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Introduction

The A+ qualification

The A+ certificate is *the* internationally recognised entry level qualification for PC support technicians from the Computing Technology Industry Association (CompTIA). Candidates are required to pass two online exams in order to demonstrate that they have the skills and knowledge of a PC support technician with 'at least 500 hours of hands on experience in lab or field'.

One of the exams – *A+ Essentials* – is mandatory for all candidates and is the subject of the A+ Essentials book which complements this one.

In order to gain the A+ Certificate candidates must pass a second exam chosen from:

- Field Service Technician (A+ 220-602).
- Remote Support / Help Desk Technician (A+ 220-603).
- Hardware / Bench Technician (A+ 220-604).

This book covers all of the requirements of these exams.

About the exams

All of the exams last for 90 minutes and you pass or fail, there and then, on the day.

They can be taken at any recognised test centre and you must provide two forms of identification, one of which must have a photograph. This should be some official document such as a passport or a full driving licence. It is advisable to check current requirements with the exam centre when booking the test.

Each exam consists of 80 multiple choice / multiple response questions to be answered in 90 minutes. Each question presents you with a problem – sometimes accompanied by an illustration – and you are presented with four possible answers. You are required to indicate one or more correct answers from those listed. You need to read and think quickly in this type of test, but still be alert for the odd 'trick question'. Doing practice exams (more later) can help.

The pass mark is in the region of 60%, though CompTIA reserve the right to alter this – or, indeed any other aspect of the qualification – at their discretion. To keep up to date with what's happening in the world of A+ certification, you can visit:

<http://certification.comptia.org/>

which lists all the CompTIA certifications, including A+. By following links from the CompTIA site you can download detailed exam specifications and a handful of sample exam questions. Further practice questions, based on the content of this book, are available from:

www.aplusforstudents.co.uk

It is not a requirement of the A+ qualification to have passed the *Essentials* exam before studying for or taking one of the *Electives*. However, this book assumes that you have an appreciation and understanding of *Essentials* topics. This may have been

gained through study or experience and although it is neither necessary nor assumed, the *A+ for Students: Essentials* text in this series can be a useful resource.

Field Service Technician (A+ 220-602)

The Field Service Technician (602) exam is particularly suited for those whose work will involve a high level of face-to-face contact with customers and end users. Typical job descriptions / job titles may be: Field Service Technician, Enterprise Technician, or IT Administrator. The combination of Essentials and the 602 exam is the closest in content to the older version of the A+ Certificate where there was no choice of Elective for the second exam. This combination is also considered appropriate for those who may be employed in a less technical role such as sales staff or those whose work brings them into frequent contact with working technicians. Domains and weightings are summarised in Table 1

Table 1 Field Service Technician (602) Domains and Weightings

Domain	Percentage of Examination
1.0 Personal Computer Components	18%
2.0 Laptop and Portable Devices	9%
3.0 Operating Systems	20%
4.0 Printers and Scanners	14%
5.0 Networks	11%
6.0 Security	8%
7.0 Safety and Environmental Issues	5%
8.0 Communication and Professionalism	15%
Total	100%

Ideally, you should have gained the *Essentials* qualification before undertaking this exam, though this is not a requirement.

Remote Support / Help Desk Technician (A+ 220-603)

The Remote Support Technician (603) exam is intended for those whose work involves a substantial amount of remote based work. Typical job descriptions / job titles may be: Remote Support Technician, Help Desk Technician, or Call Centre

Technician. As you might expect, there is greater emphasis on the *Operating Systems* and *Communication and Professionalism* domains than in the other Elective exam options. Domains and weightings are summarised in Table 2

Table 2 Remote Support Technician (603) Domains and Weightings

Domain	Percentage of Examination
1.0 Personal Computer Components	15%
2.0 Operating Systems	29%
3.0 Printers and Scanners	10%
4.0 Networks	11%
5.0 Security	15%
6.0 Communication and Professionalism	20%
Total	100%

Ideally, you should have gained the *Essentials* qualification before undertaking this exam, though this is not a requirement.

Hardware / Bench Technician (A+ 220-604)

The Hardware Technician (604) exam is intended for those whose work requires little contact with customers or end users and where hardware work dominates the working day. Typical job descriptions / job titles may be: Hardware Technician, Bench Technician or Depot Technician. The emphasis in this exam is very much on hardware. Domains and weightings are summarised in Table 3.

Table 3 Hardware Technician (604) Domains and Weightings

Domain	Percentage of Examination
1.0 Personal Computer Components	45%
2.0 Laptop and Portable Devices	20%
3.0 Printers and Scanners	20%
4.0 Security	5%
5.0 Safety and Environmental Issues	10%
Total	100%

Ideally, you should have gained the *Essentials* qualification before undertaking this exam, though this is not a requirement.

The structure of the qualification and the book

Each of the Elective exam specifications covers a different mixture of topics. Some topics, such as Personal Computer Components are common to all exams but with different weightings; others, such as Laptop computers and operating systems are required by some exams but not by others and, to confuse matters further, some topics are essentially similar but appear under different objective numbers. For example, objective 3.1 of the 602 exam is all but identical to objective 2.1 of the 603 exam but is not required at all for the 604 exam. In order to make what would otherwise be an unwieldy

text more accessible, A+ for Students: Electives is divided into nine sections with notes on weightings for each domain of each exam.

Section 1 – Personal Computer Components

<i>602 – IT Technician exam objectives</i>	<i>603 Remote Technician exam objectives</i>	<i>604 Depot Technician exam objectives</i>	<i>Chapter number</i>
1.1	1.1	Background reading	1
1.2	1.2	Background reading	2
1.3	1.3	Background reading	3

Note: the 604 Depot Technician exam cover these topics in much more detail in Section 9 and this section – Section 1 - should only be treated as background reading for students undertaking the 604 Depot Technician exam.

Weightings for this section

<i>602 – IT Technician</i>	<i>603 Remote Technician</i>	<i>604 Depot Technician</i>
18%	15%	45%

Suggested revision

Chapters 1-7 of A+ Essentials for Students. These chapters cover the same topics as Section 1 of this book, but from a different perspective.

Section 2 – Laptop and portable systems

<i>602 – IT Technician exam objectives</i>	<i>603 Remote Technician exam objectives</i>	<i>604 Depot Technician exam objectives</i>	<i>Chapter number exam objectives</i>
2.1	N/A	2.1	4
2.2	N/A	2.2	5
2.3	N/A	2.3	5

Weightings for this section

<i>602 – IT Technician</i>	<i>603 Remote Technician</i>	<i>604 Depot Technician</i>
9%	N/A	20%

Suggested revision

Chapter 11 of A+ Essentials for Students.

Section 3 – operating systems

<i>602 – IT Technician exam objectives</i>	<i>603 Remote Technician exam objectives</i>	<i>604 Depot Technician exam objectives</i>	<i>Chapter number exam objectives</i>
3.1	2.1	N/A	6
3.2	2.2	N/A	6
3.3	2.3	N/A	7
3.4	2.4	N/A	7

Weightings for this section

<i>602 – IT Technician</i>	<i>603 Remote Technician</i>	<i>604 Depot Technician</i>
20%	29%	N/A

Suggested revision

Chapters 8, 9 & 10 of A+ Essentials for Students.

Section 4 – printers and scanners

<i>602 – IT Technician exam objectives</i>	<i>603 Remote Technician exam objectives</i>	<i>604 Depot Technician exam objectives</i>	<i>Chapter number exam objectives</i>
4.1	3.1	3.1	8
4.2	3.2	3.2	9
4.3	3.3	3.3	9
4.4	N/A	3.4	9

Weightings for this section

<i>602 – IT Technician</i>	<i>603 Remote Technician</i>	<i>604 Depot Technician</i>
14%	10%	20%

Suggested revision

Chapter 12 of A+ Essentials for Students. **Section 5 – networks**

<i>602 – IT Technician exam objectives</i>	<i>603 Remote Technician exam objectives</i>	<i>604 Depot Technician exam objectives</i>	<i>Chapter number</i>
5.1	4.1	N/A	10
5.2	4.2	N/A	11
5.3	4.3	N/A	11
5.4	N/A	N/A	11

Weightings for this section

<i>602 – IT Technician</i>	<i>603 Remote Technician</i>	<i>604 Depot Technician</i>
11%	11%	N/A

Suggested revision

Chapters 13,14 & 15 of A+ Essentials for Students.

Section 6 – Security

The approach to security is different in each of the exams so each exam has its own

Security chapter. It is recommended that you study in depth the chapter for the exam that

you intend to take and read the others as background.

<i>602 – IT Technician exam objectives</i>	<i>603 Remote Technician exam objectives</i>	<i>604 Depot Technician exam objectives</i>
Chapter 12 covers objectives 6.1, 6.2, 6.3 & 6.4	Chapter 13 covers objectives 5.1, 5.2, 5.3 & 5.4	Chapter 14 covers objectives 4.1 & 4.2

Weightings for this section

<i>602 – IT Technician</i>	<i>603 Remote Technician</i>	<i>604 Depot Technician</i>
8%	15%	5%

Suggested revision

Chapters 16 & 17 of A+ Essentials for Students.

Section 7– Safety and environmental issues

<i>602 – IT Technician exam objectives</i>	<i>603 Remote Technician exam objectives</i>	<i>604 Depot Technician exam objectives</i>	<i>Chapter number</i>
7.1	N/A	5.1	15

Weightings for this section

<i>602 – IT Technician</i>	<i>603 Remote Technician</i>	<i>604 Depot Technician</i>
5%	N/A	10%

Suggested revision

Chapter 18 of A+ Essentials for Students.

Section 8 – Communication and professionalism

<i>602 – IT Technician exam objectives</i>	<i>603 Remote Technician exam objectives</i>	<i>604 Depot Technician exam objectives</i>	<i>Chapter number</i>
8.1	6.1	N/A	16
8.2	6.2	N/A	16

Weightings for this section

<i>602 – IT Technician</i>	<i>603 Remote Technician</i>	<i>604 Depot Technician</i>
15%	20%	N/A

Suggested revision

Chapter 19 of A+ Essentials for Students.

Section 9 – (604 Depot technician only)**Personal Computer Components**

<i>604 Depot Technician exam objectives</i>	<i>Chapter</i>
1.1	17
1.2	18
1.3	19

Weighting for this section 45%

(Note: Chapter numbering for section 9 may be revised, but the section weighing will remain the same).

About you

You are intending to achieve the A+ certificate in order to work in a PC technical support role. You have studied the topics for the Essentials exam though you may not have taken it yet. You may be looking for an entry level qualification in order to strengthen your CV, or you may be a working tech who needs to validate practical experience and workplace skills through A+ certification. You are probably following a college, or other instructor led training course, though you may, of course, be working alone. You are aware of the value of practical hands-on experience, but you are also prepared to learn the necessary facts and figures to pass a theory exam. Above all, you are prepared to work to achieve your ambitions. No book, no training course, no video, is a substitute for your own efforts, but if you want to do it – to achieve A+ certification this book - A+ for Students: Electives – and its companion A+ for Students: Essentials - can be valuable resources.

Practical exercises

It is possible, in principle at least, to pass the A+ certification exams without doing any practical work on a PC. There are, indeed, 'boot camp' style intensive courses which take this approach. However, there are some good reasons for doing some practical work:

1. If you don't yet have any work experience as a PC technician, A+ certification on its own is less likely to impress a potential employer than certification *and* hands on experience.
2. Learning by doing is more effective than learning by rote. Changing a hard drive and breaking your finger nails whilst setting the jumpers is, somehow, a more effective learning strategy than just reading about it or attending a theory class that never gets down to business on the tools.
3. Practical activity is more fun. If you don't enjoy messing with PC's then why do you want to be a tech in the first place?

Working safely

Whether you are going to experiment at home, class room or lab, there are a few essential guidelines for working safely with PC's.

- *Always* power down and disconnect from the mains power source before you remove any covers or lids. PC's run on AC mains power – they are no more (or less) dangerous than any other household gadget that uses mains power.
- Once the machine is disconnected from the power, you will need to remove the lid, cover, or side panel in order to access the inside of the machine. Covers and panels are usually secured by two or three screws with 'star' style heads on them.

Put these screws somewhere safe – a loose screw left inside a case can cause an electrical short which will damage the hardware.

- Before you touch *any* of the internal components, you should touch a bare metal section of the chassis of the machine. This safely discharges any static in your body – or at least equalises it with any in the machine – so there is no difference of potential between you and the machine. Having discharged any static in this way, you should always touch bare metal before touching any component.

Remember, even though you can't see static it can damage your system.

- Wearing a wrist strap which you attach to the chassis of the PC means that you are permanently 'touching' bare metal. If you want a wrist strap, you can buy one cheaply enough from a local PC shop. Just remember NOT to wear it if you are in contact with high voltage equipment like a laser printer where it could conduct a high voltage *to* you rather than static *away* from you.
- Be sure that you are aware of any local rules, laws, or Health and Safety requirements. You are responsible for your own safety as well as that of those around you.
- When dealing with any form of specialist equipment – like a laser printer or an uninterruptible Power Supply – read the product manuals and documentation before you start.

These, of course, are general guidelines to help you to stay out of trouble; not a comprehensive guide to every possible situation or a summary of the law as it may apply to you in your college, place of work or home.

Tools

- A Phillips #2 screwdriver is essential.
- Other screwdrivers – torxx, stub handles, etc. are needed occasionally.
- Pliers – useful with damaged screws, Molex connectors that are stuck, etc.
- A multimeter – mainly used for testing power Supply Units (PSU's).
- A torch and a magnifying glass – PC's are dark inside and the writing on components is small.
- A wrist strap – these are mandatory in many workplaces when working on the inside of a PC.
- Internet access – Whether you need to download software device drivers, update or patch an operating system, or look up a fact, the Internet is one of the working technician's major resources.

Practice exams, mock tests, etc.

There are many practice exams and mock tests available, some of them claiming to be a simulation of the CompTIA exams. Usually, if you read the small print, you will find a disclaimer stating that it may not be 100% representative of the real exams, etc. With this in mind, use every opportunity you can to answer test questions. They can be a good way of focussing your attention on the exam objectives and reinforcing your knowledge of the subject material. Each chapter of the book ends with some practice questions and there are also some pen-and-paper mock tests on the web site at www.aplusforstudents.co.uk. These are available for on-line use or you can download hard copy versions in pdf format.

Any mock test that you do can be useful in building confidence and practising exam technique. However, no mock exam or practice test, including the ones presented in this book or on the web site, are the real thing. The only test that *really* matters is the one you take on the day. Good luck.

About the author

Anthony Price is a former working PC technician who writes on the technical aspects of computing. He has written two self instruction books *Teach Yourself Home PC Maintenance and Networking*, and *Teach Yourself PC Networking for Your Small Business* as well as *A+ for Students: Essentials*. He has a Master of Science degree in Information Technology and is also a qualified and experienced adult education lecturer.

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Anthony Price.

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