19: Managing Windows Networking317

Connecting to a Wired Network317
Connecting to a Wireless Network319
Sharing Folders and Printers321
Understanding Network Protocols and Services324
Troubleshooting Common Network Connectivity Problems326
Answers to Questions in This Chapter328

Chapter 20: Configuring Internet Access and Security	333
Working with Modems	333
Using Dial-Up Internet Connections	335
Understanding Protocols.....	336
Understanding IP Addressing	338
Configuring the Windows Firewall.....	340
Configuring Internet Security and Privacy Settings	341
Answers to Questions in This Chapter	343

Part VI: The Part of Tens.....347

Chapter 21: Ten Things End-Users Do to Mess Up Their PCs (And How to Fix Them)

349

Falling for Fake Error Messages.....	349
Installing Junk	350
Accidentally Shrinking the Taskbar	350
Installing Unsigned Drivers	350
Surfing without Virus Protection	351
Opening Unknown E-Mail Attachments	351
Not Updating Virus Definitions	351
Allowing the Desktop to Fill Up with Junk.....	352
Not Organizing the Favorites Menu into Categories	352
Not Installing Windows Updates.....	353

Chapter 22: Ten (More or Less) Windows System Files You Need to Know About

355

IO.SYS and MSDOS.SYS	355
CONFIG.SYS	355
AUTOEXEC.BAT	356
BOOT.INI	356
WIN.COM	357
CMD.EXE and COMMAND.COM	357
The Registry Hives	357
USER.DAT and SYSTEM.DAT.....	357
WIN.INI and SYSTEM.INI	358
HIMEM.SYS	358

Chapter 23: Ten Command-Prompt Commands That Can Save the Day.....

359

HELP or /?	359
CHKDSK.....	360
SYS.....	360
TYPE	361
FORMAT	361
ATTRIB	361
EDIT	362
EXTRACT	362
PING.....	363
TRACERT	364

<i>Appendix A: About the A+ Certification Exams</i>	365
About the A+ Essentials Exam	365
About the IT Technician Exam.....	367
About the Remote Support Technician Exam.....	369
About the Depot Technician Exam.....	370
<i>Appendix B: About the CD-ROM</i>	373
System Requirements	373
Using the CD.....	373
What You'll Find on the CD.....	374
Troubleshooting	374
<i>Index</i>	375
<i>End-User License Agreement</i>	<i>Back of Book</i>

Table of Exercises



Chapter 1: Protecting Yourself and Your PC	7
Exercise 1-1: Cleaning a Desktop PC	10
Exercise 1-2: Determining Disposal and Recycling Options.....	12
Exercise 1-3: Making a Workstation Ergonomically Correct.....	13
Chapter 2: Motherboards and CPUs	17
Exercise 2-1: Checking Out the Motherboard	19
Exercise 2-2: Taking a Look at the Form Factor	20
Exercise 2-3: Scoping Out the Slots	22
Exercise 2-4: Researching Your CPU.....	23
Exercise 2-5: Keeping Your Cool	27
Chapter 3: Memory, BIOS, and CMOS	35
Exercise 3-1: Looking at RAM Types.....	40
Exercise 3-2: Practicing RAM Installation	41
Exercise 3-3: Collecting Memory Information	42
Exercise 3-4: Changing Virtual Memory Settings.....	45
Exercise 3-5: Mastering the CMOS Setup Program	49
Exercise 3-6: Updating the BIOS.....	50
Chapter 4: Disk Storage	55
Exercise 4-1: Evaluating Hard Drives, Part I	56
Exercise 4-2: Evaluating Hard Drives, Part II	58
Exercise 4-3: Identifying Hard Drive Limitations	60
Exercise 4-4: Working with Jumper Settings.....	64
Exercise 4-5: Working with SCSI Drives.....	66
Exercise 4-6: Installing SCSI Devices.....	66
Exercise 4-7: Configuring a SCSI Drive	69
Chapter 5: Power Supplies and Portable PCs	75
Exercise 5-1: Evaluating Power Supplies	79
Exercise 5-2: Testing Voltages	82
Exercise 5-3: Replacing Power Supplies.....	84
Exercise 5-4: Choosing the Correct UPS	86
Exercise 5-5: Configuring Power Management Options.....	88
Exercise 5-6: Working with Batteries	89
Exercise 5-7: Mastering PC Cards	91
Chapter 7: Monitors and Display Adapters	117
Exercise 7-1: Evaluating Display Adapters	121
Exercise 7-2: Comparing LCD Monitors	123
Exercise 7-3: Using the Display Properties Dialog Box	128

Chapter 8: Printers	135
Exercise 8-1: Comparing Printer Interfaces.....	139
Exercise 8-2: Working with Printer Drivers.....	141
Exercise 8-3: Changing Printer Properties.....	143
Exercise 8-4: Working with Print Queues.....	145
Chapter 9: Multimedia and Input Devices	153
Exercise 9-1: Evaluating Scanners.....	156
Exercise 9-2: Determining Sound Card Specifications.....	158
Exercise 9-3: Working with Sound Cards.....	160
Exercise 9-4: Changing Mouse and Keyboard Settings.....	163
Chapter 10: Installing and Upgrading Windows	171
Exercise 10-1: Cataloguing Your Hardware.....	172
Exercise 10-2: Working with Setup Manager.....	176
Exercise 10-3: Setting Up Dual-Boot Systems.....	178
Exercise 10-4: Transferring Files.....	179
Chapter 11: Files, Folders, and Command Prompts	185
Exercise 11-1: Finding Equivalent MS-DOS Filenames.....	188
Exercise 11-2: Working with File Attributes.....	190
Exercise 11-3: Using MS-DOS Commands, Part I.....	193
Exercise 11-4: Using MS-DOS Commands, Part II.....	195
Exercise 11-5: Using MS-DOS Commands, Part III.....	196
Exercise 11-6: Working with EDIT.....	197
Chapter 12: Installing and Configuring Applications	205
Exercise 12-1: Practicing Safe Installation Techniques.....	206
Exercise 12-2: Trimming the Number of Processes Running.....	209
Exercise 12-3: Configuring MS-DOS Applications.....	213
Chapter 13: System Resources and Device Drivers	217
Exercise 13-1: Working with Resource Assignments.....	222
Exercise 13-2: Obtaining Driver Information.....	224
Exercise 13-3: Updating and Rolling Back Device Drivers.....	227
Chapter 14: Monitoring and Optimizing Windows	235
Exercise 14-1: Working with the Task Manager.....	237
Exercise 14-2: Setting Up a Counter Log.....	239
Exercise 14-3: Working with the Event Viewer.....	241
Exercise 14-4: Managing Virtual Memory.....	243
Exercise 14-5: Cleaning Up the Hard Drive.....	244
Exercise 14-6: Defragmenting a Hard Drive.....	245
Chapter 15: Understanding the System Files and Boot Sequences	249
Exercise 15-1: Locating System Files.....	252
Exercise 15-2: Monitoring the Windows 9x Boot Process.....	254
Exercise 15-3: Bootlogging in Windows XP.....	255

Chapter 16: Troubleshooting Hardware Problems	261
Exercise 16-1: Dealing with Power Supplies	263
Exercise 16-2: Working with POST cards	265
Exercise 16-3: Diagnosing Hardware Issues.....	269
Chapter 17: Troubleshooting Boot and Startup Problems	277
Exercise 17-1: Working with the System File Checker	278
Exercise 17-2: Creating an Emergency Repair Disk	280
Exercise 17-3: Using an Emergency Repair Disk	280
Exercise 17-4: Installing the Recovery Console	282
Exercise 17-5: Booting Into (And Trying Out) the Recovery Console.....	282
Exercise 17-6: Working in Safe Mode	284
Exercise 17-7: Enabling and Disabling Programs at Startup.....	286
Exercise 17-8: Working with System Restore.....	288
Chapter 18: Understanding and Selecting Network Types	295
Exercise 18-1: Verifying Network Types	296
Exercise 18-2: Defining Network Topologies	300
Exercise 18-3: Working with Network Cabling.....	304
Exercise 18-4: Designing Network Topologies.....	309
Chapter 19: Managing Windows Networking.....	317
Exercise 19-1: Setting Up a Peer-to-Peer Network in Windows XP	319
Exercise 19-2: Working with Wireless	321
Exercise 19-3: Initiating Folder and Printer Sharing.....	323
Exercise 19-4: Working with Network Protocols	325
Chapter 20: Configuring Internet Access and Security	333
Exercise 20-1: Working with Modem Settings.....	335
Exercise 20-2: Setting Up a Dial-Up Connection	336
Exercise 20-3: Examining Windows Firewall.....	340
Exercise 20-4: Ensuring Internet Privacy	342

