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Study Guide

Computer Applications Technology

Grade 10



Our Teachers. Our Future.

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Introduction to Computer Applications Technology

Computer Applications Technology is the study of practical techniques for the efficient use of computers and computer software applications to accomplish common workplace tasks. You will learn how to apply your knowledge and the skills you gain to solve everyday problems. The solutions involve the use of either computers and software applications, or computers and telecommunication systems, or both. In other words, the solutions involve the use of ICT systems. ICT systems are the combination of telecommunication networks, computer hardware and computer software. Together, they provide the means of gathering and processing data, managing information and communicating and exchanging knowledge.

In Computer Applications Technology you will learn:

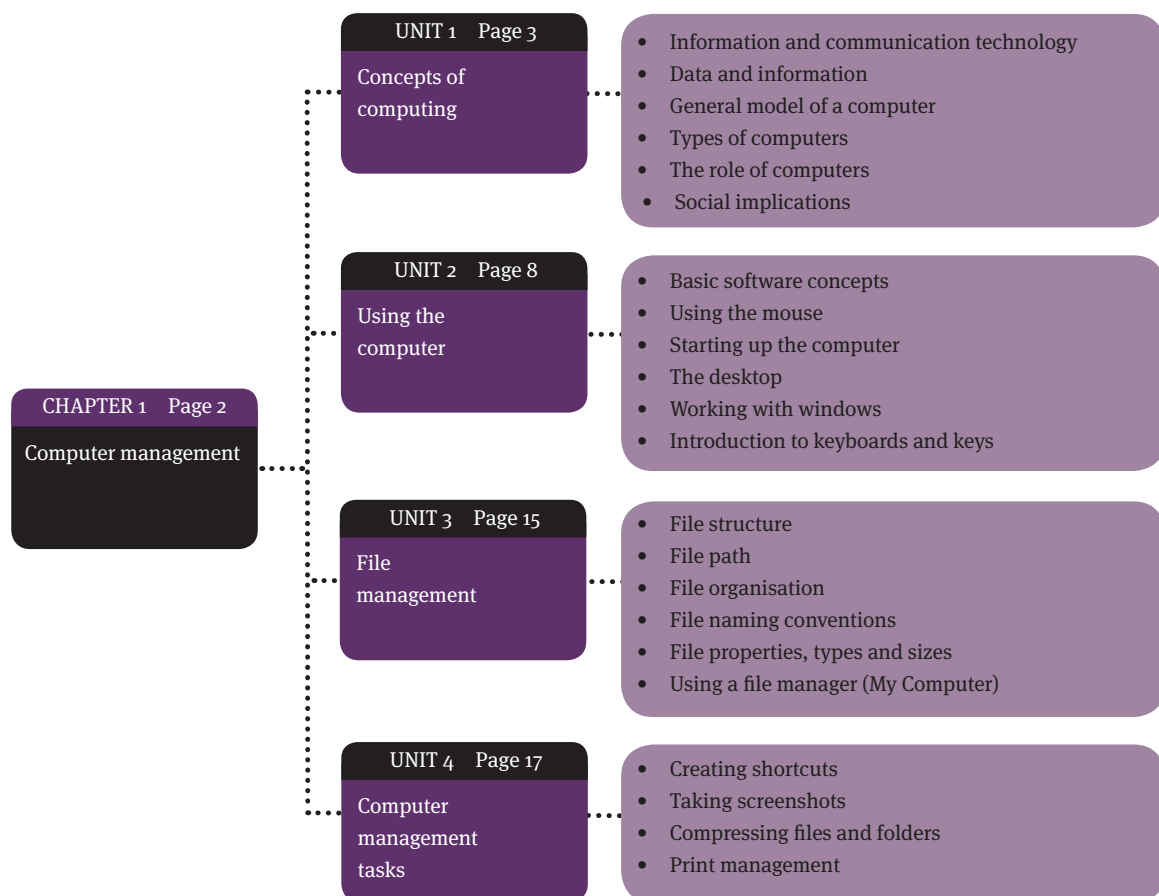
- to use software applications to produce solutions to defined problems
- the concepts of the technologies that make up a computing system
- the standards and protocols involved in the transmission of data via computer networks
- about the Internet and the role that it plays as part of the information superhighway
- how to find authentic and relevant information and how to process the information
- how to tabulate information, make decisions and communicate the findings in appropriate presentation media
- about the use of ICT systems in the modern world
- to recognise the legal, ethical, environmental, social and health issues related to the use of ICT systems
- responsible use of ICT systems.

Computer management

Overview

Computers have become an integral part of life for most people. Nobody gives a second thought to barcodes and scanners at the checkout counter in shops. Many people take for granted the computer controlled gadgets, such as calculators, cell phones, microwave ovens, radio clocks and remote control devices that are commonplace in most households. In this chapter you will learn about:

- ICT systems in everyday life
- data and information
- the general model of a computer
- different types of computers
- the role, advantages and disadvantages of computers
- using computers
- file and folder structure and management
- common computer functions in the workplace.



Concepts of computing

1 Information and communication technology

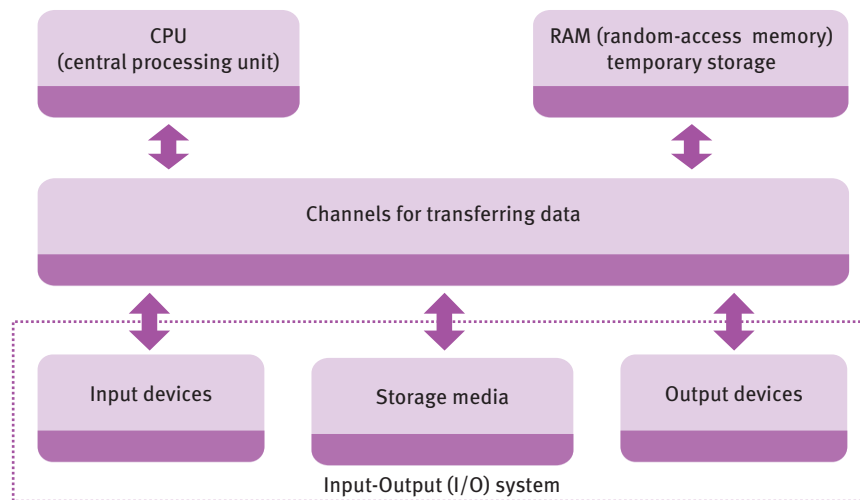
- Information and communications technology (ICT) is the field of study related to computers and telephone networks.
- ICT includes audiovisual processing and broadcasting, such as film production and digital television.
- Digital technologies represent text, numbers, images, sounds and videos as binary digits so that computers can interpret and use them.

1.1 ICT systems in everyday life

- An ICT system integrates communication and information tasks into a single management system.
- This allows managers to have up-to-date information about subsystems, such as the production line, equipment performance and security.

2 Data and information

- Data is not another word for information.
- Data are the raw materials that are processed to produce information.
- Information is the end result of data processing. In other words, information is processed data presented in a usable form.
- Accurate and relevant data are essential for producing usable information.
- Managers rely on usable information to make sensible decisions.
- The information processing cycle changes data into information. It consists of:
 - input – the data that goes into a computer
 - processing – the act of manipulating data with a computer to change it into information
 - output – the information that a computer produces as a result of processing, usually in the form of an on-screen display or printout
 - storage – computers may store data before or during the processing and generally store the information produced.



3 General model of a computer

- A computer is an electronic device that accepts and processes data, stores information and data, and outputs either information for people to use or data for other computers to use.
- Computers consist of hardware and software.
- Hardware is the physical parts of a computer system, In other words, the devices, circuit boards and peripherals that make up a computer system.
- Software is the intangible parts of a computer system, such as the application programs you will use. A program is a list of coded instructions that tell a computer what it must do and how it must do it.

4 Types of computers

- A personal computer (PC) is a small computer that uses a microprocessor as its central processing unit (CPU). Desktop computers, laptop computers, tablet computers and personal digital assistants (PDA) are different forms of the PC.

4.1 Workstations

- Originally, a workstation was a powerful computer used for complex and specialised tasks, such as computer-aided design (CAD). Today, workstation is a term used to describe a terminal connected to a mainframe or any PC connected to a computer network.

4.2 Servers

- Server is the common term for a fileserver. A server is usually a computer that is more powerful than a PC, but it could also be a PC with additional hardware and devices added to help it perform specialised tasks.
- Servers are used in computer networks for centralised file storage.
- One of the main functions of the server is to manage the file handling for all the computers connected to the network.

4.3 Mainframes

- A mainframe is a fast, powerful computer that performs huge tasks, such as bulk data processing.
- Mainframes can support the processing requirements of hundreds of users and can handle many powerful peripheral devices.

4.4 Supercomputers

- A supercomputer is faster and more powerful than a mainframe, and is used for processor intensive calculations and complex modelling scenarios, such as weather pattern forecasts or the behaviour of molecules.

4.5 Dedicated computers

- Dedicated computers are computers designed for one specific task, rather than for general use. Examples of dedicated computers are:
 - video game consoles
 - automatic teller machines (ATMs)
 - embedded computers in household appliances, such as television sets, dishwashers and microwave ovens.

5 The role of computers

- ICT devices have become smaller, cheaper and faster, which has made computers available to more people worldwide.
- Computers in our homes are commonplace and are used for tasks such as household budgets, schoolwork, research, entertainment and communication.
- Computers in banking and business are not new, but people can now:
 - withdraw or deposit money at ATMs
 - use cell phone or Internet banking
 - buy goods and services over the Internet.
- Computers are used in education, both at schools and at home.
- Computers in the health sector play a vital role in complicated medical operations and can assist medical researchers in their quest for new knowledge.
- Computers have enabled new forms of communication such as:
 - short message service (SMS)
 - e-mail messages
 - social networks on the Internet that are designed to allow people to socialise and communicate.

5.1 Advantages of computers

- Speed – modern computers are incredibly fast and can save enormous amounts of time. An example of this is calculating the income tax for hundreds of people on a payroll system, a task that would take days of work for a person.

- Durability – most components in a computer are electronic, rather than mechanical, thus increasing the length of time between component failure because of reduced wear and tear.
- Consistency and accuracy – computers, given the correct data, will consistently produce the same result to a high degree of accuracy.
- Storage – computers have the capacity to store large volumes of data on a single storage medium, thus saving physical space and improving information security.
- Communication – by sharing data and information between computers, people are able to communicate ideas and concepts with greater ease.

5.2 Disadvantages of computers

- Health risks – long periods of computer use with the body in an incorrect posture may result in repetitive strain injuries and could cause damage to the eyes.
- No face-to-face interaction with other people could result in anti-social behaviour.
- Violation of privacy – criminals are able to access your computer via the internet unless you take appropriate precautions.
- Public safety – criminals involved in industrial espionage may use computers to access trade secrets or other private information.
- Impact on employment – some people may lose their jobs when companies automate certain procedures and tasks.
- Impact on the environment – the manufacturing process and the irresponsible disposal of computers affects the environment negatively.

6 Social implications

- Social implications look at the positive and negative effects that using computer technology may have on everyday life.

6.1 Economic benefits of computers

- Saving paper – individuals and companies can save paper and the storage costs of filing their documents.
- Saving labour – by computerising, businesses are able to reduce their labour costs through increased efficiency and accuracy.
- Saving communication costs – businesses that use the Internet to communicate with customers are able to reduce postage and telephone costs. In addition they can:
 - use the Internet and social networking to create product awareness
 - use video conferencing to reduce travel and accommodation costs.
- Efficiency – unlike people, computers do not require lunch breaks or annual leave. Computers work 24 hours per day, seven days per week, do not require salaries and benefits and can usually do the job in less time, more efficiently and more accurately.
- Accuracy – computers perform their work more accurately than people do, as long as the operator correctly inputs accurate data.

- Reliability – computers are reliable because they do what they are programmed to do, unless there is a mechanical or electrical fault.

6.2 The ethical use of computers

- Ethics relates to your values about what is morally right or wrong.
- We have all heard of criminals who use computer technology to trick people into giving out details about their bank accounts. The criminals use the details to withdraw money from the account of the victim.
- Other unethical computer use includes:
 - making pirated copies of music, films and computer software
 - cyber-bullying and spreading gossip over the Internet
 - using computer facilities at school or at work for private business
 - forwarding inappropriate or offensive material to other computer users
 - taking text, pictures, ideas or inventions from the Internet and passing it off as your own work – this is called plagiarism.

Using the computer

1 Basic software concepts

- A program is a list of instructions in computer code, which tells a computer what it must do and how it must do it.
- An application consists of a set programs that work together to enable users to perform tasks.

1.1 The operating system and the GUI

- The operating system is a large set of programs that is in charge of all the functions on your computer.
- It co-ordinates the activities of the system software, runs application software and controls the hardware devices.
- The operating system provides the graphical user interface (GUI), which makes it easier for humans to use the computer and find their way around the computer environment.
- The Microsoft Windows operating system has three main elements, each with its own specific features:
 - the desktop – the main screen of the GUI
 - Windows – rectangular frames that appear on the desktop each time an application, file or folder is opened
 - dialogue boxes – rectangular boxes that appear when an application needs to give you information or wants you to do something, such as provide additional information.

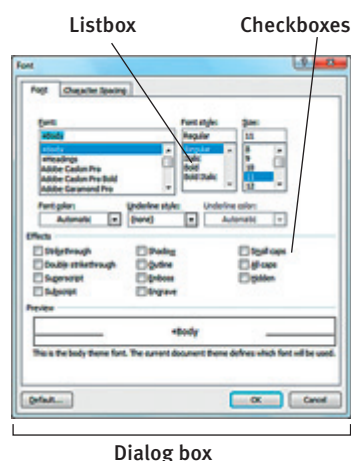


FIGURE 1 A dialogue box

2 Starting up the computer

- To switch on the computer, press the power switch.
- The computer will begin the boot up procedure.
- Booting is the start-up procedure, during which the computer loads the operating system and checks that all its parts are working correctly.
- After the booting process, the log-on screen appears.
- Logging on is the process of gaining access to the computer.

2.1 Social implications – basic security concepts

- The computer uses your username and password to authenticate your identity.
- This helps to prevent unauthorised access to the information on your computer.
- It protects your information from people who may want to invade your privacy, or who might want to steal or delete information.

3 Using the mouse

The mouse is the most common input device for interacting with the GUI. You can use a mouse in different ways:

- hover – hold the pointer over an object without clicking a mouse button
- click – press the left-hand mouse button
- double-click – press the left-hand mouse button twice in quick succession
- right-click – press the right-hand mouse button
- drag – press and hold in the left-hand mouse button while moving the mouse
- roll the wheel – you can roll the mouse wheel to perform certain tasks, such as scrolling through a document.

4 The desktop

- The desktop is the main screen of the Microsoft Windows interface.
- The main features of the desktop are the Start button, the taskbar, and the icons.
- An icon is a small picture on the computer that represents an application, a folder or a file.
- Double-click an icon to start a program or to open a file.

4.1 The Start button

- The Start button, in the bottom left-hand corner of the desktop, allows you to launch applications, or to open folders and files.
- Clicking the Start button brings up the Start menu.
- The Start menu contains options which allow you to:
 - change settings
 - open recently used documents and files
 - launch applications that are not on the Desktop.

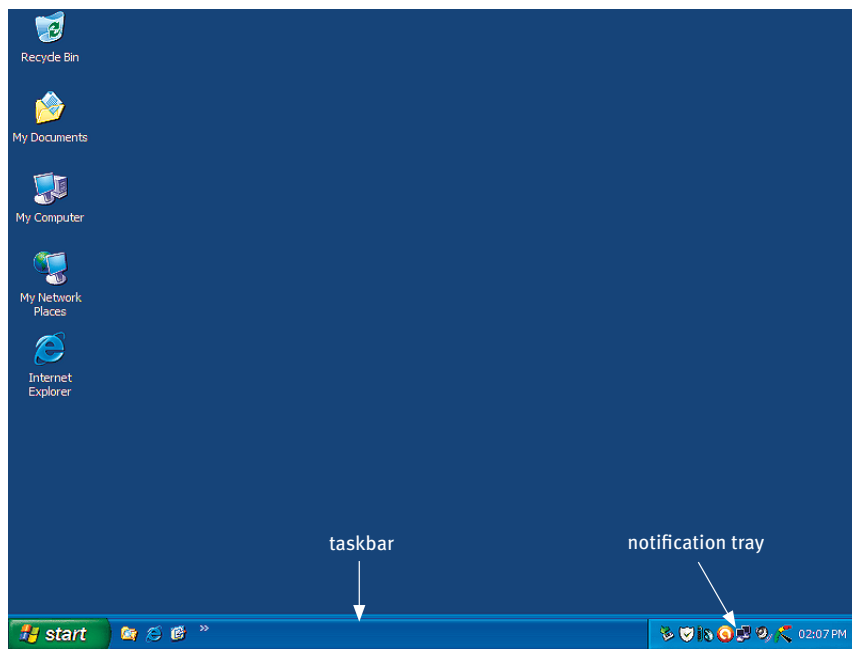


FIGURE 2 Typical components of the desktop

4.2 The taskbar

- The taskbar, usually the bottom line on the screen, displays each open application, folder or file.
- The taskbar will also contain the notification tray, usually on the right-hand side of the screen.
- When you click a taskbar button, the application, folder or file associated with that button becomes the active window.
- The active window is the window in which you are currently working.
- Click the taskbar buttons to switch between open applications, folders or files.

4.3 My Computer, My Documents and Recycle bin icons

- By clicking the My Computer, My Documents or Recycle Bin icon, a folder opens in a window on the desktop.
- The My Computer folder gives you information about storage disks, files, folders and external devices connected to your computer.
- The My Documents folder a special folder on the computer that is used for storing documents, such as music, pictures, videos and other files, each in their own folder within My Documents.
- The Recycle bin is where deleted objects are stored. The Recycle bin allows you to:
 - restore deleted files and folders if they were deleted in error
 - permanently delete a file or folder by deleting it from the Recycle bin.

5 Working with windows

5.1 Opening and closing windows

- To open Notepad, click the Start button.
- Select All Programs from the Start menu.
- Move the mouse pointer onto the All Programs menu and click Accessories.
- Move the mouse pointer onto the Accessories menu and select Notepad.

5.2 Typical features of a window

- The title bar is at the top of the window and usually contains the title of the open file.
- Because we haven't opened an existing file or created and saved a file, the title bar shows Untitled – Notepad.
- The Minimize, Maximize and Close buttons are on the right-hand side of the title bar.
 - the Minimize button makes the window disappear, but the application is still open, as can be seen from the Notepad button on the taskbar
 - the Maximize button enlarges the window to fill the entire screen
 - the Close button closes Notepad.

5.3 Entering and saving data

- Type a few lines of text – press Enter if you want to move the cursor to a new line.
- To save a file, select File from the menu bar.
- Select Save or Save As from the drop-down menu.
- Save will save the file with its original name but, for a new file, Notepad prompts you to type in a file name.
- Save As allows you to save your file with a different file name and/or to a different folder.

5.4 Printing a file

- open an existing file, or create a new file in Notepad.
- To Print the file:
 - select File from the menu bar
 - select Print from the drop-down menu
 - the Print dialogue box will be displayed – see Figure 3.

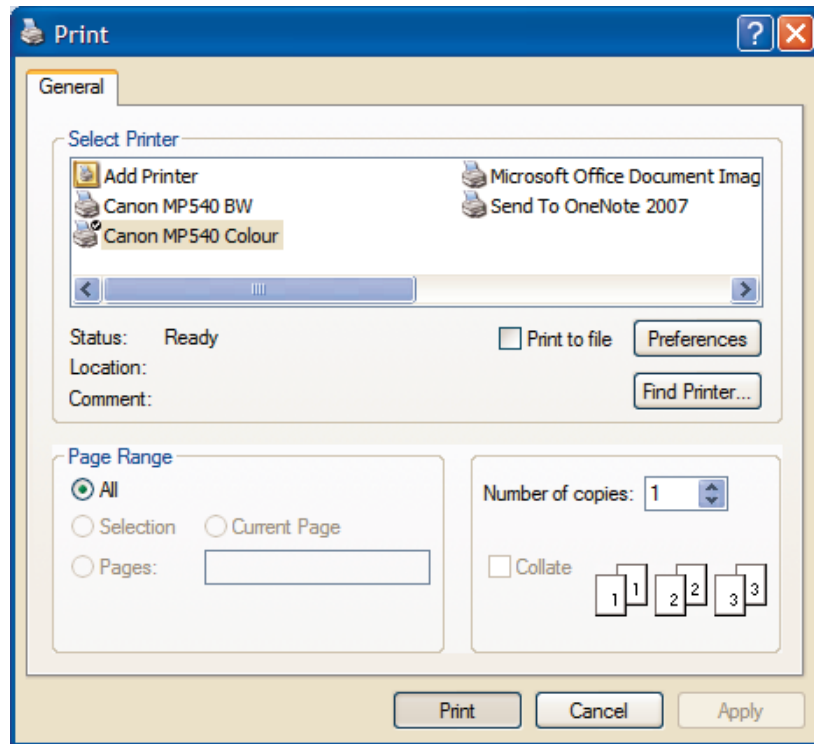


FIGURE 3 The Print dialogue box

5.6 Editing and formatting text

- When you edit text, you change the contents of the text.
- Editing changes existing letters and words to make corrections, or adds new lines, sentences and paragraphs.
- When you format text, you change the appearance of the text.
- Formatting includes making text bold or italic or underlined. It also allows you to change:
 - the font, which is the way the letters are shaped
 - the font size or colour.

5.7 Alternative ways of performing tasks

- Most applications allow more than one way to do things. Instead of selecting options from the menu bar in the application, you can use shortcut keys. Shortcut keys are a combination of letter pressed while holding down the Ctrl key.
- For example, use Ctrl+N to create a new file (hold down the Ctrl key and press the N key).
 - Ctrl+O opens a file
 - Ctrl+S saves a file
 - Ctrl+P prints a file
 - Ctrl+C to copy a marked file or marked text
 - Ctrl+X to cut a marked file or marked text
 - Ctrl+V to paste the file or text most recently cut or copied.

6 Introduction to keyboard and keys

The mouse is suitable for interacting with the GUI, but the keyboard is the best way for entering text or numbers.

6.1 Keyboard and keys

- The standard keyboard layout is known as the QWERTY layout, taken from the first six letters on the left-hand side of the keyboard. The important control and navigation keys are:
 - Enter – starts a new paragraph.
 - Shift – changes the letter typed from lower case to capitals, or allows the upper character on a key to be typed
 - Caps Lock – toggles between lower case and upper case each time it is pressed
 - Tab – used to align text in a column or, within a table, moves the cursor to the next cell
 - Backspace – deletes the character to the left of the cursor
 - Delete – deletes the character to the right of the cursor
 - Insert – toggles overwrite mode on or off each time it is pressed
 - Home and End – moves the cursor to the beginning of the line or the end of the line respectively
 - Page Up and Page Down – moves the cursor one page up or one page down
 - Arrow keys – moves the cursor one line up or one line down, one space left or one space right.

6.2 Typing tutor

- A typing tutor is an interactive computer program that will teach you to type or help you to improve your typing skills. A typing tutor will usually give you:
 - step-by step lessons
 - statistical reports on your progress, to show you how accurately or how fast you type.

6.3 Correct fingers and the correct keys

- You must be able to use the correct fingers on the correct keys.
- The home row is the A, S, D, and F keys for the left hand and the J, K, L and ; keys for the right hand.

6.4 Posture

The correct posture in front of a computer helps you to type accurately and productively.

- Your back should be straight, relaxed but comfortable. The body should not be slumped.
- Knees and hips should form a 90° angle.
- Feet should be flat on the floor or on a footrest.

- Eyes should be focussed on the text that you keying in on the screen.
- Arms should be in an L-shape, so that the relationship of the forearm to the elbow is 90°.
- Your fingers should hover above the home row.
- You should aim at getting your ears, shoulder, elbows and hip bones in one vertical line.

6.5 Social implications – Correct typing posture

- You could find yourself suffering from eyestrain or getting backache or a pain in the neck if you spend long hours in front of a computer. Common posture problems are caused by:
 - sitting too far from or too close to the computer
 - setting the chair too high or too low
 - working at a desk that is too low or too high
 - sitting with the elbows too far from the body.
- Ergonomics is the study of designing tools and equipment to be better suit the human body and encourage correct posture. Ergonomic equipment may include:
 - chairs that support the spine
 - desks that have variable heights
 - computer monitors that can be adjusted
 - a computer mouse that fit snugly into the palm of the hand
 - keyboards that allow for easy use by the human hand.

File management

1 File structure

- File management on a computer is similar to storing documents in a filing cabinet.
- On a computer, we files are stored in a folder.
- Folders can contain other folders, called subfolders, as well as files.

2 File path

- The file path is the complete address of where that file will be found.
- The address is similar to a street address for a person – for example, 24 New Road, My suburb, Best City, South Africa. The file path though, is specified in the format: drive\folder\subfolder\file. For example: C:\Documents\Schoolwork\Timetable.doc
- Note that you need to use the backslash character to separate the parts of a file path.

3 File naming conventions

- You may use letters, numbers and a few special characters in a filename.
- The characters that you must not use are: < > : “ / \ | ? *

4 File properties

File properties include the file name, file location, file type, file size, date last modified, title, and author.

4.1 File type

- The file type is determined by the file extension. These are the characters that follow the dot, or full stop, in the filename.
- A file extension is usually three or more characters, such as exe, ppt, xls, doc or docx.
- In the filename Timetable.docx, docx indicates that this is a Microsoft Word 2007 file.

4.2 File size

- File sizes are measured in bytes. When the file size is:
 - greater than 1 024 bytes, it is measured in kilobytes (KB)
 - greater than 1 024 000 bytes, it is measured in megabytes (MB).
- One byte is needed to store a single character.

5 File organisation

- File organisation starts with deciding how your folders and subfolders will be structured.
- You can assign folders by criteria such as topic or file type, or by criteria such as current work and completed work.

6 Using a file manager (My Computer)

- A file manager is an application that helps you manage the file system on a computer.

6.1 Performing file management tasks

- To create a folder on the desktop, right-click in a blank area on the desktop.
- Select New, Folder from the context menu that appears on the desktop – see Figure 4.
- Type a name for the folder in the space provided and press Enter.
- To open the new folder on the desktop, double-click on it. The folder will have no files or subfolders in it because it is a new folder.

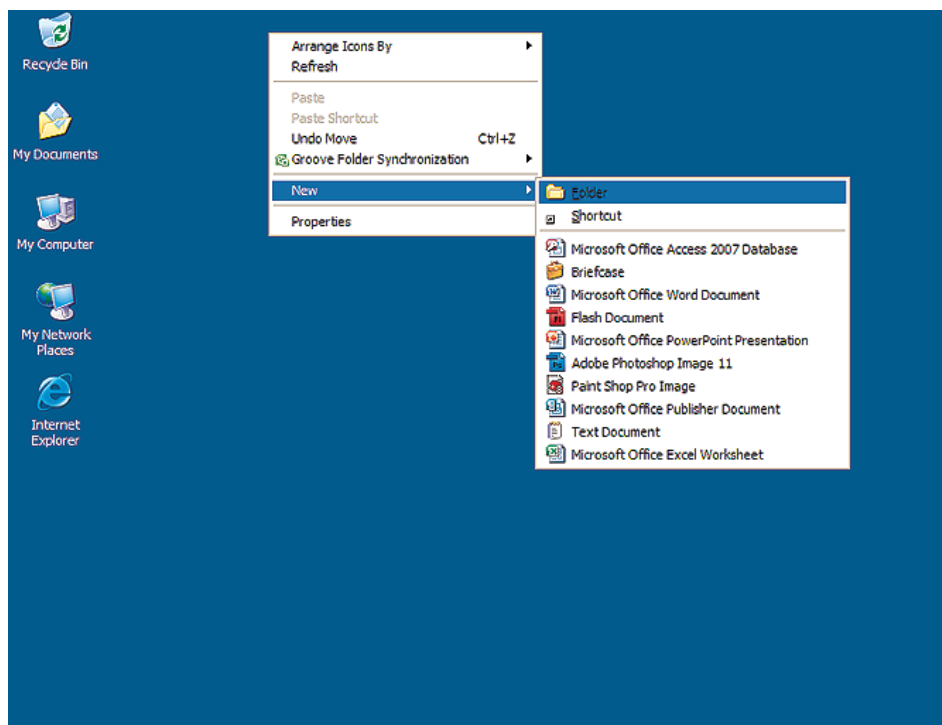


FIGURE 4 Creating a new folder by right-clicking on the desktop

6.2 Viewing and sorting files and folders

- To change the way files are viewed in a folder, you can either:
 - select View from the menu bar and choose a viewing option, or
 - right-click a blank space in the folder, select View from the menu that appears, then select one of the viewing options.
- The Details viewing option displays the name, size, type, and date and time last modified for each listed object.

Computer management tasks

1 Creating shortcuts

- A shortcut is an icon that is linked to a specific program, folder or file. Double-clicking the shortcut opens the associated program, file or folder.
- To create a shortcut to a file, right-click on the desktop or in a blank space in the folder where you want to create the shortcut.
- From the context menu that appears, select New – Shortcut. Figure 5 illustrates the menus.
- This opens the Create Shortcut wizard. See Figure 6.
- The wizard guides you through the process of creating a shortcut.

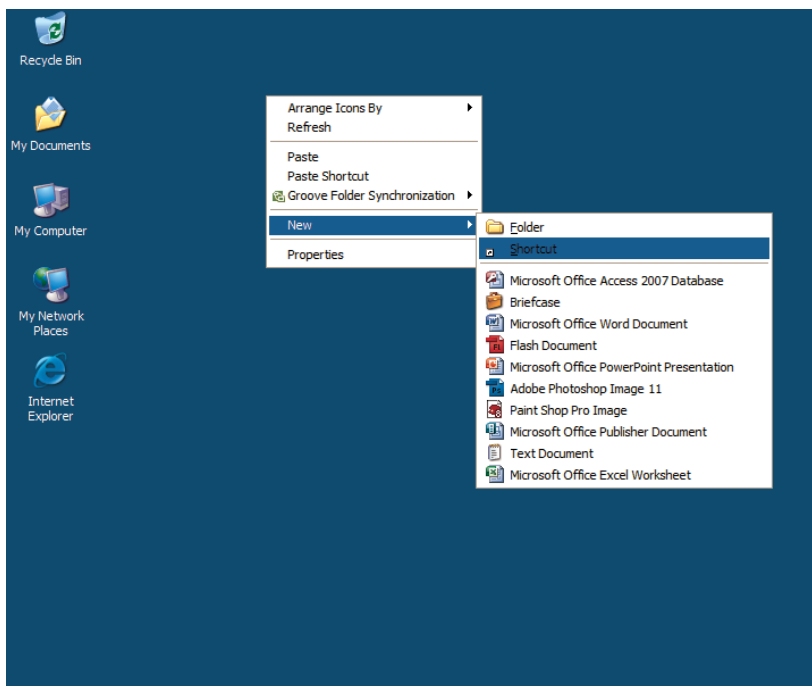


FIGURE 5 Creating a shortcut on the desktop

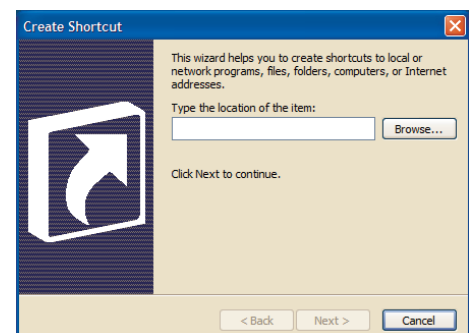


FIGURE 6 The create shortcut wizard

2 Taking screenshots

- A screenshot is an image or picture of your computer screen as it looks at the moment you made the screenshot.
- To take a screenshot, press the Prt Scr (or Print Screen) key on the keyboard.
- The image of the screen is saved to the clipboard.
- The clipboard is a space in memory where the computer temporarily stores copied or cut data.
- To save the screenshot, you need to paste it into a graphics program, such as Paint.

3 Compressing files and folders

- To compress files, you need a file compression utility, such as Winzip or WinRAR, to be installed on your computer.
- To compress a file or a folder, right-click it and select Send To – Compressed (zipped) Folder from the context menu that appears.
- The file compression utility will then guide you through the rest of the process.

4 Print management

- Print management enables you to install, view, and manage the printer.

4.1 Installing a new printer

- The easiest way to install a new printer is insert the CD that came with the printer and to follow the prompts on the screen.
- You can also install a printer by selecting Control Panel – Printers and Faxes – Add printer from the Start menu.
- This opens the Add Printer wizard, which guides you through the process of installing a printer. See Figure 7.

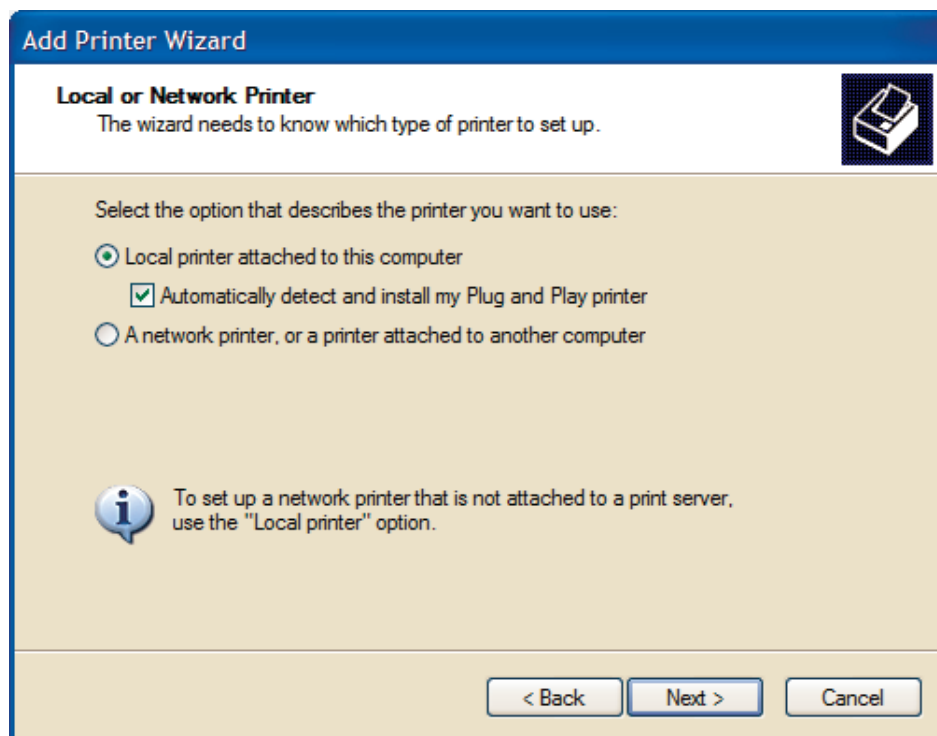


FIGURE 7 The Add printer wizard

4.2 Changing the default printer

- To specify a default printer, select Control Panel – Printers and Faxes from the Start menu.
- Right-click the printer that you want as the default printer and select Set as Default Printer on the context menu.
- The default printer's icon will now have a small circle with a tick in it, indicating that it is the default printer.

4.3 Printer queues

- To check your print jobs, select Control Panel – Printers and Faxes from the Start menu and double-click on the printer.
- The printer window shows the documents in the order that they will be printed.
- To cancel or pause a print job, right-click it and then select the appropriate option on the context menu.

Questions

Question 1: Multiple choice

Choose the correct answer. Only write the letter of the answer you select.

- 1.1 Arrange the following computing devices in DECREASING order of their computing capabilities (from most to least powerful):
- A Mainframe, personal computer, server, PDA
 - B Server, personal computer, mainframe, PDA
 - C PDA, personal computer, server, mainframe
 - D Mainframe, server, personal computer, PDA. (1)
- 1.2 Which ONE of the following is the best way to avoid RSI?
- A Ensure that your monitor is positioned at the correct height.
 - B Ensure that your computer is in a well-lit area, avoiding glare from sunlight.
 - C Always check that the room is well ventilated.
 - D Make sure that you work with your wrists level with the keyboard. (1)
- 1.3 What runs the computer hardware and serves as a platform for other software to run on:
- A Operating system
 - B Application software
 - C System software
 - D All of the above. (1)
- 1.4 The file extension for a portable document file is:
- A AVI
 - B MP3
 - C GIF
 - D PDF. (1)
- 1.5 Which of the following is not hardware?
- A Hard disk drive
 - B Printer
 - C Microsoft Windows 7
 - D Scanner. (1)

Questions

1.6 Which of the following is not a storage device?

- A Hard disk drive
- B Flash disk drive
- C PDA
- D DVD.

(1)

(6)

Question 2: TERMINOLOGY

Choose an item/word from COLUMN B that matches a description in COLUMN A. Write only the letter (A–L) next to the question number (2.1–2.8).

COLUMN A	COLUMN B
2.1 A file extension for a graphic file.	A. CPU
2.2 The data that goes into a computer, and the instructions that people give to a computer.	B. application
2.3 List of coded instructions to tell a computer what tasks it must perform.	C. shortcuts
2.4 This part of the computer performs calculations and carries out instructions.	D. program
2.5 Icons created by a user.	E. JPG
2.6 A set of programs that work together to enable users to perform a specific type of activity.	F. MP3
2.7 A file extension associated with digital music.	G. input
2.8 The study of designing tools and equipment to be better adapted to the human body and correct body posture.	H. ergonomics
	I. PDF
	J. screenshot
	K. file type
	L. bitmaps

(8)

Question 3: Short answers

Answer the following questions:

3.1 List the stages of the information processing cycle for changing data into information. (4)

3.2 What is a file extension? (2)

(6)

[20]

Answers to questions

Question 1: Multiple choice

- 1.1 D ✓
- 1.2 D ✓
- 1.3 A ✓
- 1.4 D ✓
- 1.5 C ✓
- 1.6 C ✓ (6)

Question 2: Terminology

- 2.1 E ✓
- 2.2 G ✓
- 2.3 D ✓
- 2.4 A ✓
- 2.5 C ✓
- 2.6 B ✓
- 2.7 F ✓
- 2.8 H ✓ (8)

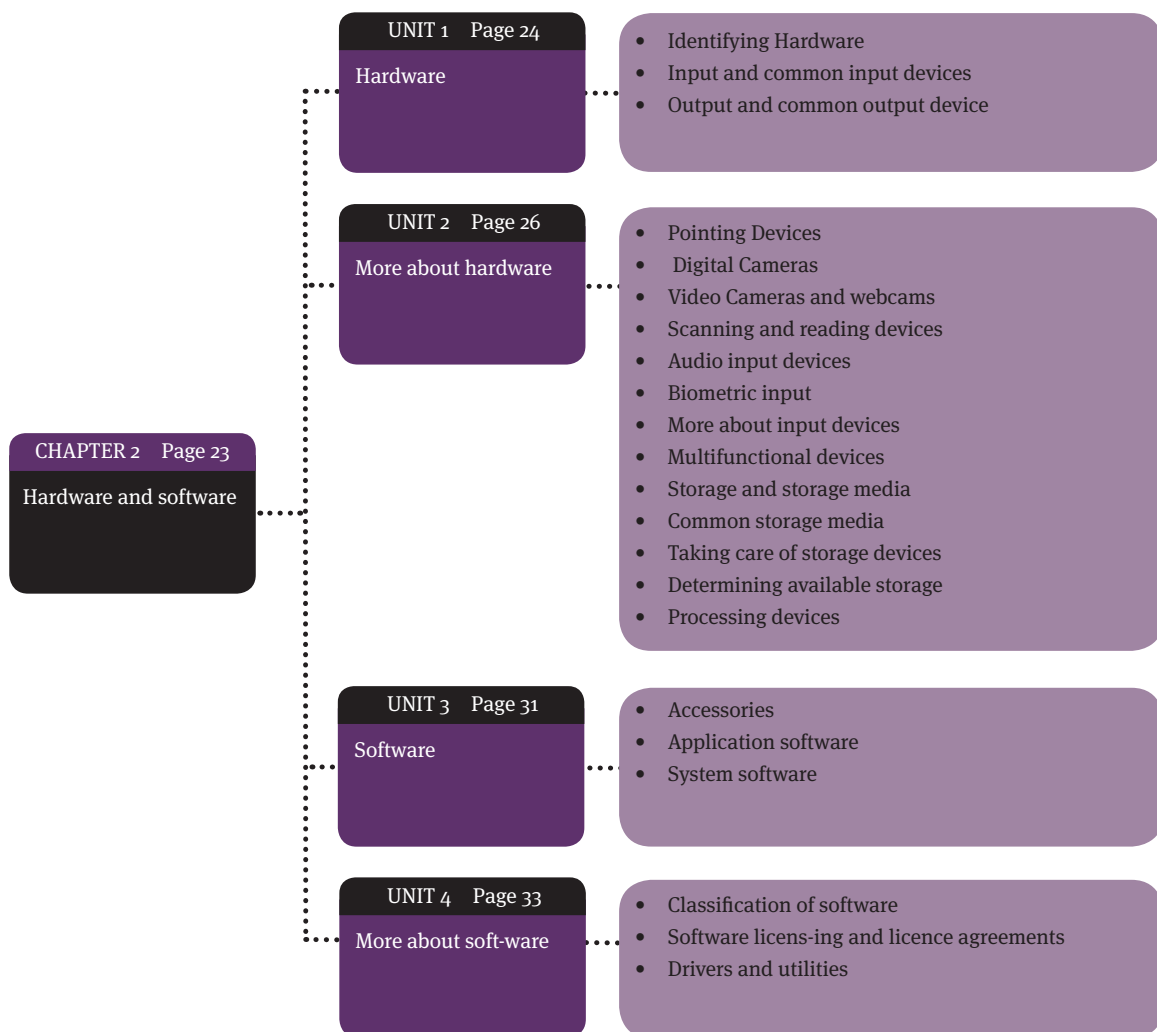
Question 3: Short answers

- 3.1 input, ✓ processing, ✓ output, ✓ storage. ✓
 - 3.2 A file extension is three or more characters ✓ that indicates the file type of a file. ✓ (6)
- [20]**

Hardware and software

Overview

This chapter broadens your knowledge of hardware and software. We will look at a range of hardware devices and various ways of classifying software. You will learn how hardware and software depend on each other. For example, an application running on a computer needs the operating system to carry out any instructions that involve hardware devices. However, the hardware devices need software, in the form of drivers, to communicate with the operating system in the first place.



Hardware

1 Identifying Hardware

- Basic hardware components that should be present for a personal computer to work are a monitor, a keyboard, a mouse and a system unit.
- Optional components include a CD or DVD drive, speakers, a scanner and a printer.
- Hardware configuration is the term used to describe the combination of hardware components in a computer system.

1.1 Ports and connectors

- The connector is the plug at the end of the cable. The connector will fit into a specific port, or socket, on the computer.
- On desktop PCs, ports are usually at the back of the system unit.
- On laptop and notebook computers, the ports are also on the sides and front of the computer.
- Examples of ports and connectors include:
 - PS/2 is a serial port, usually for a mouse or a keyboard
 - USB ports (universal serial bus) can connect up to 127 devices per port
 - a firewire port is a high speed port used for digital video cameras and devices needing high speed access
 - a network port is used to connect your computer to a network
 - connectors only fit into specific types of port – for example, a USB connector can only fit into a USB port.

2 Input and common input devices

2.1 Input

- Input is data or instructions entered into the computer.
- Input can be in the form of text, numbers, static or video images, or sound.

2.2 Common input devices

- Keyboards can be separate devices, such as those found on desktop computers, or an integral part of the computer, as with laptops.
- Touch screen devices, such as tablet computers or cell phones, use virtual keyboards on the screen.
- A mouse used to have a ball to transfer information about its movement. The newer optical mouse uses a light emitting diode (LED) to detect movement.
- A wireless mouse uses infra-red light or Bluetooth to connect to the computer.

3 Output and common output devices

3.1 Output

- Output is data or instructions that the computer produces after processing input.
- Output can be in the form of either hardcopy or softcopy.
- Softcopy is text or graphics displayed in an electronic format, usually on the monitor.
- Hardcopy is text or graphics printed out on paper.

3.2 Common output devices

Monitors:

- The advantages of LCD monitors are that they:
 - take up less desk space
 - produce less heat
 - use less electricity.
- Monitors using light emitting diodes (LED) are now replacing LCD monitors.
- LED monitors are even thinner and use less electricity than LCD monitors.
- Monitor size is measured diagonally across the monitor's display area.
- Images are produced by small coloured dots called pixels. Pixels is short for picture elements.
- The resolution of a monitor is measured in dots per inch (dpi). Resolution is determined by the number of pixels that can be displayed on the screen.

Printers:

- Inkjet printers spray tiny droplets of ink on the paper to form an image.
- A laser printer magnetises parts of the drum to form a mirror image of what is being printed. The drum picks up toner, which sticks to the magnetised parts only, and places the toner on the paper. The paper is heated to form a permanent bond between the paper and toner.
- Printer resolution is measured in dpi (dots per inch). The higher the dpi, the smaller and more numerous the dots. This results in a better quality printout.
- Inkjet printers compared to laser printers:
 - buying an inkjet printer is cheaper than buying a laser printer
 - inkjet printers produce better quality colour printouts
 - laser printers produce better quality monochrome printouts
 - laser printers are faster than inkjet printers
 - laser printer costs per page printed are cheaper than inkjet printer costs per page.

3.3 Social implications

- Practice green computing and use less paper.
 - print on both sides of the paper
 - send documents electronically instead of printing everything
 - send paper to be recycled
 - use recycled paper if possible
 - dispose of old printer cartridges in a responsible way.

More about hardware

1 Pointing devices

- Pointing devices are input devices that allow a user to control the cursor on the computer screen.
- Examples of pointing devices include:
 - touch pad – a small, rectangular pad that is sensitive to pressure and movement
 - trackball – a fixed pointing device with a movable ball on top or on the side of the keyboard
 - pointing stick – a pressure sensitive device that you push with your finger
 - touch screen – a touch sensitive screen that is touched by a finger or stylus
 - stylus – used directly on a touch screen.

2 Digital cameras

- Digital cameras store pictures on memory cards instead of film.

3 Video cameras and webcams

- Video cameras are designed to record video and audio.
- Webcams are designed to record and broadcast low quality video over the Internet.

4 Scanning and reading devices

4.1 Scanners

- A scanner will make a digital image on your computer of a hardcopy document or image.
- Scanners digitise the image scanned by converting the image into a grid of pixels.
- The three types of scanners are flatbed scanners, sheet-feed scanners and handheld scanners.

4.2 Specialised scanning and reading devices

- Scanning technology is applied in various fields.
- RFID (radio frequency identification) uses electronic markers that can be scanned for information in the same way as a barcode.
- A magnetic stripe reader reads information contained on the magnetic stripe on the back of bank cards.
- MICR (magnetic ink character recognition) devices read text printed with magnetic ink. An example is the special characters printed on the bottom of cheques.
- OMR (optical mark recognition) scanners identify and record certain marks made on paper. Machines that read lottery tickets use this technology.
- OCR (optical character recognition) software enables computers to recognise text characters on a scanned image and convert them into an electronic file.

5 Audio input devices

- Some computing devices can recognise sound and use it as input.
- A microphone is needed to record the audio signal.
- Voice recognition software translates the sound to a format that the computer can understand and process.

6 Biometric input

- Biometric input is a process that allows a unique biological feature of a person to be used as a password or in access control.
- Examples are fingerprints, handprints, voice recognition and scanning the iris of your eye.

7 More about output devices

7.1 Headsets and speakers

- Speakers are used by computers to allow audio output to be heard by the user.
- A headset is a type of speaker worn over the ears so only the user can hear the sound.

7.2 Fax machines and fax modems

- A fax machine is used to scan a document and send it over a telephone line to another fax machine which reproduces a copy of the document.
- A fax modem is a device that allows a computer to send and receive faxes.

7.3 Data projector

- Used to project the image on a computer monitor to a larger surface, such as a wall. The data projector uses a combination of processors, lenses, strong light and colour filters to project the image.
- The two basic types of data projectors are the liquid crystal display (LCD) projector, and the digital light processing (DLP) projector.

8 Multifunctional devices

- A multifunction device is able to perform the function of more than one separate device, such as a scanner, printer, copier and fax machine, but only takes up the space of a single device.

9 Storage and storage media

- Storage media are used to save data and/or information for later use.
- Storage space is measured in bytes or, more commonly, in multiples of bytes, such as megabytes (MB) and gigabytes (GB).
- A storage device is any device that offers permanent storage of data. It is important that data can be written to and retrieved from the storage device.

10 Common storage media

10.1 Hard disk

- Most data on a computer are stored in a hard disk that is built into the computer.
- A hard disk is a non-volatile storage method, in that the contents of the media are not lost when power is switched off.
- An external hard disk is a hard disk that has its own power supply outlet and is plugged into a port on the computer.

10.2 CDs, DVDs and BDs

- CDs, DVDs and BDs are optical disks used to store data. They are called optical disks because they do not rely on a magnetic surface to record data – rather they use laser technology.
 - CD – compact disk
 - DVD – originally digital video disk, now digital versatile disk
 - BD – Blu-ray disk.
- Advantages of CDs and DVDs:
 - relatively cheap
 - have a large storage space.
- DVD drives are backwards compatible with CDs.
- BDs have more storage space than CDs and DVDs so are used for high definition video.

10.3 USB flash drives

- USB flash drives are an electronic storage medium that plugs into a USB port.
- They can store large amounts of data.

10.4 Memory cards

- Memory cards are compact form of storage popular for digital cameras and cell phones.
- Memory cards have no moving parts, which makes them ideal for devices that are portable, such as digital cameras and cellular phones.

11 Care for storage devices

- Optical disks must not be scratched.
- Magnets will damage data on a hard disk but, as a sealed unit, they should be safe from water and humidity.
- Some USB flash drives are water resistant, others are waterproof, none are damaged by magnetism. To be safe, keep them out of direct sunlight or away from any other potentially damaging environment.
- Hard drives are relatively robust, but you should not drop them.

12 Determining available storage space

- Double click the My Computer/Computer icon.
- Right-click on the disk you are interested in. For instance, Local disk C: – see Figure 8.
- Click on properties on the context menu.
- The size of the drive and the available space will be displayed on the dialogue box that opens. See Figure 9.

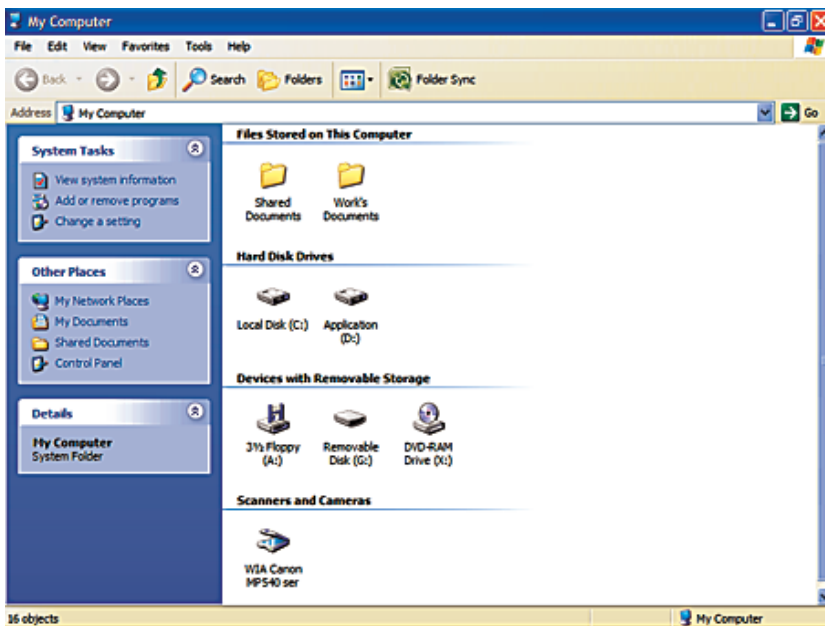


FIGURE 8 The My Computer window

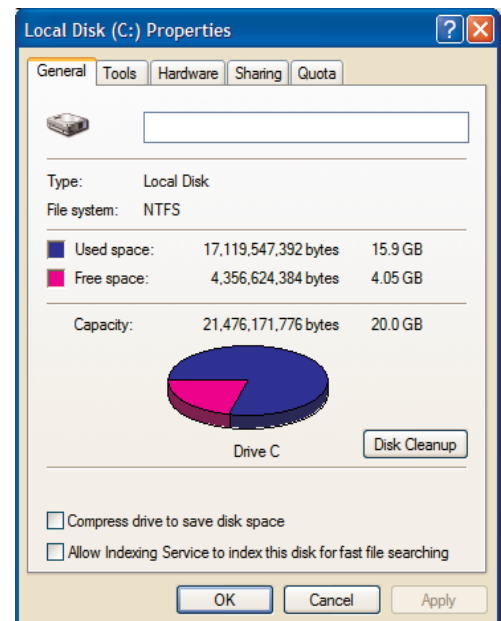


FIGURE 9 Properties window of drive C:

13 Processing devices

The motherboard is the main circuit board of the computer. This is where all of the components of a computer are interconnected.

13.1 Central processing unit (CPU)

- The CPU executes the instructions given to the computer and does the processing.
- The CPU receives and sends instructions to and from other components.
- Speed is measured in gigahertz (GHz).

13.2 Random access memory (RAM)

- RAM temporarily stores data while it is being processed by the CPU.
- RAM is a volatile memory in that data contained in RAM is lost when the supply of electricity is lost.
- RAM is regarded as the primary memory of a computer.
- Access to RAM by the CPU is much faster than it is to storage media such as hard drives.

13.3 Read only memory (ROM)

- ROM is non-volatile memory.
- Information on a ROM chip cannot be changed without a special device.
- ROM is used to store essential start-up information for the computer.

Software

Software is the intangible parts of a computer system, such as the programs and data.

- A program is a list of instructions in computer code, which tells a computer what tasks it must perform.
- The three types of software are:
 - System software, or the software that provides your interface with a computer.
 - Application software, or the software that lets you perform a specific type of activity.
 - Data files generated by applications, such as a saved document.

1 Accessories

- An operating system usually includes programs that perform specific tasks such as:
 - Calculator
 - Paint
 - Snipping tool.

2 Application software

- Application software is not designed for controlling, maintaining and securing the operation of the computer.
- Types of application software include word processing, spreadsheet, presentation, database, accounting, gaming, communication, graphics, design, and entertainment packages.
- Examples of application software include, Microsoft Office, Open Office, Pastel, Turbocash Mozilla Firefox, Photoshop, Picasso, AutoCAD, TurboCAD and Winamp.
- A multimedia program uses a combination of text, images, audio and video to interact with the user.

3 System software

- System software coordinates the activities of your computer.
- System software includes operating systems, drivers and utility programs.

3.1 The operating system and the GUI

- A GUI (Graphical user interface) uses text and graphics to provide the user with an interface for input.
- An application is generally designed for specific operating systems and are incompatible with other operating systems.
- Examples of operating systems used on personal computers are Microsoft Windows, Linux, Mac OS and Unix.

- Mobile operating systems use less storage and memory space and are designed for devices such as cellular phones.
- Examples of mobile operating systems include Symbian, Windows Phone, Android and Apple iOS.

3.2 Social implications – administering security

- Operating systems provide the user with an authentication process.
- Without the proper authentication, such as username and password, the user cannot use the computer or device.

More about software

1 Classification of software

1.1 Stand-alone versus integrated software

- A stand-alone operating system is a complete operating system installed on a personal computer.
- Examples of stand-alone operating systems are Linux, Windows and Mac OS.
- Application software may be provided as stand-alone or as an integrated package.
- An integrated package means that more than one application is bundled together and sold as a set.
- An office suite, or productivity suite, usually includes a word processor, a spreadsheet application and a slide presentation application.
- Advantages of an office suite are:
 - the user interface is the same for all the integrated applications
 - the applications are installed as a unit
 - it is generally cheaper to buy an integrated package than buy the applications separately
 - data can easily be exchanged between the applications.
- Examples of an office suite are Microsoft Office and Open Office.

1.2 Freeware versus Shareware

- Both freeware and shareware are provided free of charge.
- Freeware software is protected by copyright, but supplied free of charge. The full version of the software, including all functions, is supplied.
- Shareware software is generally limited in that it is not the full version of the software. Shareware software can be limited by:
 - certain features not being available
 - the period of time that it will work
 - the number of times it can be opened and used.

1.3 Proprietary versus Open-source software

- Proprietary software is software that you pay for.
- You do not own the software, but pay for the right to use it.
- The developer retains the copyright to the program and ownership of the software.
- The source code for the program is never released.
- The use of the software, such as the number of computers it can be used on, is restricted through a licence agreement.
- Open-source software:
 - is free to use
 - has no copyright restrictions
 - has no restriction as to the number of computers it can be used on

- source code is available for free and may be edited
- may be distributed in a changed form, subject to the original licence agreement terms.
- Disadvantages of open-source software:
 - little assistance or support to users from the distributor
 - relatively few books or training available.

2 Software licensing and licence agreements

- When buying and installing software the user agrees to the terms and conditions contained in the licence agreement, which may include:
 - the software may not be installed on more than one machine
 - no copies of the software may be made and/or sold
 - no changes may be made to the software.
- The three types of End User Licence Agreements (EULA):
 - Single-user licence – only on one computer at a time
 - Multi-user licence – more than one computer at a time, as stipulated in the licence agreement
 - Site licence – any number of computers, as long as the computers are owned by the same company.
- Piracy is the act of making illegal copies of movies, music and software, usually on CDs and DVDs, and selling them.
- Creative commons copyright agreements allow for copyrighted material to be used free of charge under certain circumstances.

3 Drivers and utilities

- Drivers are small programs that act as a translator between the operating system and a specific hardware device.
- Utility programs, or utilities, enable a user to carry out specific tasks.
- Examples of utility programs are:
 - disk cleanup, a program that automatically deletes files and folders that are not needed
 - compression programs, such as Winzip, used to reduce the size of files to save storage space
 - backup programs make copies of data for safe, off-site storage.

Questions

Question 1: Multiple choice

Choose the correct answer. Only write the letter of the answer you select.

1.1 Which one of the following is not classified as hardware?

- A CD
- B Monitor
- C Data projector
- D Laptop. (1)

1.2 This type of high speed port is used to connect a digital video camera.

- A USB
- B Firewire
- C Network
- D PS/2. (1)

1.3 This type of port is used by a mouse or a keyboard.

- A USB
- B Firewire
- C Network
- D PS/2. (1)

1.4 Input can be in the form of:

- A User commands
- B Programs
- C User response
- D All of the above. (1)

1.5 Which one of the following hardware devices is measured diagonally?

- A Printer
- B Scanner
- C Monitor
- D CPU. (1)

1.6 Which one of the following is NOT classified as a pointing device?

- A Scanner
- B Trackball
- C Stylus
- D Mouse. (1)

Questions

- 1.7 Which one of the following acronyms can be associated directly with a scanner?
- A CPU
 - B OCR
 - C RAM
 - D RSI.
- (1)
- 1.8 Which one of the following is NOT an example of biometric input?
- A Handprint
 - B Fingerprint
 - C Scanning the iris of your eye
 - D Password.
- (1)
- 1.9 Which one of the following is NOT an example of an output device?
- A Data projector
 - B Hard drive
 - C Headset
 - D Modem.
- (1)
- 1.10 Which one of the following is volatile memory?
- A Hard drive
 - B CD
 - C Flash drive
 - D RAM.
- (1)
- (10)**

Questions

Question 2: Terminology

Choose an item/word from COLUMN B that matches a description in COLUMN A. Write only the letter (A–K) next to the question number (2.1–2.7).

COLUMN A	COLUMN B
2.1 This port can connect up to 127 devices.	A. Webcam
2.2 An optical mouse uses this to detect movement.	B. Pixels
2.3 Used as a type of integrated mouse on a laptop.	C. RFID
2.4 Tiny coloured dots on the monitor.	D. dpi
2.5 Print resolution is measured in this.	E. USB
2.6 Designed to broadcast low quality video over the Internet.	F. Microphone
2.7 Device used to record audio.	G. Video camera
	H. Touchpad
	I. LED
	J. CPU
	K. MP3

(7)

Question 3: SHORT ANSWERS

Answer the following questions:

- 3.1 Briefly explain the meaning of hardware configuration. (2)
- 3.2 Briefly explain the difference between softcopy and hardcopy. (2)
- 3.3 Name three advantages of an LCD monitor. (3)
- 3.4 Compare laser and inkjet printers under the following headings:
- 3.4.1 speed (2)
- 3.4.2 cost of purchase (2)
- 3.4.3 running costs (2)
- 3.4.4 colour printing (2)
- 3.4.5 monochrome printing. (2)
- (17)

Question 4: short answers

Answer the following questions:

- 4.1 Name one advantage and one disadvantage of a digital camera compared to a film camera. (2)
- 4.2 Explain briefly what the acronym RFID means. (2)
- 4.3 List two uses of voice input. (2)
- 4.4 What is the purpose of a fax modem? (2)

Questions

- 4.5 Name two advantages of using CDs as a backup medium. (2)
 - 4.6 Why is a memory card a good solution for storage on portable devices? (1)
 - 4.7 Describe the process of checking the available storage space on a disk drive. (3)
 - 4.8 Name two aspects of RAM that differentiate it from any other memory. (2)
- (16)**

Question 5: Short answers

Answer the following questions:

- 5.1 Define software. (2)
 - 5.2 Name two accessories that are standard on a Windows operating system. (2)
 - 5.3 Name three examples of application software. (3)
 - 5.4 What is a GUI? (1)
 - 5.5 Name two examples of mobile operating systems. (2)
 - 5.6 Describe the authentication process on most computers. (2)
- (12)**

Question 6: Short answers

Answer the following questions:

- 6.1 What are the advantages of buying an office suite? (4)
 - 6.2 Explain the difference between freeware and shareware. (2)
 - 6.3 Describe proprietary software. (2)
 - 6.4 Name four advantages of using open-source software. (4)
 - 6.5 Name two possible disadvantages of open-source software. (2)
- (14)**
[76]

Answers to questions

Question 1: Multiple choice

- 1.1 A ✓
- 1.2 B ✓
- 1.3 D ✓
- 1.4 D ✓
- 1.5 C ✓
- 1.6 A ✓
- 1.7 B ✓
- 1.8 D ✓
- 1.9 B ✓
- 1.10 D ✓ (10)

Question 2: Terminology

- 2.1 E ✓
- 2.2 I ✓
- 2.3 H ✓
- 2.4 B ✓
- 2.5 D ✓
- 2.6 A ✓
- 2.7 F ✓ (7)

Question 3: Short answers

- 3.1 Hardware configuration is the combination of interconnected components in a computer system. ✓✓
- 3.2 Softcopy is text or graphics displayed or stored in an electronic format. ✓ Hardcopy is text or graphics printed on paper. ✓
- 3.3 LCD monitors take up less desk space, ✓ produce less heat, ✓ use less electricity. ✓
- 3.4 Compare laser printers to inkjet printers:
 - Laser printers are faster than inkjet printers. ✓✓
 - Buying an inkjet printer is cheaper than a laser printer. ✓✓
 - Printing costs per page are cheaper on laser printers than inkjet printers. ✓✓
 - Inkjet printers produce better quality colour printouts. ✓✓
 - Laser printers produce better quality monochrome printouts than inkjet printers. ✓✓(17)

Answers to questions

Question 4: short answers

- 4.1 Digital cameras are more expensive to buy than film cameras, ✓ but cheaper to use than film cameras. ✓
- 4.2 RFID stands for radio frequency identification. It is electronic markers that can be scanned for information in the same way as a barcode. ✓✓
- 4.3 Examples of uses for voice input: (any 2)
- voice-activated dialling on a cellular phone ✓
 - a word processing program that recognises and enters what you are saying ✓
 - voice recognition in the place of a text password. ✓
- 4.4 A fax modem allows a computer to send and receive faxes. ✓✓
- 4.5 They are relatively cheap ✓ and have a large amount of storage space. ✓
- 4.6 Memory cards have no moving parts, which make them ideal for devices that are portable, such as digital cameras and cellular phones. ✓
- 4.7 Storage space check: (any 3)
- double click the My Computer/Computer icon ✓
 - right-click on the disk you want to check, such as, local disk C: ✓
 - click on properties on the context menu ✓
 - The size will be displayed in the dialogue box that opens. ✓
- 4.8 Volatile ✓ and fast. ✓

(16)

Question 5: Short answers

- 5.1 Software is the intangible parts of a computer system, such as the programs and data. ✓✓
- 5.2 Windows accessories: (any 2)
- Calculator ✓
 - Paint ✓
 - Snipping tool. ✓
- 5.3 Application software: (any 3)
- word processing, ✓ spreadsheet, ✓ presentation, ✓ database, ✓ accounting, ✓ games, ✓ communication. ✓
- 5.4 A graphical user interface. ✓
- 5.5 Mobile operating systems: (any 2)
- Symbian, ✓ Windows Phone, ✓ Android, ✓ Apple iOS ✓
- 5.6 Enter a username and password. ✓✓

(12)

Answers to questions

Question 6: Short answers

6.1 Office suite:

- The user interface is the same for all the programs. ✓
- Applications are installed as a unit. ✓
- Cheaper to buy the office suite than buying the applications separately. ✓
- Data can be exchanged easily between the packages. ✓

6.2 Freeware software is the full version of the software, including all functions.

✓ Shareware software is not the full version of the software and is limited in some way. ✓

6.3 Software that you pay for ✓ and may not copy or distribute. ✓

6.4 Advantages of open-source software: (any four)

- free to use ✓
- no copyright restrictions ✓
- no restriction on the number of computers on which it can be installed ✓
- source code is available for free and may be edited ✓
- Software may be distributed. ✓

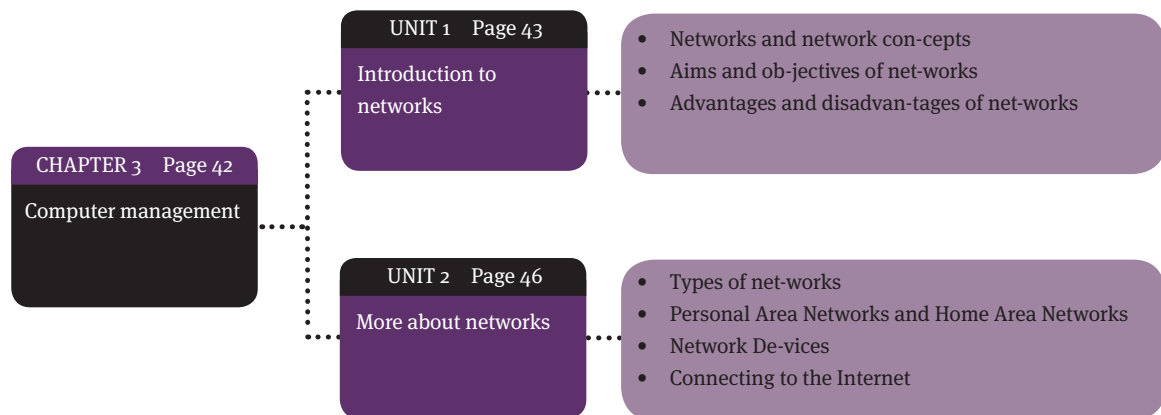
6.5 Little assistance or support to users ✓ relatively few books or training available. ✓

(14)

[76]

Overview

This chapter introduces you to some basic computer network concepts. We look at the aims and objectives of networks in general, as well as their advantages and disadvantages. This unit also deals with some of the social implications of networks, particularly with legal, ethical and security issues. Unit 2 focuses on personal area networks (PAN) and home area networks (HAN). It also deals with network devices and the requirements for setting up an Internet connection.



Introduction to networks

1 Networks and network concepts

- Computer network – two or more computers or computing devices that are connected to each other.
- Networks allow communication between networked devices.
- Communication channel – the link, either cable or wireless, through which communication takes place.
- Examples of communication channels:
 - wires and cables, such as twisted pairs of copper wire or fibre optic cable.
 - wireless connections, such as Bluetooth.
- Examples of networks:
 - two computers connected with a cable to play games
 - a cellular phone with a wireless connection to a computer.
- Large networks have computers that are connected to a central computer, called a network server or fileserver.
- The computers connected to the network are called network clients in a client-server network.
- The network server is the main computer that controls communication and functions such as central file storage.
- A network administrator oversees network operations.
- Administrator tasks include:
 - adding users, computers and devices to the network
 - removing users when required
 - allocating access rights or access restrictions to certain files/folders.
- Client-server networks:
 - one or more powerful computers control the network
 - less powerful computers connect and use the network.
- Peer-to-peer networks:
 - Smaller networks – often limited to four or five computers
 - no network server
 - all users and computers have the same level of control.

2 Aims and objectives of a network

- Easily share data and resources.
- Provide connection between computing devices.
- Safe working environment to store, receive and send data from one computer to another.
- Sharing devices, such as printers, to save costs.
- Provide a way in which people in different places can communicate with each other.

3 Advantages and disadvantages of networks

3.1 Advantages of networks

- Easier communications – users can easily communicate with one another via the network.
- Data and information transfer – users can transfer or copy data directly from one computer to another.
- Electronic funds transfer (EFT) – users connected to the Internet can transfer money from one account to another.
- Device sharing – users can share devices, such as printers and scanners.
- Centralised storage – users can store and access data stored in one central location.
- Increased security – the network administrator can determine who has what rights to what data.
- Program installation and updates – software applications can be upgraded or installed from one central location.
- Easier backups – with data in a central location, backups are easy to do.

3.2 Disadvantages of networks

- Management – a network specialist is needed to install the network and a network administrator required to administer and control usage.
- Viruses can spread rapidly on networks because the computers are connected.
- A computer virus is a computer program designed to spread to other computers. The purpose of a virus is to disrupt the normal operation of infected computers.
- Viruses may be spread through CDs, DVDs, flash drives, networks, online services and the Internet.
- Security – since computers are interconnected, users may try to access sensitive or restricted information through the network.

3.3 Social implications

- Precautions should be taken against the spread of viruses. These include:
 - installing an anti-virus program
 - keeping the anti-virus program up to date.
- Licensing:
 - to share software on a network you need a network licence that allows more than one user to use the software
 - the licence fee is based on the number of computers attached to the network
 - a site licence is a legal agreement that allows users to install the software on multiple computers.
- Ownership of electronic material:
 - accessing data that is not your own property is against the law
 - copyright – you may not copy information from the Internet and use it without permission.

- An acceptable computer usage policy (AUP) outlines the rules for the use of computer equipment and procedures to prevent unauthorised access to data on the network.
- Examples of rules in an acceptable usage policy (AUP) may include:
 - no private work on the computers without permission
 - no personal e-mail or Internet surfing
 - e-mail must contain a disclaimer stating that the company does not accept responsibility for the content of unofficial e-mail
 - may not access a computer that is used by a fellow worker
 - may not install company software on their private computers
 - may not install unauthorised software on the company computers.

More about networks

1 Types of networks

- A personal area network (PAN) or home area network (HAN) is limited to a small area, such as a small office or a home.
- A local area network (LAN) or wireless local area network (WLAN) is generally a larger network, but still limited to one building, such as an office building.
- A wide area network (WAN) is a number of LANs in different buildings or cities connected into one network.
- The Internet is the largest network in the world, joining private networks and computers all around the world by satellite and telephone into one, huge network.

2 Personal area and home area networks

- A Pan is a network created by connecting personal computing devices, such as cellular phones or PDAs.
- A PAN will extend to within only a few metres of the user.
- A HAN is a network connecting two or more computing devices within a home. A HAN will allow shared access to the Internet or to printers and scanners.
- To create a PAN or a HAN you need:
 - at least two computing devices
 - a channel of communication, such as cables or Bluetooth.

Advantages of PANs and HANs

- Share a single high-speed Internet connection.
- Access files and programs on other computers on the network.
- Share other hardware devices such as a printer or a scanner.
- Play computer games against each other.
- Use the network connection for voice conversations.
- Transfer pictures, music or other data from one device to another.
- Synchronise data between two devices.

Disadvantages of using a PAN or a HAN may include:

- security risks, especially when a wireless connection is used.
- the need to ensure that network devices are compatible with one another.
- the costs for setting up a PAN or a HAN.

3 Network devices

You will require specific hardware devices to create a network and to connect to the Internet.

3.1 Modem

- A modem enables computers to send and receive data via a telephone line.
- Modem stands for modulator demodulator.
- A modem translates digital signals from the computer into analogue signals for transmission over a telephone line, and analogue signals into digital signals for use by another computer.

3.2 Router

- Forwards data from one network to another along the most efficient route.
- In small networks, such as a HAN, it is used to connect to the Internet.

3.3 Switch

- A hardware device that links multiple computers together in a network.
- A switch analyses the data received and passes it on to its destination.

4 Connecting to the Internet

4.1 Software requirements

- An operating system that supports Internet connectivity.
- A web browser is needed to display web pages and websites.

4.2 Hardware requirements

- A computing device, such as a computer or a smartphone.
- A communications channel, such as a telephone line or ADSL line.
- A modem if you use a telephone line, or a router if you use an ADSL line, to connect your computing device to the Internet.

4.3 Internet service provider (ISP)

You will need an account with an ISP to connect to the Internet.

- An ISP is a company that has a permanent, fast connection to the Internet.
- users connect to the Internet through the ISP.
- ISPs prefer to charge a monthly fee for the connection, but prepaid packages are available.

Questions

Question 1: Multiple choice

Choose the correct answer. Only write the letter of the answer you select.

1.1 Which one of the following will not be classified as a computing device?

- A Computer
- B Server
- C Cable
- D Laptop. (1)

1.2 A powerful central computer in a network is called a:

- A Server
- B Workstation
- C Peer
- D None of the above. (1)

1.3 Which one of the following is not an example of an administrator's tasks?

- A Adding new users to the network
- B Changing passwords that users have forgotten
- C Adding restrictions on certain files/folders
- D ALL of the above are examples of tasks done by the administrator. (1)

1.4 What is an EFT?

- A A security protocol on the Internet
- B A new type of e-mail
- C An electronic fund transfer
- D None of the above. (1)

1.5 A virus is classified as:

- A Hardware
- B Software
- C None of the above
- D Classified as both hardware and software. (1)

1.6 Rules that restrict the use of computer equipment in a company:

- A CPU
- B AUP
- C ISP
- D CSI. (1)

Questions

- 1.7 Which one of the following is a large network covering a wide geographic area.
- A WAN
 - B LAN
 - C PAN
 - D HAN.
- (1)
- 1.8 Which one of the following is a company that provides an Internet connection to users?
- A RSI
 - B URL
 - C ISP
 - D CTS.
- (1)
- 1.9 Which one of the following devices can connect networks together?
- A Router
 - B Connector
 - C Modem
 - D Server.
- (1)
- 1.10 Which one of the following is a wireless communications medium?
- A USB
 - B Infra-red
 - C Bluetooth
 - D Both options B and C.
- (1)
- (10)**

Questions

Question 2: Terminology

Choose an item/word from COLUMN B that matches a description in COLUMN A. Write only the letter (A–L) next to the question number (2.1–2.8).

COLUMN A	COLUMN B
2.1 Collection of computers connected via a communications medium.	A. Server
2.2 Device that is used to change data into analogue signals.	B. Virus
2.3 Computers that have equal rights on a network.	C. Router
2.4 Central location where security rights on a network are handled.	D. Printer
2.5 Rules for using a computer in a workplace.	E. Administrator
2.6 Program created to interrupt the normal working of a computer.	F. Modem
2.7 Person who oversees the running of a network.	G. Boss
2.8 Making a copy of data on the server or on a computer.	H. Network
	I. Peer
	J. USB
	K. Acceptable usage policy (AUP)
	L. Backup

(8)

Question 3: Short Answers

Answer the following questions:

- 3.1 Name three examples of communication channels that can be used to form a network. (3)
- 3.2 Name two examples of computer networks. (2)
- 3.3 Define the term server. (2)
- 3.4 Name three tasks performed by a network administrator. (3)
- 3.5 List two differences between a client-server network and a peer-to-peer network. (2)
- 3.6 Name three aims and objectives of a network. (3)
- 3.7 For each of the following headings, indicate whether it is an advantage or disadvantage. Motivate your answer in each case.
 - 3.7.1 Sharing devices. (2)
 - 3.7.2 Centralised storage. (2)
 - 3.7.3 Program installation and backups. (2)
 - 3.7.4 Data transfer. (2)
 - 3.7.5 Security. (2)
 - 3.7.6 Management. (2)
- 3.8 Name two ways in which you can prevent virus infections on a network. (2)
- 3.9 Name three examples of restrictions that may appear in the acceptable user policy of a school. (3)

(32)

Questions

Question 4: SHORT ANSWERS

- 4.1 Briefly describe the main differences between a LAN, PAN and a WAN. (3)
 - 4.2 What do you need to create a PAN? (2)
 - 4.3 Name three advantages of a PAN/HAN. (3)
 - 4.4 Name two disadvantage of a PAN/HAN. (2)
 - 4.5 In each of the following cases, explain what the function of each device will be in a computer network:
 - 4.5.1 Modem. (1)
 - 4.5.2 Router. (1)
 - 4.5.3 Switch. (1)
 - 4.6 What are the four items needed in order to connect to the Internet? (4)
 - 4.7 What is an ISP? (3)
- (20)**
[70]

Answers to questions

Question 1: Multiple choice

Choose the correct answer. Only write the letter of the answer you select.

1.1 C ✓

1.2 A ✓

1.3 D ✓

1.4 C ✓

1.5 C ✓

1.6 B ✓

1.7 A ✓

1.8 C ✓

1.9 A ✓

1.10 D ✓

(10)

Question 2: Terminology

2.1 H ✓

2.2 F ✓

2.3 I ✓

2.4 A ✓

2.5 K ✓

2.6 B ✓

2.7 E ✓

2.8 L ✓

(8)

Question 3: Short answers

3.1 Cables, ✓ telephone system, ✓ wireless connection. ✓

3.2 Two computers connected with a cable to play games. ✓ A cellular phone with a wireless connection to a computer ✓ (any other valid answers)

3.3 A powerful centralised computer ✓ that controls communications, data storage and functions. ✓

3.4 A network administrator adds users, computers and devices to the network, ✓ removes users when required, ✓ restricts access to certain files or folders. ✓

3.5 Client-server and peer-to-peer network: (any 2)

- Computers on a peer-to-peer network have equal rights ✓ peer-to-peer networks do not have a server, ✓ peer-to-peer networks are usually limited in size. ✓

Answers to questions

3.6 Network objectives: (any 3)

- Easily share data and resources, ✓ provide a connection between computing devices, ✓ safe working environment to store, receive and send data, ✓ sharing devices, such as printers and scanners ✓ provide a way in which people in different places can communicate with each other. ✓
- 3.7.1 Advantage, ✓ cheaper to share devices such as printers and scanners. ✓
- 3.7.2 Advantage, ✓ easier to control and manage data as in one place. ✓
- 3.7.3 Advantage, ✓ programs can be installed for the whole network and backups can be done from one central place. ✓
- 3.7.4 Advantage, ✓ can be done without the need for portable storage devices. ✓
- 3.7.5 Disadvantage OR advantage, ✓ since the computers are linked, it is easier for hackers to try to get to important data OR security on data can be set and controlled on the server. ✓
- 3.7.6 Disadvantage, ✓ on larger networks a system administrator will be needed to keep the network running and this could be expensive. ✓

3.8 Viruses: (any 2)

Scan storage devices before using them, ✓ install an anti-virus system, ✓ update the anti-virus system regularly ✓ be wary of untried websites. ✓

3.9 AUP restrictions: (any 3)

No private work on the computers without permission, ✓ no personal e-mail or Internet surfing, ✓ e-mail must contain a disclaimer, ✓ may not access a computer that is used by a fellow-worker, ✓ may not install company software on private computers, ✓ may not install unauthorised software on the company computers. ✓

(32)

Question 4: Short answers

- 4.1 A PAN or HAN is limited to a small area, such as a small office or a home. ✓
A LAN is a larger network such as those used by businesses. ✓
A WAN is a number of LANs in different buildings or cities connected into one large network. ✓
- 4.2 At least two computing devices, ✓ communication channels, such as cables or Bluetooth. ✓
- 4.3 Advantages of a PAN/HAN: (any 3)
- Share a single high-speed Internet connection ✓
 - access files and programs on other computers on the network ✓
 - share hardware devices such as a printer or a scanner ✓
 - play computer games against each other ✓

Answers to questions

- use the network connection for voice conversations ✓
- transfer pictures, music or other data from one device to another. ✓

4.4 Disadvantage of a PAN/HAN: (any 2)

- security risks, especially with a wireless connection ✓
- network devices must be compatible with one another ✓
- possible high costs for setting up a PAN or a HAN. ✓

4.5 Network devices:

4.5.1 A modem enables computers to send and receive data via a telephone line. ✓

4.5.2 A router forwards data from one network to another via the most efficient route. ✓

4.5.3 A switch is a device that links multiple computers in a network. ✓

4.6 A computing device, such as a computer or a smartphone, ✓ communications channel, such as a telephone line, ✓ a modem or router to connect your computing device to the communication channel, ✓ an Internet service provider. ✓

4.7 An ISP is a company that has a permanent, fast connection to the internet.

✓ Users connect to the internet through the ISP. ✓ ISPs charge a fee for the connection, either as a monthly debit or as a prepaid package. ✓

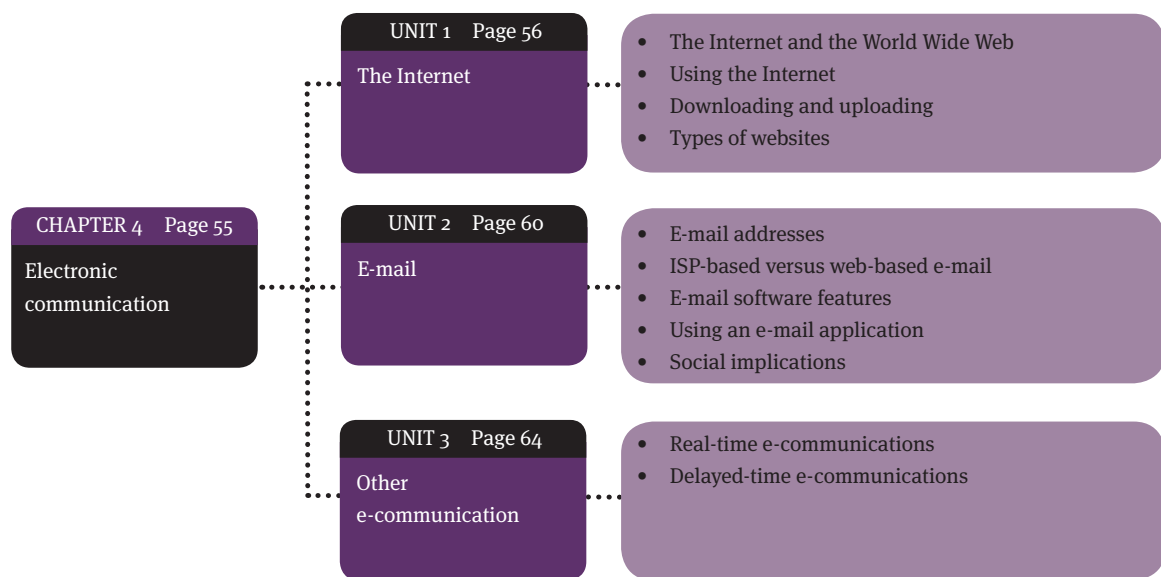
(20)

[70]

Electronic communication

Overview

Chapter 4 deals with the Internet in Unit 1, e-mail in Unit 2 and other e-communication in Unit 3. You are introduced to browsers, websites, search engines and searching techniques. You will learn how e-mail works, how it is used, the social implications of the Internet and e-communication.



The Internet

1 The Internet and the World Wide Web

- The Internet is a worldwide network of computers that access one another through servers and global telecommunication systems.
- The Internet is a form of electronic communication (e-communication).
- It is used for communication, such as e-mail, and access to information or entertainment,.
- The Internet is not under central control.
- Communication is enabled through the use of a network of cables, telephone lines and communication satellites.
- The Internet is also known as the net, the web or cyberspace.
- Internet access is possible from home, work, Internet cafés, libraries and hotspots.
- A hotspot is wireless Internet connectivity in a public area, such as an airport. Users can access the Internet using mobile devices such as laptops.

1.1 The World Wide Web

- The World Wide Web (WWW) is the multimedia section of the Internet. It provides access to files from a huge collection of documents on computers all across the world.
- A web server is a computer that hosts a website.
- A website is a set of related webpages.
- A Homepage is the main page of a website. Generally, it is the first page displayed when the website is accessed.
- Webpages have the ability to display a combination of text, images and audiovisual files. This combination of data is called multimedia.
- A hyperlink is an electronic shortcut that, when you click it, takes you somewhere else. It may take you to another part of that webpage, to another webpage, or to a different website.
- Links can take the form of:
 - blue underlined text
 - text that is not underlined but in bold or in a different font colour
 - images, such as photos or logos
 - items in a menu list.
- Hyperlinks can also be found in documents other than a webpage. They may link to a different part of the document, to another document or to a website.
- To remove a link from a document, right-click the link, click on Remove hyperlink.

1.2 HTML

- Hypertext markup language (HTML) is used to create webpages.
- HTML is a system of computer coding to specify the layout and appearance of webpages.
- Internet documents that are not encoded in HTML are not webpages.
- It is HTML that enables a webpage to display multimedia and to use hyperlinks.

1.3 Internet addresses

- URL stands for uniform resource locator and is a unique Internet address for each webpage/website.
- For example, in the URL: `http://www.education.gov.za`
- `http` – hypertext transfer protocol, which is the set of rules used for transmitting web pages.
- `www` indicates that this is a webpage, or part of the World Wide Web.
- `education` – is the domain name, a word or phrase that an Internet site has registered as the name of its Internet address.
- `gov` – this is a government site. Other of examples Internet sites are:
 - `.com` – commercial
 - `.ac` – academic, such as universities
 - `.co` – company
 - `.org` – non-profit organisations.
- `za` – Country code, in this case, South Africa. Other examples of country codes are:
 - `.au` – Australia
 - `.uk` – United Kingdom
 - `.de` – Germany.

2 Using the Internet

- To access the Internet, you need a telephone line or ADSL line, a computing device, a web browser, and an ISP.

2.1 Web browsers and search engines

A web browser is an application that displays webpages on your computing device. Examples of web browsers are Google Chrome, Mozilla Firefox, Internet Explorer, Safari and Opera.

- Browsing the web means that you are accessing, looking at, and reading webpages.
- A search engine is a website that searches the Internet for information based on a word or phrase that you enter. The search engine displays links to websites that contain the word or phrase you entered.
- Examples of search engines are Google, Yahoo, Ananzi and Aardvark (South African).

- Some search engines are specialised and designed for a specific purpose. For example: www.ask.com gives answers framed in simple language, www.blinkx.com specialises in video searches, www.kidsclick.org – created by librarians for children.
- The following buttons can be used in a web browser (see Figure 10):
 - back – returns you to the previous page opened
 - forward – takes you to the next page, if you had been on another page in that session
 - refresh/reload – refreshes the display of the webpage
 - stop – stops loading the webpage.

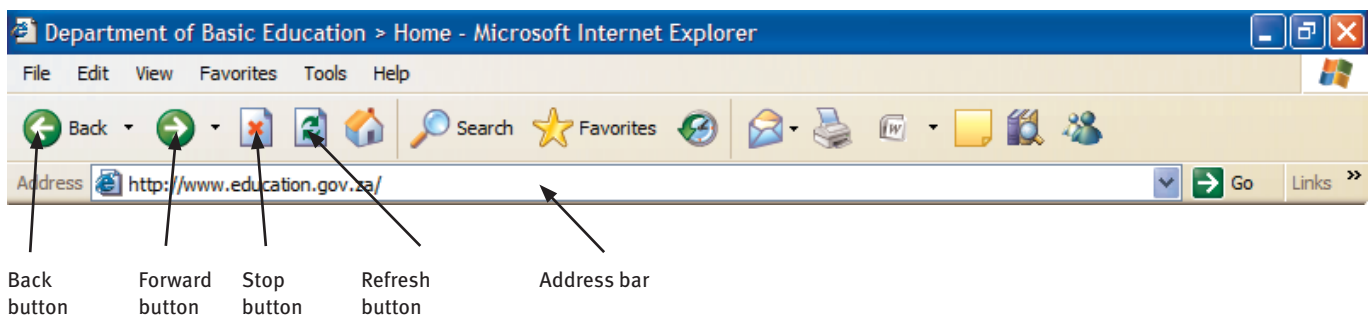


FIGURE 10 The navigation buttons and address bar of Internet Explorer

- Using a web browser:
 - Click on your web browser icon, for example, Internet Explorer
 - Type a URL, such as www.education.gov.za, in the address bar and press the Enter key.
 - The website for the Department of Education should open.
- Using a search engine:
 - Type a search engine name into the address bar, for instance, www.google.co.za and press enter.
 - Type your search word or phrase into the search box.
 - Click on Search.
 - Click on the links displayed to open the websites found.

2.2 Browsing and searching techniques

- Search query – used to search for information on a topic that you specify.
- Search techniques:
 - be short and specific, use single keywords or short phrases instead of a full sentence
 - use pre-defined search keywords, such as, define URL to get a definition, or Presidents 1994...2002 for data in a specific data range
 - use quotation marks to force the search to look for an exact phrase
 - include capitalised OR to look for more than one term, but not both, as in “cats OR dogs”
 - use search operators such as the plus sign (+) to include specific words
 - use the minus sign (-) to exclude specific items, such as, cricket - insect, to get data on the sport only.

2.3 Tabbed browsing

- A tabbed browsing interface (TBI) allows you to have several pages open on one browser window.
- A TBI:
 - makes it easy to switch between pages
 - keeps a specific page open while opening a link on a new tab
 - allows you to go back to a previous webpage without using the back button.

3 Downloading and uploading

- Download transfers files from a web server to your computer.
- Upload transfers files from your computer to a web server.
- To download an image from a webpage:
 - right-click the image
 - select Save Picture As
 - Type a name in the Filename field
 - Click Save.

4 Types of websites

- Websites can be categorised by:
 - purpose
 - contents
 - commercial or non-commercial.

Examples of website classification categories:

- Portal websites, such as Google and Yahoo, provides lists of links to other websites.
- News websites, such as News24, contain articles on current affairs, sport, weather, etc.
- Information websites, such as Wikipedia, contain factual information used for research.
- Business and commercial websites, such as Flysaa and Kalahari.net, market services or products.
- Personal websites are created by individuals to promote or showcase their interests or hobbies.
- Blog (from web + log) is an online diary, such as somethoughts.blogspot.com
- Online social networks, such as Facebook and Twitter, enable people to stay in touch around the world or interact with special interest groups.
- Entertainment websites offer online entertainment such as movies, games, etc.
- Advocacy websites present the ideas and opinions of particular groups, such as Greenpeace.
- Content aggregators, such as popurls.com and blogpulse.com, are search engines that collect content on a specific topic from various online sources and present it at a single location.

E-mail

E-mail, or electronic mail, is a method of communication where messages are exchanged between computing devices.

- An e-mail application is a program used to send, receive and manage e-mails.
- An attachment is a file, such as a photo or text document, sent with an e-mail.

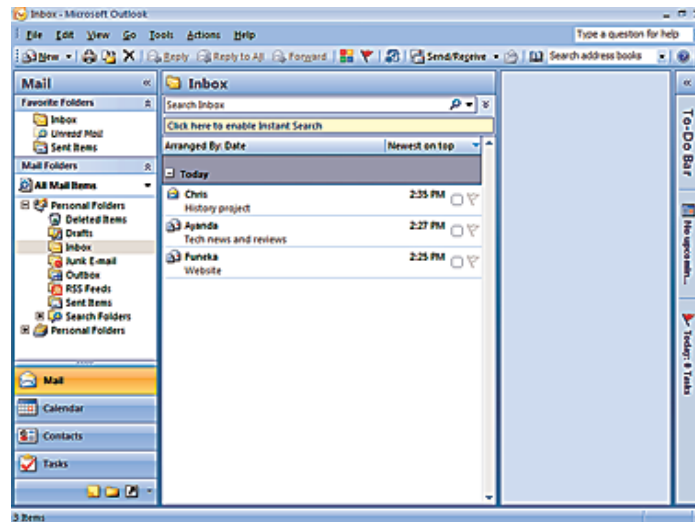


FIGURE 11 Messages displayed in an inbox

1 E-mail addresses

- E-mail addresses are recognised by the @ symbol.
- An e-mail address is made up of different parts, called its taxonomy.
- For example: brains@mweb.co.za, where:
 - brains is the user name, which is chosen by the user
 - @ the symbol indicating an e-mail address
 - mweb is the domain name of the ISP
 - .co is the type of organisation
 - .za is the geographic location.

2 ISP-based versus web-based e-mail

2.1 ISP-based e-mail

- When you enter into a contract with an ISP, you receive an e-mail account, password and a mailbox.
- All e-mails to you are stored by the ISP on their system until you retrieve them.
- E-mail is retrieved by using an e-mail application such as Windows Mail.

2.2 Web-based e-mail

- Web-based e-mail (or webmail) is a free e-mail service such as Hotmail or Gmail.
- It can be accessed via a webpage anywhere in the world.

2.3 Disadvantages of webmail

- You have to be online while reading and writing e-mail messages.
- You cannot edit a message while you are working offline, unless you cut and paste the text into a word processor.

3 E-mail software features

- E-mail applications allow you to:
 - send and receive messages and reply to received messages
 - forward received messages to other people
 - attach files to any e-mail, or receive attached files
 - receive notification when your e-mails cannot be delivered
 - set up and manage an address book with all the particulars of your contacts
 - automatically file incoming e-mail messages so that you can manage them easily.

4 Using an e-mail application

4.1 Composing new e-mail messages

- Procedure may vary, depending on the application you use, but should follow steps such as:
 - click on Compose a message, New Message or Create Mail depending on your application
 - enter an e-mail address in the To field – this should be the address of the person to whom you are writing
 - enter a heading in the Subject field
 - type the e-mail message in the message field
 - cc (carbon copy) field – address of someone who should receive a copy of the e-mail
 - bcc (blind carbon copy) field – address of someone that should receive a copy without other receivers knowing this
 - click the Send button to send the message.

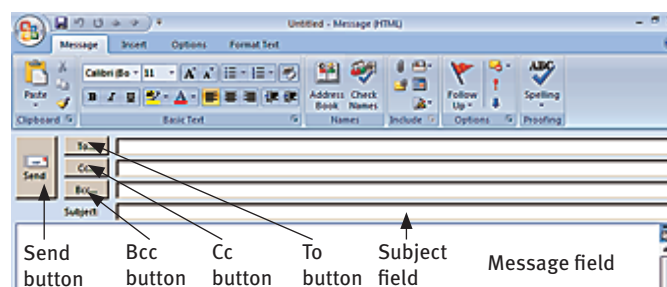


FIGURE 12 The new message window

4.2 Replying to, forwarding and deleting e-mail messages

- To reply to an e-mail, open the message.
- Click the Reply or the Reply to All button
 - the Reply button only replies to the sender of the message
 - the Reply to All button replies to all the recipients of the message.
- Click on the Forward button if you want to send the e-mail to a recipient other than those who have already received the e-mail.
- Add your reply, or comments to a forwarded e-mail, as you would with any other e-mail.
- Click Send when you are finished.
- To delete a message that you no longer need, right-click that message and select Delete.
- Depending on your application settings, the deleted e-mail should go to a Deleted items folder.

4.3 Attaching files to e-mail messages

- In the opened e-mail, click the Attach button. On some applications this is indicated with a paperclip as an icon.
- In the Insert attachment dialogue box, select the file to be attached and click attach.

4.4 Checking the spelling in an e-mail message

- Many email applications give you tools to correct spelling mistakes.
- Some applications underline errors and allow you to right click and choose the correct words.
- Other applications allow you to run a spell check tool.

5 Social implications

5.1 Appropriate communication etiquette

Netiquette is short for Internet etiquette. It defines the manners and standards that should be applied when using the Internet and in e-mail communication.

- Examples of netiquette include:
 - do not send other users e-mails such as chain letters or unsolicited advertising mails
 - e-mail messages should be clear, without spelling mistakes and grammatical errors
 - do not type in capital letters as this is the equivalent of shouting online
 - use an anti-virus program to check your e-mails
 - use a clear and meaningful subject in the subject line
 - compress large files before sending them
 - do not use the Reply to All option unless it is necessary to do so.

5.2 Disadvantages of using e-mail

- Recipient needs to have access to the Internet to receive e-mail.
- You have no assurance that the e-mail will be read until the user logs on and checks the mail.
- E-mail is not absolutely private.
- Unwanted spam or junk mail are an on-going problem.
- Employees may spend too much time reading and replying to their private e-mail.
- E-mail messages can spread viruses.
- Human interaction is lost if we only rely on e-mail to communicate.

5.3 E-mail threats, issues and remedies

- Malicious software is called malware. It includes computer viruses, worms, Trojans and spyware.
 - worm – a program that copies itself repeatedly in the computer's memory or on a network
 - Trojan – a program that hides within a genuine program or disguises itself
 - spyware collects information about a user without their knowledge.
- Possible symptoms of malware infection:
 - unusual messages or images
 - strange programs or files appear unexpectedly
 - programs or files disappear
 - programs stop working correctly
 - the computer becomes slower to operate.
- Hoax – an e-mail that attempts to deceive you into believing something that isn't true.
- Spam – unwanted electronic junk mail.
- E-mail spoofing – uses a fake identity to pose as somebody else in order to gain access to a system.
- Phishing – a fraudulent process of trying to gain access to your username, password, and/or bank details.
- Pharming – similar to phishing, it redirects users from a legitimate website to a fake website.

5.4 Avoiding viruses and security risks

- Delete any spam mail.
- Do not click on 'Unsubscribe' links in spam that you receive. This will simply confirm that your e-mail account is active.
- Update your anti-virus software frequently.
- Never respond to e-mails that ask you to verify any personal details.

Other e-communication

The Internet offers a number of e-communication services. These are classified as either real-time communication or delayed-time communication.

- Real-time communication means that responses or replies are immediate. Examples are video conferencing and chat-rooms.
- Delayed-time communication means that the response is not immediate, such as with message boards and e-mail.

1 Real-time e-communication services

- Chat-room – a website where users type messages in real-time to communicate with other people in the chat-room. Some chat-rooms support voice and video chats.
- Instant messaging (IM) – notifies a user when another user is online. It allows the exchange of messages and files.
- VoIP (voice over Internet protocol) – voice transmission over the Internet. You need a high-speed Internet connection, VoIP software and a microphone.
- Video conference – an online conference or meeting using a network or the Internet to transmit video and audio data.

2 Delayed-time e-communication services

- Newsgroups – an online area where users can write about specific subjects. A newsreader application is needed to access the information.
- Message boards – web-based discussion groups.
- Mailing lists – group of e-mail addresses of people with the same interest. Sending an e-mail to the mailing list distributes the mail to all the addresses on the list.
- Fax-to-email facilities – a faxed document will be converted to an electronic document and sent to the receiver as an attachment to an e-mail.

Questions

Question 1: Multiple choice

Choose the correct answer. Only write the letter of the answer you select.

1.1 Which one of the following does not use the Internet?

- A Buying a product from an online retailer.
- B Depositing cash into your banking account.
- C Researching a topic using a search engine.
- D Downloading an e-book. (1)

1.2 Which one of the following statements is true?

- A The Internet is controlled by Microsoft.
- B The Internet is not controlled by any single entity.
- C The Internet is controlled by the international police.
- D None of the above statements are true. (1)

1.3 Which one of the following is not directly connected to the Internet?

- A RAM
- B HTTP
- C URL
- D HTML. (1)

1.4 Which one of the following is not a valid type of Internet site?

- A .com
- B .ac
- C .org
- D .za (1)

1.5 Which one of the following would describe a site such as www.google.co.za?

- A Web browser
- B Search engine
- C HTML
- D None of the above. (1)

1.6 What type of website is the SPCA website?

- A News website
- B Personal website
- C Commercial website
- D Advocacy website. (1)

Questions

1.7 Which one of the following can be described as a content aggregator?

- A facebook.com
- B google.com
- C content.com
- D popurls.com.

(1)

1.8 Which one of the following can not be classified as malware?

- A Phishing
- B Trojan horse
- C Logic bomb
- D Spyware.

(1)

(8)

Question 2: Terminology

Choose an item/word from COLUMN B that matches a description in COLUMN A. Write only the letter (A–N) next to the question number (2.1–2.10).

COLUMN A	COLUMN B
2.1 Another name for the Internet.	A. Multimedia
2.2 Blue underlined text on a website is usually indicative of a _____?	B. Google
2.3 Information presented using graphics, sound, text, animation.	C. Chat room
2.4 Programming language used to create websites.	D. HTTP
2.5 Acronym found at the beginning of a website address.	E. Delphi
2.6 South African search engine.	F. Spam
2.7 An example of a web browser.	G. Fax
2.8 Unwanted, bulk e-mail.	H. The web
2.9 A real-time e-communications method.	I. URL
2.10 Analogue way of sending a page of information to a receiver.	J. Firefox
	K. HTML
	L. Aardvark
	M. Hyperlink
	N. Microsoft

(10)

Questions

Question 3: Short answers

Answer the following questions:

- 3.1 Define Internet. (2)
 - 3.2 Name two communication channels used to communicate over the Internet. (2)
 - 3.3 Name three places where you can access the Internet while you are on holiday. (3)
 - 3.4 Define hotspot. (2)
 - 3.5 Why would you use a hyperlink in a website? (1)
 - 3.6 What is a markup language used for? (1)
 - 3.7 Name the four items that you would need in order to connect to the Internet. (4)
 - 3.8 Differentiate between a search engine and a web browser.
Name an example of each. (4)
 - 3.9 What advantages does tabbed browsing offer the user? (3)
- (22)**

Question 4: Short answers

- 4.1 Define e-mail. (2)
 - 4.2 Name three advantages that e-mail has over normal mail. (3)
 - 4.3 Discuss the taxonomy of the following e-mail address by describing what each part of the e-mail address means: joe@nothing.org.za (4)
 - 4.4 Name two advantages of web-based e-mail. (2)
 - 4.5 Name three functions that are possible using an e-mail application. (3)
 - 4.6 Explain how each of the following would be used in an e-mail:
 - 4.6.1 Subject (1)
 - 4.6.2 Cc (1)
 - 4.6.3 Bcc (1)
 - 4.6.4 Paperclip. (1)
 - 4.7 Netiquette is important when sending e-mails. List three examples of netiquette pertaining to the text of an e-mail. (3)
 - 4.8 Name three disadvantages of e-mail. (3)
 - 4.9 Name three possible indications that a computing device may be infected with malware. (3)
 - 4.10 Briefly define each of the following:
 - 4.10.1 Hoax (1)
 - 4.10.2 Phishing (2)
 - 4.10.3 Pharming (2)
 - 4.11 Name three ways in which computer users can avoid security risks on the Internet. (3)
- (35)**

Questions

Question 5: Short answers

- 5.1 Differentiate between real-time and delayed-time e-communication. (2)
 - 5.2 Name three examples of real-time e-communication services and briefly describe how each works. (6)
 - 5.3 Name three examples of delayed time e-communication services and describe briefly how each works. (6)
 - 5.4 Name one advantage of using VoIP. (1)
- (15)**
[90]

Answers to questions

Question 1: Multiple choice

- 1.1 B ✓
- 1.2 B ✓
- 1.3 A ✓
- 1.4 D ✓
- 1.5 B ✓
- 1.6 D ✓
- 1.7 D ✓
- 1.8 A ✓ (8)

Question 2: Terminology

- 2.1 H ✓
- 2.2 M ✓
- 2.3 A ✓
- 2.4 K ✓
- 2.5 D ✓
- 2.6 L ✓
- 2.7 J ✓
- 2.8 F ✓
- 2.9 C ✓
- 2.10 G ✓ (10)

Question 3: Short answers

- 3.1 A worldwide network of computers that access one another through servers and communication channels. ✓✓
- 3.2 Communication channels: (any 2) – cables, ✓ telephone lines, ✓ communication satellites ✓
- 3.3 Internet access: Internet cafés, ✓ libraries, ✓ hotspots. ✓
- 3.4 A hotspot is a wireless internet connection ✓ in a public area. ✓
- 3.5 An electronic shortcut you click to go, for example, to another webpage or another website. ✓
- 3.6 Markup language is used to specify the layout and appearance of webpages. ✓
- 3.7 Connection: a cable or telephone line, ✓ a computer or computing device, ✓ Internet software, ✓ an Internet service provider. ✓

Answers to questions

3.8 Search engine vs. Web browser:

- Web browser: application that displays webpages on your computing device. ✓ An example would be: Internet Explorer, Google Chrome, Mozilla Firefox, Netscape Navigator, Safari and Opera. ✓
- Search engine: Website used to search the Internet based on a word or phrase that is entered. Links to websites containing these words are listed. ✓ Examples of search engines are Google, Yahoo, Aardvark and Ananzi. ✓

3.9 Easy to switch between pages, ✓ keep the current page open while opening a link on a new tab, ✓ go back to a previous webpage without using the back button. ✓

(22)

Question 4: Short answers

4.1 Method of e-communication where messages are exchanged between computers. ✓✓

4.2 Faster, ✓ cheaper, ✓ can send attachments. ✓

4.3 Joe – name of person or company, ✓ nothing – domain name, ✓ .org – organisation, ✓ .za – South Africa. ✓

4.4 Free access anywhere in the world, ✓ no need for an e-mail application. ✓

4.5 E-mail application: (any 3)

- Send and receive messages ✓
- Forward or reply to received messages ✓
- Attach files to e-mail or receive attachments ✓
- Notifies you when e-mails can't be delivered ✓
- Has an address book (contact list) with the particulars all your contacts ✓
- Automatically file incoming and outgoing e-mail so you can manage them easily. ✓

4.6.1 Subject – the heading of the e-mail. ✓

4.6.2 Cc – address of someone who should receive a copy of the e-mail. ✓

4.6.3 Bcc – address of someone who should receive a copy without other recipients knowing. ✓

4.6.4 Paperclip – indicates where to click to add attachments to the e-mail. ✓

4.7 Netiquette (any 3) – (Note: the question asked for netiquette pertaining to the text.)

- E-mail messages should be clear, without spelling and grammatical errors. ✓
- Don't type in capital letters. ✓
- Clear subject line. ✓
- Do not use the Reply to All option, unless it is necessary to do so. ✓

Answers to questions

4.8 Disadvantages of e-mail: (any 3)

- Recipient must have Internet access to receive e-mail. ✓
- No assurance that the e-mail will be read until the user logs on to check their e-mail. ✓
- E-mail is not absolutely private. ✓
- Unwanted spam or junk mail. ✓
- Employees may spend too much time reading their private e-mail messages. ✓
- E-mail messages can spread viruses. ✓
- Human interaction is lost if we rely only on e-mail to communicate. ✓

4.9 Malware: (any 3)

- Unusual messages or images. ✓
- Strange programs or files appear unexpectedly. ✓
- Programs or files disappear. ✓
- Programs stop working correctly. ✓
- The computer becomes slow. ✓

4.10.1 Hoax: attempts to deceive you into believing something that isn't true. ✓

4.10.2 Phishing: People who pose as someone else to get your private information. ✓✓

4.10.3 Pharming: similar to phishing, redirects users from a legitimate website to a fake website. ✓✓

4.11 Security: (any 3)

- Delete spam mail. ✓
- Do not click on 'Unsubscribe' links in spam that you receive. This will simply confirm that your e-mail account is active. ✓
- Update your anti-virus software frequently. ✓
- Never respond to e-mails that ask you to verify any personal details. ✓

(35)

Question 5: Short answers

5.1 Real-time communication data are received and returned immediately.

Websites that are updated in real-time allow users to see everything immediately, for example chat-rooms. ✓

Delayed-time communication means the response is not immediate, for example e-mail. ✓

5.2 Three examples of real-time e-communication: (any 3)

- Chat-room – a website where users type messages in real-time to communicate with other people in the chat-room. Some chat-rooms support voice and video chats. ✓

Answers to questions

- Instant messaging (IM) – notifies a user when another user is online. It allows the exchange of messages and files. ✓
- VoIP (voice over Internet protocol) – voice transmission over the Internet. You need a high-speed Internet connection, VoIP software and a microphone. ✓
- Video conference – an online conference or meeting using a network or the Internet to transmit video and audio data. ✓

5.3 Three examples of delayed time e-communication: (any 3)

- Newsgroups – an online area where users can write about specific subjects. A newsreader application is needed to access the information. ✓
- Message boards – web-based discussion groups. ✓
- Mailing lists – group of e-mail addresses of people with the same interest. Sending an e-mail to the mailing list distributes the mail to all the addresses on the list. ✓
- Fax-to-email facilities – a faxed document will be converted to an electronic document and sent to the receiver as an attachment to an e-mail. ✓

5.4 Low cost. ✓

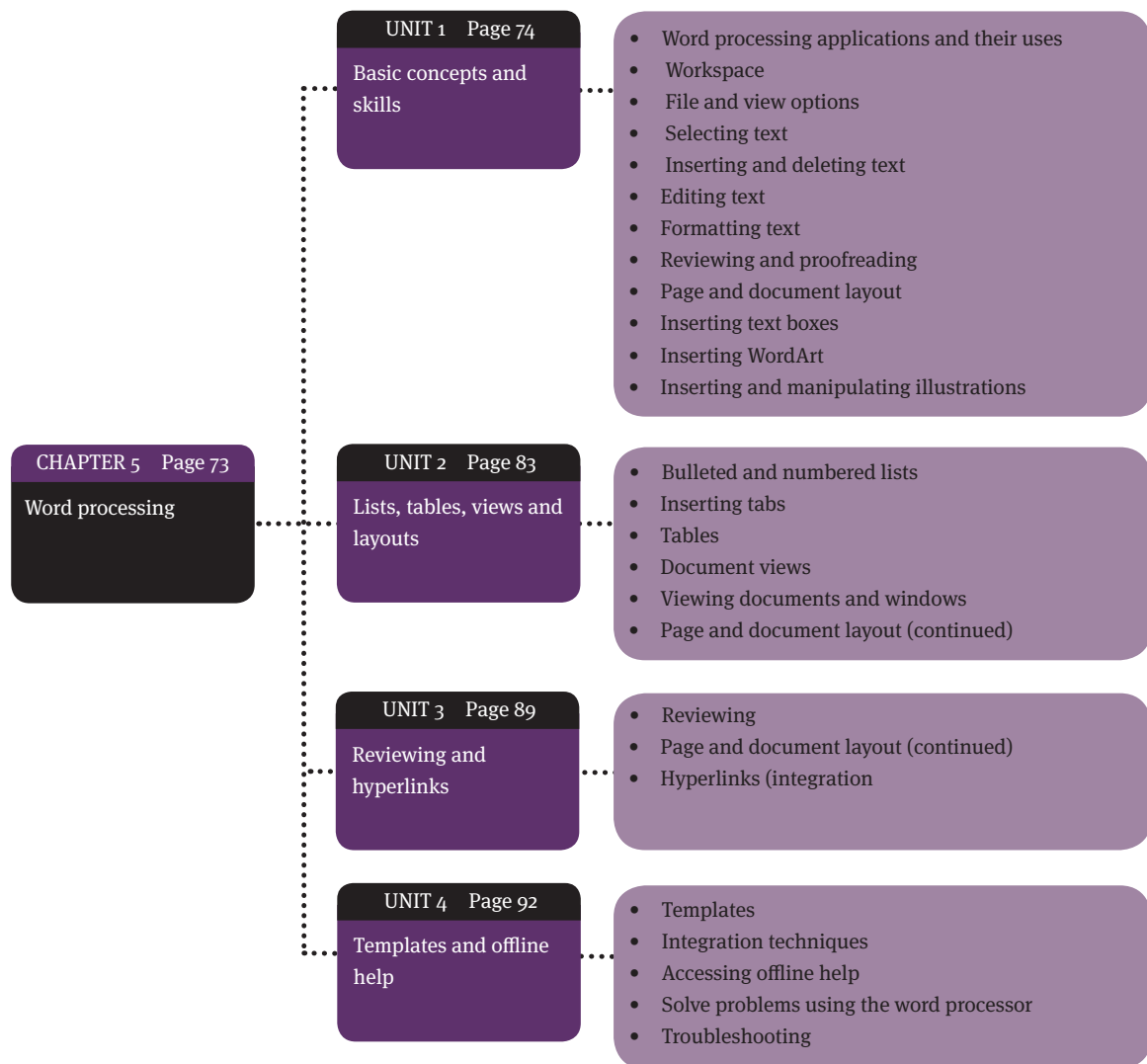
(15)

[90]

Word processing

Overview

This chapter comprises four units covering the basic concepts, knowledge and skills required for Microsoft Word. The chapter explains and demonstrates the basic skills such as, inserting, editing and formatting text, reviewing text, and inserting and manipulating illustrations. The page layout and document layout theme starts in Unit 1 and continues in the units that follow.



Basic concepts and skills

1 Word processing applications and their uses

A word processing application is a computer program that lets you create electronic documents that contain text and graphics. Some word processors let you add animations to a document. Uses for word processing applications include:

- Writing text documents, such as letters, reports and book manuscripts.
- Preparing documents with text and graphics, such as brochures and posters.
- Doing basic desktop publishing (DTP) which includes preparing publications and doing page layouts, such as newspaper columns, on a computer.
- Writing material for the Internet and saving the documents in a suitable format for use as webpages.

2 Workspace

The Microsoft Office 2007 suite and later versions, which includes Word, Excel, PowerPoint and Outlook, use the Fluent User Interface. Figure 13 shows the interface for MS Word.

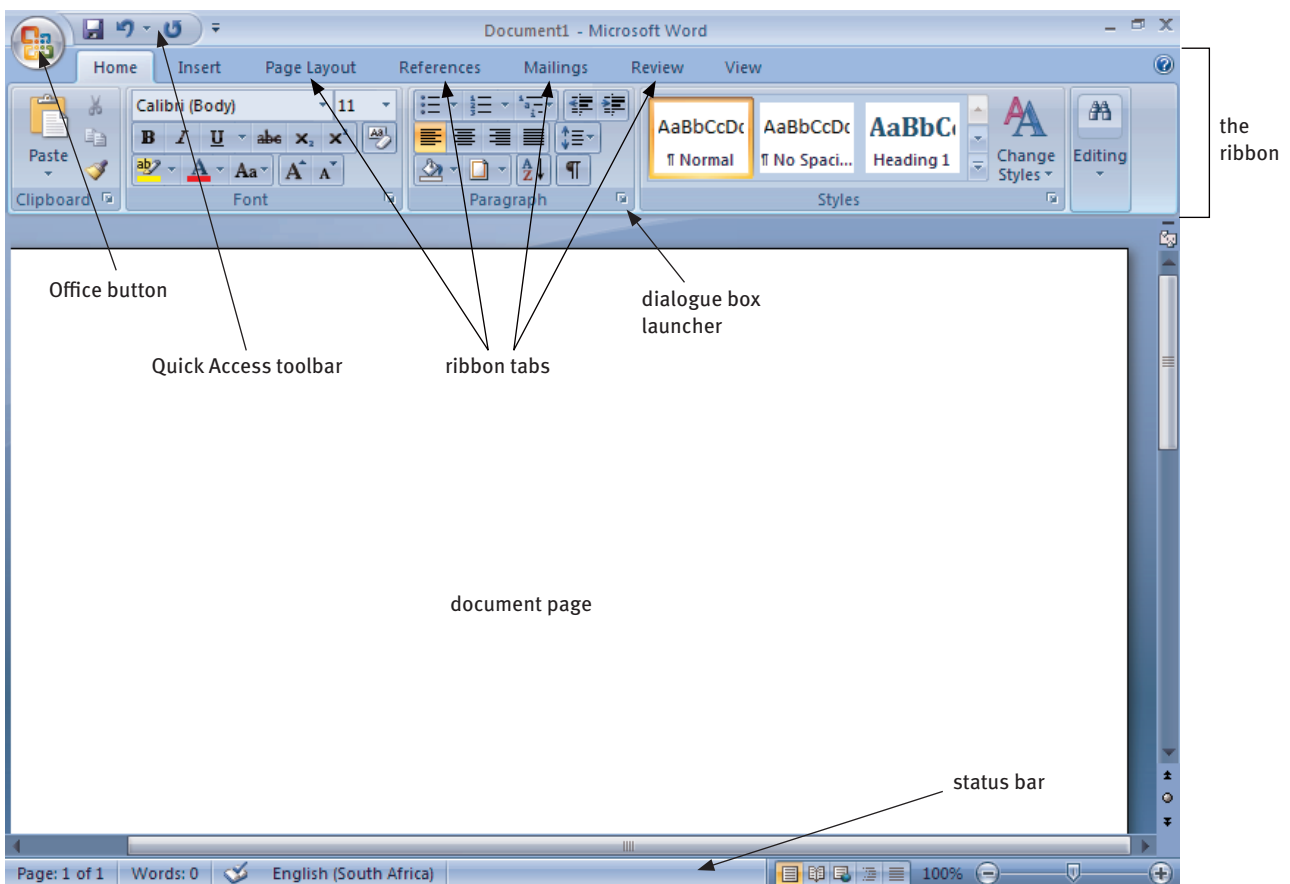


FIGURE 13 The Microsoft Word 2007 interface

2.1 Fluent User Interface

This interface is usually found in applications that run on the Microsoft Windows operating system. Some features of the Fluent User Interface are:

- The ribbon – a panel across the width of the window, just below the title bar.
- Ribbon tabs are the row of tabs between the title bar and the ribbon itself.
- Contextual ribbons are not visible unless you select a specific object in the document.
- Groups – each ribbon is divided into groups. In Figure 13, the Home ribbon has groups for Clipboard, Font, Paragraph, Styles and Editing.
- Drop-down menus and dialogue boxes, which are accessed from the small, down-pointing arrows.
- Office button.
- Quick Access toolbar.
- Mini toolbar.

3 File and view options

In Word 2007, you click the Office button to open the menu with file commands. In Word 2010, these commands appear on the File ribbon tab.

3.1 Opening and closing a document

To open new files and close existing opened files in Word:

- To open a New Word document, select New from the Office button menu.
- To close a document, click the Office button and select Close from the menu.
- To open a saved Word document, select Open from the Office button menu, navigate to the folder that contains the file, and double-click the file.

3.2 Saving documents and Save as

- When you select Save As, the Save As dialogue box appears.
- In the dialogue box, you specify the filename and the folder where you want to store the file.

3.3 Print a document

There are three options for printing documents (see Figure 14):

- Print – Use this option to specify settings for printing the document.
- Quick Print – This option sends the document directly to the printer.
- Print Preview – Enables you to view and change the layout of pages.

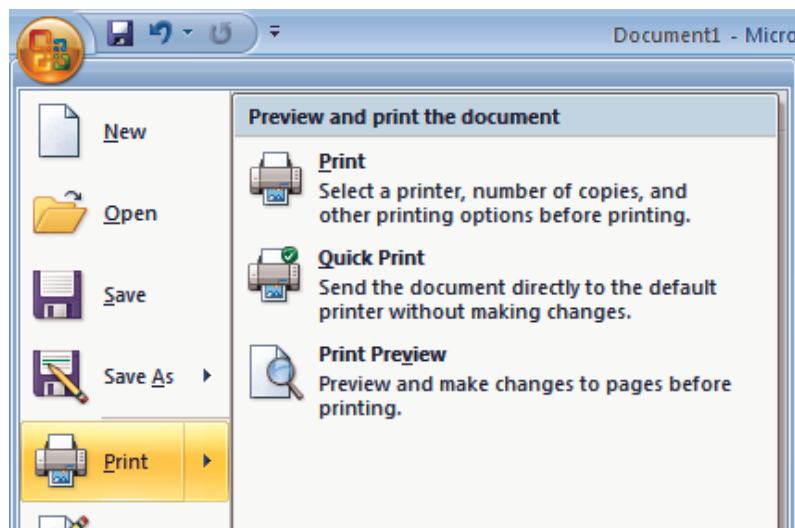


FIGURE 14 Print options

3.4 View options

- In the Document Views group of the View ribbon tab, you can click options to view a document in different ways.
- The Print Layout view is similar to Print Preview and enables you to view the document as it would look when printed.
- In the Print Layout view you can still work on the document as usual.

4 Inserting and deleting text

- You insert text to the right of the cursor.
- To insert text, type on the keyboard or paste text into the document.
- Press the Backspace key to delete text to the left of cursor or the Delete key to delete text to the right of the cursor
- To move the cursor, click at the spot where you want the cursor to be positioned.

4.1 Punctuation and formatting marks

- When you insert text, you need to use proper spelling, grammar and punctuation.
- Insert only one space after all punctuation marks.
- This rule applies also to the full stop.
- You can turn on formatting marks to see the spaces after a punctuation mark.
- To display (show) or hide formatting marks, click the button with the ¶ sign in the Paragraph group of the Home ribbon tab.
- Formatting marks are hidden symbols that indicate the positions of non-printing characters, such as spaces (•), tab spaces (→), line breaks (↵) and paragraph breaks (¶).

5 Selecting text

- To perform a task that applies to a specific part of the text such as a letter, word or paragraph, you need to select that part of the text first.
- This tells the application which part of the text it needs to work on.

5.1 Selecting text with the mouse

- When you click and drag the mouse over a section of text, you select that section of text.
- You can also select text by clicking or double-clicking:
 - to select a single word, double-click the word
 - to select an entire line, click in the left margin next to the line
 - to select a paragraph, double-click in the margin next to the paragraph
 - to select the entire document, triple-click anywhere in the left margin
 - to select more than one part of text, select the first part, then press and hold down the Ctrl key while you select the next part.

5.2 Selecting text with the keyboard

- Pressing the F8 function key turns on Extend Selection mode. This is indicated by the letters EXT in the status bar.
- Pressing the ESC key turns off this mode.
- In Extend Selection mode, you can use the arrow keys and the Home, End, Page Up and Page Down keys to select more text.
- Click in the text to select everything between the cursor and the point where you click.

6 Editing text

- Editing involves changing the text in a document to correct errors and to make the text as clear and as accurate as possible.
- In practice, you constantly make changes to your own work as you add text to a document.

6.1 Undo and redo

- The Undo and Redo buttons on the Quick Access toolbar are often used to change text.
- If, for example, you have deleted text but want to restore the deleted text, you can click the Undo button instead of retyping the text.
- If you decide to delete the text after all, you can click the Redo button, instead of selecting and deleting the text again.

6.2 Cut, copy and paste

- The Cut, Copy and Paste buttons are in the Clipboard group of the Home ribbon tab.
- These options are also available on the Mini toolbar, which appears when you select text, and on the context menu which appears when you right-click the selected text.

6.3 Find and replace

- In the Editing group of the Home ribbon tab, click the Find button which will bring up the Find and Replace dialogue box. See Figure 15.
- On the Find tabbed page of the Find and Replace dialogue box, type 'discover' in the Find what field and then click the Find Next button.
- The program searches through the document until it finds the word or phrase that you have specified.
- Then click Find Next again to find the next occurrence of 'discover', or click Cancel to stop the search.

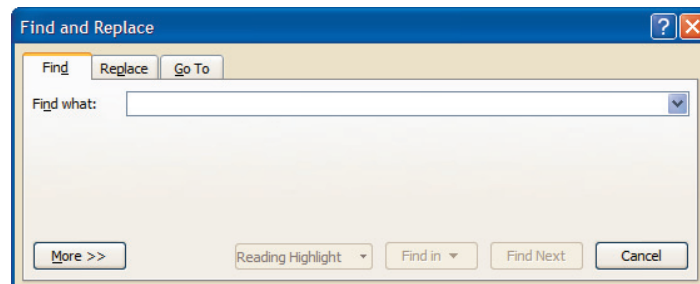


FIGURE 15 The Find and Replace dialogue box

7 Formatting text

To format text is to change its appearance. You can format the fonts, paragraphs, and the borders and shading of text in a document.

7.1 Font formatting

- A font is a set of characters of a similar design.
- You can format a font by using the buttons in the Font group of the Home Ribbon tab.

7.2 Paragraph formatting

- Paragraph formatting works almost the same as font formatting.
- However, you need to select one or more paragraphs and use the buttons in the Paragraph group of the Home ribbon tab.
- Paragraph alignment, spacing and indentation:
 - alignment involves arranging lines of text in a straight line
 - indentation determines the distance of a paragraph from the margins
 - specify the spacing before and after paragraphs in the Before and After revolving list box, or in the Line spacing drop-down menu.

- Borders and shading:
 - click the Borders or the Shading button in the Paragraph group of the Home ribbon tab to open the Borders and Shading dialogue box (see Figure 16)
 - borders can be applied to a paragraph on the Borders tabbed page
 - shading can be applied to a paragraph on the Shading tabbed page.

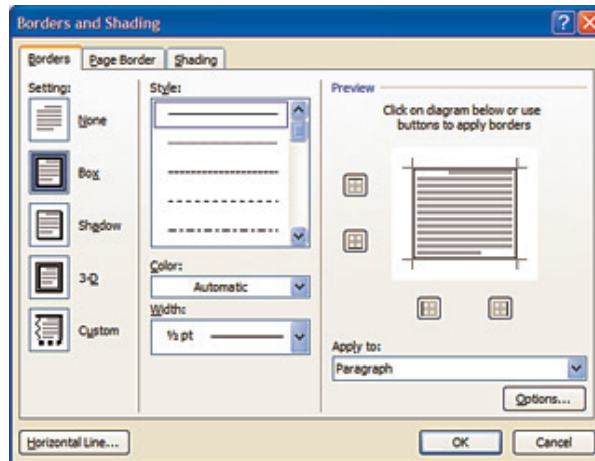


FIGURE 16 Borders and Shading dialogue box

- Formatting paragraphs with Quick Styles:
 - Quick Styles are predefined styles that you can apply to documents
 - select Quick Styles from the Styles group of the Home ribbon tab
 - paragraph style can be applied to all paragraphs of a particular type in a document to give the document a uniform look.

8 Reviewing and proofreading

- Reviewing is the last stage of checking a document, during which you make some final changes and inspect the document for any errors.
- Proofreading is part of the reviewing process, and involves checking a document for factual, spelling and grammatical errors.

8.1 The AutoCorrect feature

- This feature recognises common typing errors and corrects them automatically.
- If you type the word dont, AutoCorrect will automatically change it to don't as soon as you type a space after the misspelled word.

8.2 Spelling and grammar

- To run the spellchecker, click the Spelling & Grammar button in the Proofing group of the Review ribbon tab.
- The spellchecker runs in the Spelling and Grammar dialogue box. It shows possible errors and provides suggestions for corrected spelling and grammar.

9 Page and document layout

- Page layout refers to the design of the page.
 - Document layout refers to the design of the document. It involves tasks such as inserting page numbers and page breaks.
- Use the buttons on the Page Layout ribbon tab for page layout tasks.
- Options include adjusting the page margins, page orientation, paper size, and formatting page borders.

9.1 Page layout

- Page margins are the blank spaces around the edges of the page.
- Page orientation can be either portrait or landscape.
- In portrait orientation, pages are upright, so each page is taller than it is wide.
- In landscape orientation, pages are turned sideways.
- Page size settings will depend on the size of the paper that you use for printing
- Page borders are similar to text or paragraph borders, but apply to the whole page.

9.2 Document layout

- Page numbers can be added, formatted or removed.
- To add page numbers, click the Page Number button in the Header & Footer group of the Insert ribbon tab.
- Page Breaks mark the point at which one page ends and the next page begins.
- Page Breaks can be inserted or deleted at any point in your document.

10 Inserting WordArt

- WordArt is decorative text that you can insert into a Word document.
- Click the WordArt button in the Text group of the Insert ribbon tab.
- You can resize, move, edit and format WordArt text, or add special effects, from the Format ribbon tab of contextual WordArt Tools ribbon.

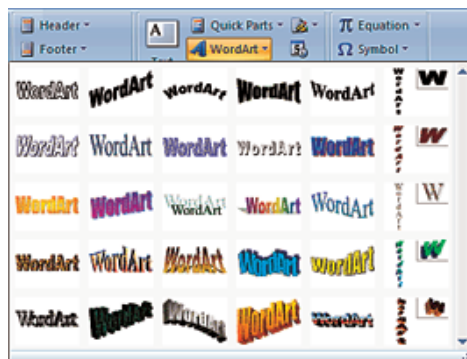


FIGURE 17 The WordArt gallery

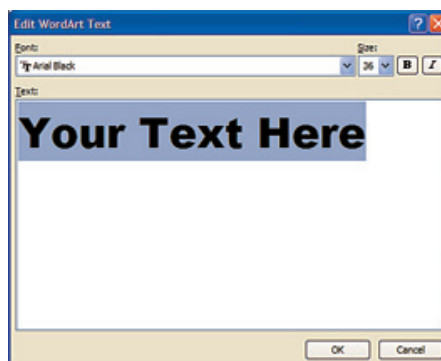


FIGURE 18 The Edit WordArt dialog box

11 Inserting and manipulating illustrations

To insert illustrations, click one of the five buttons in the Illustrations group of the Insert ribbon tab. The buttons in the Illustrations group are Pictures, Clip art, Shapes, SmartArt and Charts.

11.1 Pictures

- Click the Picture button in the Illustrations group of the Insert ribbon tab.
- Select a picture from the Sample Pictures folder, or navigate to another folder where pictures are stored on your computer.
- Double-click a picture to insert it into the document.

11.2 Manipulating pictures

- When you select a picture in a document, sizing handles appear on the corners and edges of the picture.
- Sizing handles are tiny circles or squares and are used to change the size of the picture.
- You can click and drag a picture to another position. You can click and drag the sizing handles to resize the picture.
- As with selected text, you can cut, copy and paste pictures by right-clicking them and selecting the appropriate options from the context menu.

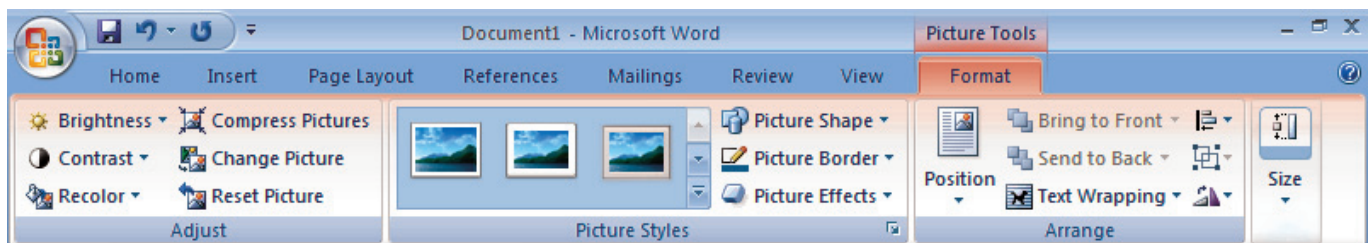


FIGURE 19 The Format ribbon tab of the Picture tools contextual ribbon

- The Format ribbon tab on the Picture Tools ribbon (see Figure 19) includes options for:
 - adjusting the brightness, contrast and colour of pictures
 - applying different styles and formatting effects to pictures
 - rotating pictures or setting text wrapping options
 - resizing and cropping pictures.
- The settings for text wrapping determine the way in which text flows around a picture. It also determines whether text will be in front of the picture or behind it.
- Cropping a picture involves cutting off edges of the picture to retain only part of the picture. When you crop a picture, the full size of the picture remains in the document, but the cropped parts are hidden.

11.3 Clip art

- Clip art is a collection of pictures that you can insert into documents.
- To use, click Clip Art in the Illustrations group of the Insert ribbon tab.
- This opens the Clip Art task pane on the right-hand side of the document page.

11.4 Shapes

- To insert a shape, click Shapes in the Illustrations group of the Insert ribbon tab.
- You can format shapes on the Format ribbon tab of the Drawing Tools contextual ribbon.
- Formatting shapes includes rotating or resizing them.

11.5 Charts (graphs)

- You insert a chart by clicking Chart in the Illustrations group of the Insert ribbon tab.
- In the Insert Chart dialogue box, select the type of chart that you want to use and click OK.

11.6 SmartArt

- SmartArt is a collection of graphics that you can use to communicate information visually.

Graphics range from graphical lists and diagrams to complex graphics, such as organisation charts.

Lists, tables, views, layouts

1 Bulleted and numbered lists

- Lists in documents are usually in the form of a bulleted or a numbered list.
- The items in lists are separate paragraphs that can be formatted.
- Formatting is applied the same way as for other paragraph formatting and includes aspects such as spacing, left-aligned or justified text.
- To format existing paragraphs as bulleted or numbered list items:
 - select the paragraphs
 - click the Bulleted button or the Numbered button in the Paragraph section of the Home ribbon tab.

1.1 Formatting bullets and numbers

- To specify the bullet style that you want to use, select the paragraphs that you want to format.
- Click the down-pointing arrow next to the Bullet button in the Paragraph section of the Home ribbon tab to open the bullet library. See Figure 20.
- Select a bullet style from the options in the library.
- Follow the same procedure to change the numbering style in a numbered list, except click the down-pointing arrow next to the Number button. See Figure 21.

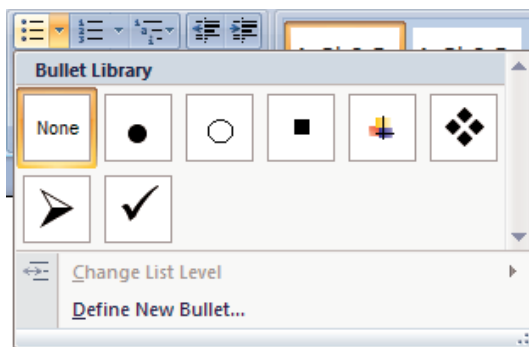


FIGURE 20 The Bullet library

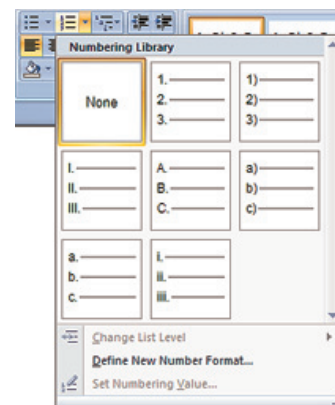


FIGURE 21 The Numbering library

1.2 Using hanging indents and tabs with lists

- The automatic numbering feature sometimes makes wrong assumptions about which paragraphs to number. Instead, use paragraphs with a hanging indent and number the list items manually.
- In a paragraph with a hanging indent, all the lines are indented except for the first line.
- When you press Enter, the next paragraph is automatically formatted in the same way as the previous paragraph.
- Enter the item number, press Tab, and type the relevant text.

2 Inserting tabs

- A tab stop is an invisible position placed at regular intervals across the width of a document.
- Tab stops mark the invisible line for alignment of a column of text.
- Each time you press the Tab key, the cursor moves to the next tab position in the document.
- There are four types of tab stops:
 - left tab stops align text along a line to the left of a column
 - right tab stops align text along a line to the right of a column
 - centre tab stops centre text in the middle of a column
 - decimal tab stops align the decimal point in a column of numbers.

2.1 Specifying tab stops on the horizontal ruler

- You can specify tab stops on the horizontal ruler above the document page.
- Click the tab selector left of the ruler until it displays the type of tab that you want to use.
- Next, click on the ruler where you want the tab stop to be set.
- You can move tabs stops by dragging them left or right on the ruler.
- Delete tab stops by dragging them off the ruler. When you release the mouse button, the tab stop will disappear.

2.2 Setting tabs in the Tabs dialogue box

- The Tabs dialogue box shows you the exact measurement of the tab stops that you have set.
- You can use the Tabs dialogue box to insert a specific character between tabs, or to set the size of default tab stops.

3 Tables

Tables are organisers that help you to arrange your text into columns and rows. Tables add emphasis to the document layout and make important information stand out.

3.1 Inserting tables

- To insert a table, click the Table button in the Tables group of the Insert ribbon tab.
- This opens the Insert Table drop-down menu. See Figure 22.

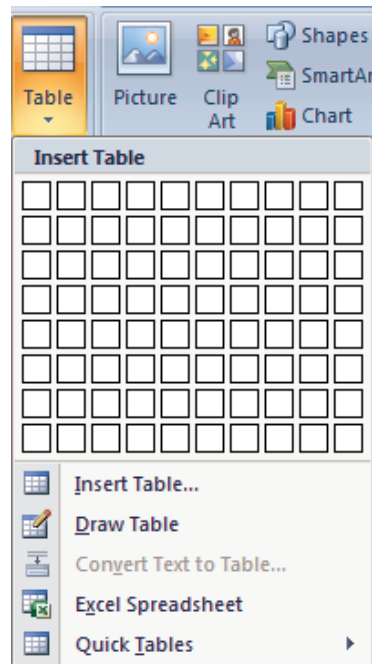


FIGURE 22 The Insert Table drop-down menu

3.2 Table tools

- When you click in the table, Word will activate the Table Tools contextual ribbon.
- The Table Tools contextual ribbon provides several formatting options to improve the appearance of the table.
- The two important tabs on this ribbon are Table design options and Table layout options.

3.3 Table design options

- The Table Styles group of the Design ribbon tab contains various built-in table styles.
- Mouse over the table styles to see what each table will look like.
- To see more styles, click the More drop-down button. This is found to the left of the Borders button.
- Borders and Shading:
 - the Table Styles group of the Design ribbon tab contains buttons for Borders and Shading
 - applying table borders and shading is similar to the process for text and paragraphs.

3.4 Table layout options

- In the Rows & Columns group of the Layout ribbon tab you can:
 - delete cells, columns or the entire table
 - insert a new row directly above or below the selected row
 - insert a new column to the left or the right of the selected column
 - launch the Insert Cells dialogue box.

- To repeat the header rows of a table that runs over to the next page:
 - place the cursor in the row or rows that contains the headers
 - select the Rows button in the Data group of the Layout ribbon tab
 - select Repeat Header.
- A table cell is where a column and a row intersect.
 - each block in a table is called a cell
 - columns run vertically down the page
 - rows run horizontally across the page
 - move within a cell by using the mouse and the Arrow keys
 - using the Enter key in a table creates a new line in the cell.

Text alignment and direction:

- In the Alignment group of the Layout ribbon tab, you can position text at the top, bottom, left, right or centre of the cell.
- Click on the Text Direction button to change the text direction in the selected cells. You can click this button several times to toggle through the available directions.

3.5 Table properties

- Click the Properties button in the Table group of the Layout ribbon tab of the Table tools Ribbon to open the Table Properties dialogue box.
- This dialogue box is used to change advanced table properties such as indentation and text wrapping options.

2.3.6 Other commands on the Layout ribbon tab

- The View Gridlines button in the Table group shows or hides the cell borders.
- Gridlines are nonprinting dotted lines that show the boundaries of cells when borders have been removed.
- The Merge Cells button in the Merge group combines selected cells into a single cell.
- The Split Cells button divides the selected cell into more than one cell.
- The AutoFit button in the Cell Size group automatically resizes the column widths based on the text in the column.
- The Height and Width buttons in the Cell Size group set the row height or the column width of selected cells.
- The Distribute Rows and Distribute Columns buttons in the Cell Size group distribute the height of selected rows equally between the rows, or distribute the width of selected columns equally between the columns.

3.7 Working with data

Three buttons in the Data group of the Layout tab can be used when working with data in a table.

- Click the Sort button to arrange data in numerical or alphabetical order.

- Click the Convert to Text button to change a selected table to regular text. You must specify a character to separate the columns of text. For example, paragraph mark, tab or comma.
- Click the Formula button to add a formula to a cell. Formulas allow you to perform simple calculations, such as AVERAGE, SUM or COUNT.

4 Document views

- Select a document view option in the Document Views group of the View ribbon tab.
- In Draft View, the document is displayed as a draft, so that you can edit the text quickly. Certain elements, such as headers and footers, are not visible in this view.
- In Full Screen Reading View, you maximise the space for displaying the document.

5 Viewing documents and windows

- The operating system displays each open application in a separate window.
- Each open document of an application is also displayed in a separate window.
- Each window has its own button on the Windows taskbar.
- You can view each document by clicking the relevant button in the taskbar.

5.1 Work with multiple documents or windows

- If you have many open applications or documents, you might not be able to see them all.
- Right-click the taskbar and select an option from the context menu to cascade or tile the open windows.
- When you cascade open windows, they are arranged on top of one another in such a way that parts of all the windows are visible.
- When you tile open windows, they are arranged next to each other and reduced in size to fit onto the screen.
- The Window group of the View ribbon tab has options for displaying and switching between multiple documents. See Figure 23.

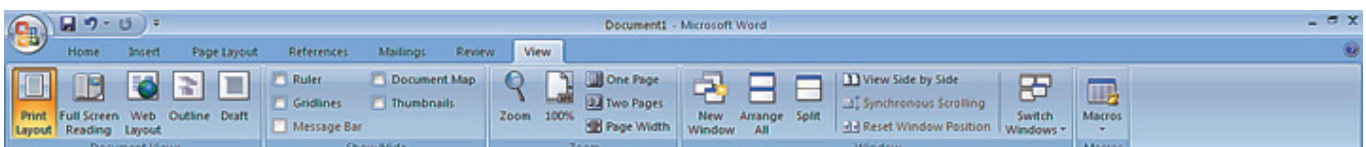


FIGURE 23 The View ribbon tab

- Switch Windows displays a list of all open document windows and allows you to switch between them.
- Arrange All displays all the open documents on the screen at the same time, arranged side by side.
- View Side by Side opens the Compare Side by Side dialogue box, where you specify which documents you want to compare. In this view, click the Synchronous

Scrolling button to scroll through the two documents at the same time. Click the Restore button in the dialogue box to take the document back to its original window.

5.2 Splitting a window

- You can split the current window to view different sections of a document at the same time.
- You can switch between split windows by clicking them, and scroll to different parts of the document in each window.
- Remove the split by clicking the Remove Split button.

5.3 Zooming

- There are various zooming options to choose from in the Zoom group of the View ribbon tab.
- You can also use the Zoom Slider on the Status bar of the window to zoom in on a document, or to zoom out.
- Alternatively, hold down the Ctrl key and use the mouse wheel to zoom in or out.

6 Page and document layout (continued)

You can customise the margins of a document and add headers and footers.

6.1 Customising margins

- Open the Page Setup dialogue box by selecting the Page Settings group on the Page Layout ribbon. Use this dialogue box to change the margin settings and page orientation.
- To permanently change the default margin settings, click the Default button at the bottom of the Page Setup dialogue box.
- Your current settings will become the default settings and will be applied to all new documents.

6.1 Headers and footers

- A header is text that is repeated in the top margin of each page in a document.
- A footer is text that is repeated in the bottom margin of each page.
- To insert a header or a footer, click the Header or Footer button in the Header & Footer group of the Insert ribbon tab.
- When a header or footer is inserted, the Header and Footer Tools contextual ribbon appears. See Figure 24.

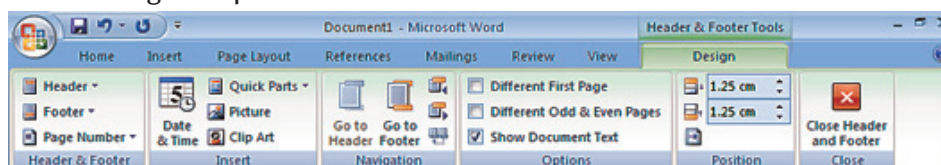


FIGURE 24 The Header and Footer Tools contextual ribbon

Reviewing and hyperlinks

1 Reviewing

- The word processor offers advanced reviewing features to help you to review your documents.
- The aim is to improve the draft until eventually you have a professional-looking final document.
- Use the buttons on the Review ribbon tab for reviewing tasks such as, running a spell check, adding comments to draft documents and protecting documents to prevent unauthorised changes.

1.1 Comments

- Using comments in a document is an easy way to add notes and reminders to a draft document.
- You can use comments in a document to share ideas and opinions with others.
- This saves paper by eliminating the need for making notes on hardcopies of the document.

1.2 Protect a document

- By default, a document has unrestricted access.
- This means that anyone can read and change the document.
- Protecting a document restricts the access that other users have to a document.
- Protection settings usually allows other users to see the document but restricts how they can access it and work in it.
- For instance, protection settings may prevent other users from making any changes to the text, but still allow them to make comments.
- The settings can be password protected so only certain people can open and read the document.
- You can specify document protection settings in the Protect group of the Review ribbon page.

2 Page and document layout (continued)

You can improve the document layout by displaying text in columns and by adding watermarks and colours to the pages.

2.1 Columns

- Columns help to separate sections of a document on one page.
- Columns work especially well in the design of a newsletter or brochure.
- Specify columns settings in the Page Setup group of the Page Layout ribbon tab.

2.2 Hyphenation

- When text is laid out in columns, it may result in gaps where it is not possible to fit a long word at the end of a line.
- If the text is justified, these awkward gaps may occur between words in a line.
- To eliminate these gaps, you can format the text to hyphenate words.
- Words that cannot fit in at the end of a line will be split into two parts with a hyphen in between.
- You can choose to use automatic or manual hyphenation.
- With automatic hyphenation, the program automatically inserts hyphens where needed and grammatically correct.
- With manual hyphenation, the program searches for words that can be hyphenated and then asks whether you want hyphenate the word.

2.3 Watermarks

- A watermark is a faded image, either text or picture, that appears behind the text.
- You can only see watermarks in Print Layout view, Full Screen Reading view or in a printed document.
- If you use a picture as a watermark, format the picture so that it does not obscure your document text.
- You can insert a watermark from the watermark gallery or you can type and format your own watermark text.

2.4 Page Colour

You can use the Page Color button in the Page Background group of the Page Layout ribbon tab to apply a colour to the background of a page.

3 Hyperlinks (integration)

Integration involves exchanging information between different but compatible applications, such as those that form part of the same office suite.

2.3 Hyperlinks

- A hyperlink is a word, image or symbol, that you can click to take you to another place in the same document or to a different document.
- A hyperlink must contain the path that takes you to its destination.
- To insert a hyperlink, select the object, such as the word, image or symbol, that you want to format as a hyperlink.
- Click the Hyperlink button in the Links group of the Insert ribbon tab to open the dialogue box, and select the link. See Figure 25.

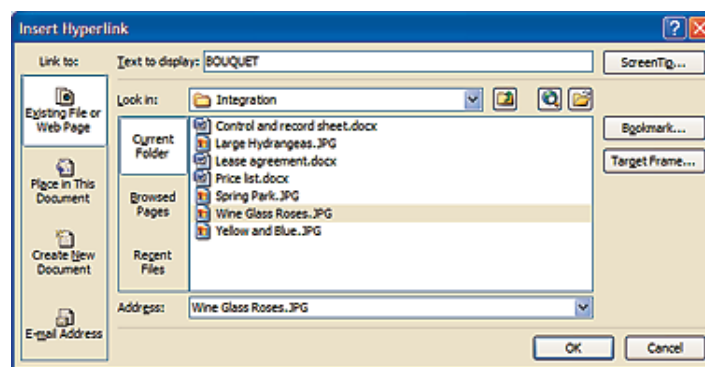


FIGURE 25 The Insert hyperlink dialogue box

Templates and offline help

1 Templates

- Instead of creating the structure of a document, you can use one of the pre-formatted templates provided by the word processor.
- A template is a file with a page layout, font, margins and styles that are suitable for a specific type of document.
- The content controls of a template enable you to insert specific types of content. For example, the date section has a drop-down list control where you can choose a date.
- The file type of a template is DOTX.
- When you open a template, it creates a copy of itself.

1.1 Templates based on existing documents

- When you save the document as a DOCX file, your document is saved separately from the template.
- To create templates based on existing documents:
 - select New from the Office button menu
 - select the New from existing option at the templates group.

4.2 Integration techniques

Besides hyperlinks that link documents created by different applications, you can use cut and paste to exchange information between applications.

2.1 Copy and paste

You can, for example, cut data from a Word document and paste it into an Excel document.

- Select and copy data in a Word document.
- Switch to the Excel document where you want to paste it.
- Right-click in a cell and select Paste from the context menu.

2.2 Paste special

- The OLE (Object Linking and Embedding) feature of your word processor allows information to be shared between different applications.
- An OLE object maintains a connection to the application that created it.
- A linked object will be updated whenever the original source is updated.
- However, the source file needs to be on the same computer as the object that links to it.
- To paste a link that will update if the source file is updated, use the Paste Special command.
- Access this command by clicking the down-pointing arrow under the Paste button in the Clipboard group of the Home ribbon tab. See Figure 26 for the Paste Link option.

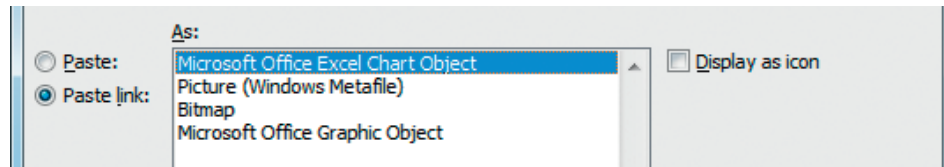


FIGURE 26 The Paste Link option in the Paste Special dialogue box

3 Accessing offline help

The Help feature will help you understand the tools that you need to improve your computer skills.

3.1 Accessing offline help

- The Help feature of Word provides both online and offline sources from which to get help.
- By default, Word uses the Online Help feature:
 - open the Help window by pressing the F1 key on the keyboard
 - type a topic, command name or question in the search box of the Help window
 - click Search to browse through the list of results that appear
 - click on a topic that you want help on and follow the step-by-step instructions.

3.2 Frequently asked questions (FAQs)

- FAQs are questions that are often asked by new users.
- Various information sources, such as the Internet and printed media, provide lists of FAQs on specific topics.
- A FAQ page is usually written in a question and answer format.

4 Solve problems using the word processor

- The Help and Support option at the Start menu provides help topics, troubleshooting tips, tutorials, and other support services.
- Other support services include Windows Basics where topics, such as parts of a computer, can be found.
- Security and Maintenance contains information on topics such as firewalls, malicious software, virus, worms and spyware.

4.1 Tutorials

- A tutorial is a computer program that gives instructions on how to use a software program.
- To help users learn more on their own, some programs, such as the Windows operating system have built-in tutorials.

5 Troubleshooting

- Troubleshooting is the process of analysing the cause of a computer problem.
- A good tip is to start with the most obvious possible cause of the problem and narrow it down, by a process of elimination, to something specific.
- The troubleshooting command on the Help and Support menu will offer you help on specific types of problems.

Questions

Question 1: Multiple choice

Choose the correct answer. Only write the letter of the answer you select.

1.2 In which tab is the cut and paste functions found?

- A Insert tab
- B Page layout tab
- C Home tab
- D View tab. (1)

1.3 In what tab do you find the layout of a page of a document?

- A Home tab
- B Insert tab
- C Page layout tab
- D View tab. (1)

1.4 How do you close a Word document without closing the Word Window?

- A Click the Close button on the title bar.
- B Click the Minimize button on the title bar.
- C Click the Exit Word on the File Menu
- D Click the Close command on the Office Menu. (1)

1.6 What command do you use when saving a new document for the first time?

- A Save As
- B store
- C File
- D Backup. (1)

1.7 The file type of a template is:

- A DOCX
- B DOTX
- C DOC
- D DOS. (1)

1.8 Changing the appearance of a document is called:

- A Proofing
- B Editing
- C Formatting
- D Referencing. (1)

Questions

1.9 Portrait and Landscape are:

- A Page Orientation
- B Paper Size
- C Page Layout
- D All of above.

(1)

1.10 Where is Header and Footer found in the Ribbon?

- A References tab
- B View tab
- C Insert tab
- D Page Layout.

(1)

(8)

Question 2: Terminology

Choose an item/word from COLUMN B that matches a description in COLUMN A. Write only the letter (A–N) next to the question number (2.1–2.10).

COLUMN A	COLUMN B
2.1 The panel across the width of the window, just below the menu bar, that contains buttons and drop-down menus to perform certain tasks.	A. Quick print
2.2 The option that sends the document directly to the printer.	B. Ribbon
2.3 Used to views your document in a specific size.	C. Portrait
2.4 A type of context menu that appears when you select text in a document.	D. Clip Art
2.5 Enables you to view the document as it would look when printed.	E. Watermark
2.6 A type of page orientation.	F. SmartArt
2.7 A collection of pictures that you can insert into electronic documents.	G. Mini Toolbar
2.8 A faded image that appears behind the text.	H. Zoom
2.9 A word, image or symbol, which you can click to take you to another place in the same document or to a different document.	I. Print Layout
2.10 A collection of graphics that you can use to communicate information visually.	J. Document Map
	K. Template
	L. Menu
	M. Graphic
	N. Hyperlink

(10)

Questions

Question 3: Short answers

Answer the following questions:

- 3.1 State the tasks a word processing application is use for. (2)
- 3.2 Describe the three different options for printing a document. (3)
- 3.3 Where is the highlighting icon found in the Ribbon? (2)
- 3.4 Explain the undo and redo functions. (2)
- 3.5 What three functions are used to rearrange text in an existing document? (3)

(12)

[30]

Answers to questions

Question 1: Multiple choice

- 1.1 C ✓
- 1.2 C ✓
- 1.3 D ✓
- 1.4 A ✓
- 1.5 B ✓
- 1.6 C ✓
- 1.7 A ✓
- 1.8 C ✓ (8)

Question 2: Terminology

- 2.1 B ✓
- 2.2 A ✓
- 2.3 H ✓
- 2.4 G ✓
- 2.5 I ✓
- 2.6 C ✓
- 2.7 D ✓
- 2.8 E ✓
- 2.9 N ✓
- 2.10 F ✓ (10)

Answers to questions

Question 3: Short answers

3.1 Word processor tasks:

- Writing letters, ✓ reports, ✓ and book manuscripts. ✓ (any 2)

3.2 Printing options:

- Print is used to specify settings for printing the document. ✓
- Quick Print sends the document directly to the printer ✓
- Print Preview is used to view and change the layout of pages. ✓

3.3 In the Home tab ✓ in the font group. ✓

3.4 Undo and redo:

- If you want to restore deleted text, click the Undo button instead of retyping the text. ✓
- If you decide to delete the text after all, click the Redo button, instead of deleting the text again. ✓
- Click the Redo button several times to redo several changes. If there are no further changes to redo, the Redo button repeats the latest change. ✓ (any 2)

3.5 Cut, ✓ copy, ✓ paste ✓

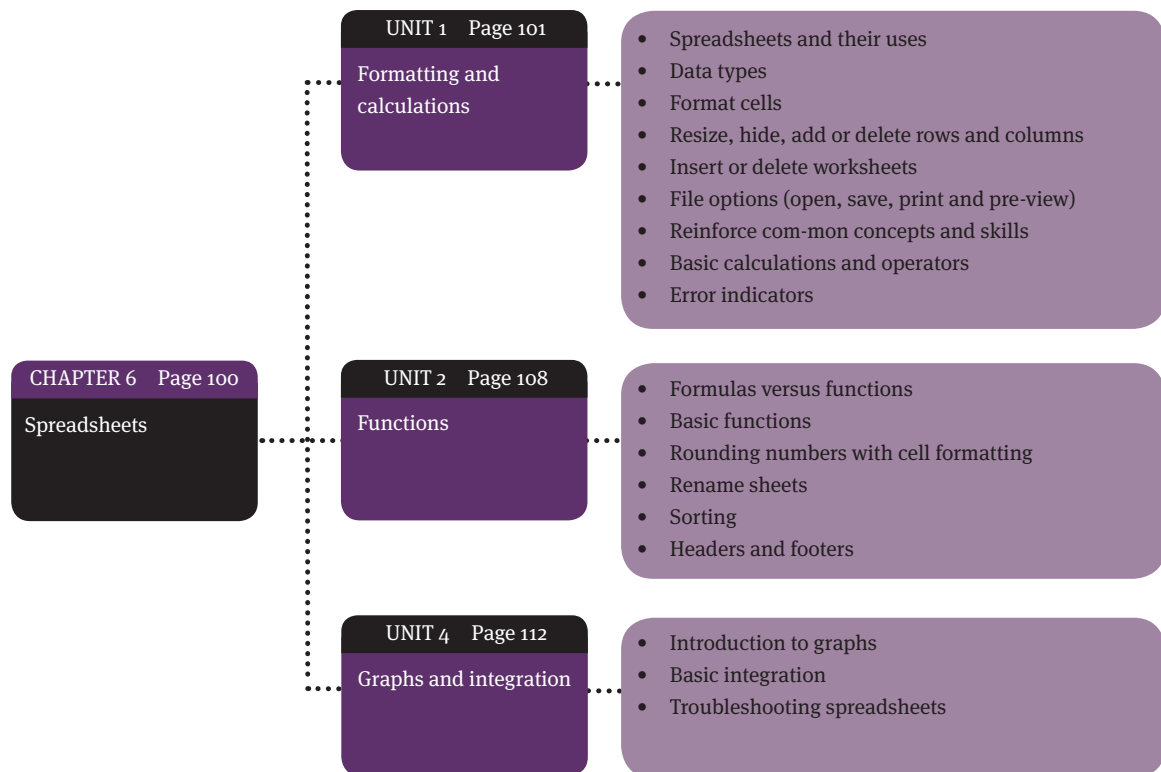
(12)

[30]

Spreadsheets

Overview

A spreadsheet is an application that contains a table with rows and columns. The blocks that make up the rows and columns in a table are called cells. A cell is where a column and a row intersect. A spreadsheet can display different kinds of data, such as text, graphics and numbers. The main strength of a spreadsheet, though, is its ability to perform numerical calculations. In addition, a spreadsheet can represent one or more series of numbers in the form of a graph, or chart. Charts are updated automatically when you make changes to the numbers that are represented in them.



Formatting and calculations

1 Spreadsheets and their uses

- The main strength of a spreadsheet is its ability to perform numerical calculations.
- It can display different kinds of data, such as text, graphics and numbers.
- A spreadsheet can represent one or more series of numbers in the form of a graph or chart.
- Charts are updated automatically when you make changes to the numbers in them.
- You can enter formulas into the cells of a spreadsheet to perform various calculations.
- Formulas are not displayed in the cells after you have entered them, only the results of the calculations are displayed.
- If any of the numbers used in the calculations change, the results are automatically recalculated and displayed.

1.1 Uses of spreadsheets

The many uses of spreadsheets include:

- creating a budget and performing accounting tasks
- creating an invoice that calculates all values, such as VAT and totals
- calculating the term marks of learners in a class, and the class average
- using visual aids, such as graphs, to compare sets of data.

2 Workspace

- A spreadsheet file is called a workbook. A workbook consists of one or more worksheets.
- Sheet1 is the default sheet displayed for a new spreadsheet. However, for spreadsheets that already exist, the active sheet when the file was last saved is the default sheet.
- To change to another worksheet, for example, Sheet2, click its tab.
- The worksheet is divided by gridlines into columns and rows. See Figure 27.
- Columns are identified by letters (A, B, C, etc) and the rows are numbered 1, 2, 3, etc.

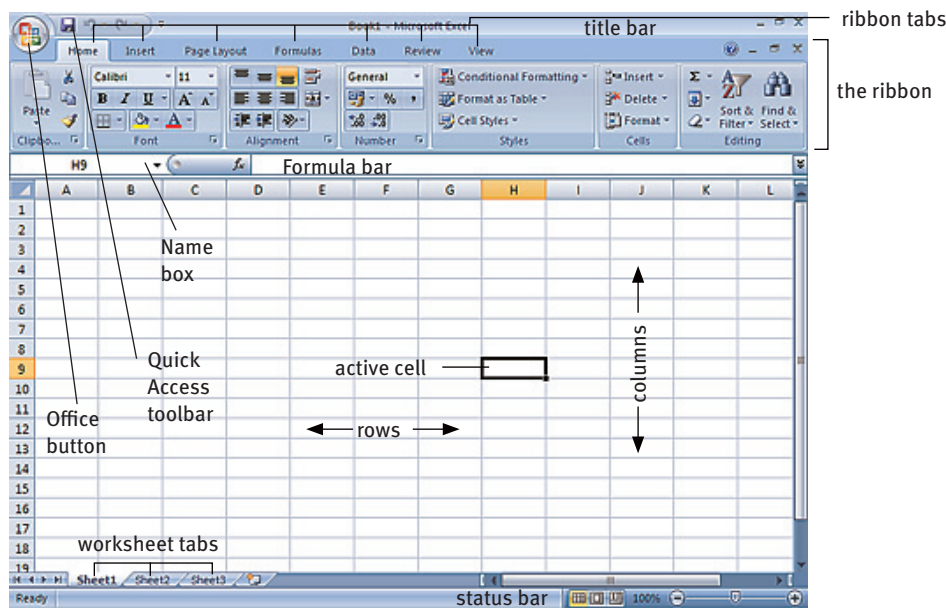


FIGURE 27 A spreadsheet work area

3 Cell references and cell ranges

- We refer to a particular cell by combining the letter of the column and the number of the row for that particular cell.
- This is called the cell reference, or the cell address.
- For example, if the selected cell is in column F and in row 9, the cell reference is F9. The selected cell is called the active cell.
- The cell reference of the active cell is displayed in the Name box to the left of the Formula bar above the column letters.
- A cell range is a group of adjacent cells.
- To select a cell range, you click and drag the mouse from the first to the last cell in the range, or vice versa.
- To select a range, for example, containing cells D3, D4, D5, E3, E4 and E5, click and drag from cell D3 to cell E5.
- We write this cell range as D3:E5.

4 Data types

When you enter data into cells, an appropriate data type needs to be assigned to each cell. In most cases, the program recognises the data as you enter it, and will assign the correct data type.

Table 1.1: Examples of data types

Data type	Explanation	Examples
General	Any text or numerical value	Chicken, gone123
Text	Numbers not to be used in calculations	phone numbers
Number	Numbers which are to be used in calculations	9,745
Time	Displayed in a format that you specify	13h38
Date	Displayed in a format that you specify	12 August 2012
Currency	A numerical value, such as 5.70, shown in a currency of your choice	R5.70

5 Format cells

- The basic formatting tool for Excel is the Format Cells dialogue box.
- To open this dialogue box, select Format Cells from the drop-down menu under the Format button in the Cells group of the Home ribbon tab.
- Alternatively, right-click the selected cells and select Format cells from the context menu that appears.
- For some formatting tasks, you can also click the appropriate button on Home ribbon tab.

5.1 Format number (changing the data type)

- To change the data type of selected cells, open the Format Cells dialogue box and click the Number tab.
- Select the appropriate data type from the Category list box on the Number tabbed page.
- Click OK to confirm your selection and assign the new data type to the selected cells.

5.2 Format borders and shading

- You can give a cell, or a range of cells, a border of your choice. To do so:
 - select the cells that you want to format
 - open the Format Cells dialogue box
 - click the Border tab
 - choose the style of the border line from the Style list box
 - choose the colour of the border line from the Colour drop-down menu
 - indicate the positions of the lines in the box in the Border pane.

5.3 Format alignment

- You can also change the alignment of the text or numbers in a cell in the Format Cells dialogue box. To do so:
 - select the cells that you want to format
 - open the Format Cells dialogue box
 - click the Alignment tab of the Format Cells dialogue box
 - specify the horizontal or vertical alignment in the Text alignment pane
 - select a checkbox in the Text control pane to wrap the text, shrink text to fit, or merge cells
 - set the direction of the text in the Orientation pane by dragging the text orientation line, or by typing or adjusting the number of degrees in the revolving combo box.

6 Resize, hide, add or delete rows and columns

You can add, delete and format rows and columns in various ways.

6.1 Resize row height and column width

- To change the height of rows, select one or more row and right-click.
- On the context menu that appears, select Row Height.
- In the Row Height dialogue box, type a new value in the Row height field.
- Click OK, or press the Enter key, to confirm the new row height.
- Adjusting the column width works the same as adjusting the row height, except that you select and right-click one or more columns, select Column Width from the context menu, type in a new value in the Column Width field.

6.2 Hide and unhide columns or rows

- To hide columns and rows, select them and right-click.
- Select Hide from the context menu.
- To display hidden columns, select the columns on either side of the hidden columns.
- Right-click and select Unhide from the context menu.
- Follow the same procedures to display hidden rows.

6.3 Insert or delete columns or rows

- To insert a column or row, you need to select the column or row after the column where you want to insert it. If you want to insert a new column after column F, select column G.
- Select the column by right-clicking the column letter.
- Select Insert from the context menu.
- To delete one or more columns or rows, select them, right-click and select Delete from the context menu.
- If you accidentally inserted or deleted the wrong column or row, you can click the Undo button to undo your mistake.

7 Insert or delete worksheets

- To insert a new worksheet in a workbook, right-click a tab at the bottom of the worksheet.
- On the context menu that appears, click the Insert option.
- The Insert dialogue box should appear. On the General tab of the Insert dialogue box, select the Worksheet icon and click OK.
- To delete a worksheet, right-click its tab and select Delete from the context menu.
- Once a worksheet has been deleted, you cannot restore the worksheet.
- Take care and check that a worksheet does not contain important data before you delete it.

8 File options (open, save, print and preview)

- You open, save, and print spreadsheet files in the same way as you do for other Microsoft Office applications.
- If you do not save your spreadsheet files, you could lose valuable data that took you hours to compile.
- To preview how a worksheet will be split between pages during printing, select Print – Print Preview from the Office button menu.
- The Print Preview feature provides Next and Previous buttons for previewing each page separately.
- The Setup and Margins buttons lets you adjust page layouts and margins so that more or fewer columns and rows will fit onto a page.

9 Reinforce common concepts and skills

- As with Word, Excel enables you to do formatting, editing and proofing tasks.
- You can do page layout and insert illustrations as you would in Word.

10 Basic calculations and operators

- Spreadsheets perform calculations similar to those that we do in mathematics, but there are two differences that you need to know about.
- In mathematics, we use the operators + (add), - (subtract), × (multiply) and ÷ (divide). Spreadsheets use two different symbols. These are: * for multiply, and / for divide.
 - A spreadsheet formula always starts with = (the equals sign). This is how spreadsheet applications recognise formulas.

10.1 Basic calculations

- In mathematics, you would, for example, write $45 + 25 = 70$ but in a spreadsheet, you would enter `=45+25` in the cell where you want the answer to appear.

- As in mathematics, brackets are used to specify which part of a calculation should be done first.
- In the calculation $=(45+15)*2$, the numbers 45 and 15 are added first, and the result of that calculation is multiplied by 2.

10.2 AutoFill

- Inserting a formula in a single cell is easy. Inserting that same formula into a column containing 100 cells will take a long time.
- With the AutoFill function, you can add the formula to the first cell and copy it automatically to the rest of the column.
- Click on the cell containing the formula.
- Then click on the AutoFill handle and drag it down to the last cell in the range.

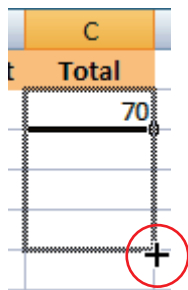


FIGURE 28 The AutoFill handle

10.3 Basic operators

- Basic calculations in a spreadsheet work the same as in normal mathematical calculations.
- The only differences are that the = sign will move to the front and we can use cell references.
- If you want to add the values in cells A2 and B2 and put the result in cell C2, it is best to use the cell references for cells A2 and B2. So, in cell C2, enter: $=A2+B2$
- If you need to change a value in either of the cells A2 or B2, you do not need to change the formula in cell C2.

10.4 Order of calculation

- In any formula, operators will be dealt with in the following order:
- brackets, division, multiplication, addition, subtraction.
- It is important to do the calculations involving these operators in the correct order.
- Look at the example below:
- $5 * 5 + 5 / 5 = 26$
- It will make quite a difference if you add brackets, as shown below:
- $5 * (5 + 5) / 5 = 10$
- Brackets are usually used to separate two parts of a formula.
- In this way, you can force the program to work out a certain part of the formula first before calculating the rest.

- In the next example we can see this in practice:
= (C5 + D5) * 2
- The formula will add the values in cells C5 and D5 first, before multiplying by 2.
- If there had been no brackets, the multiplication would have been done first, giving a different answer.

11 Error indicators

- After entering spreadsheet formulas, you may find error indicators, such as those listed in Table 1.2, in the cells where the formula was entered.

Table 1.2: Common error indicators and solutions

Indicator	Reason	Solution
#####	Column is not wide enough to display the contents	Widen the column
#NAME!	Incorrect function name in formula (typing mistake or unknown function)	Check spelling of function names in the formula
#DIV/o!	Formula attempts to divide by o, which is not permitted in mathematics	Find and correct the error in cell reference or cell contents
#REF!	The cell reference in the formula is no longer valid (that cell was deleted)	Change cell reference to refer to the correct cell
#N/A	Formula refers to a cell that is not available any more	Correct the cell reference
#VALUE!	Incorrect value used in the cell, for example, a text value being multiplied	Correct the cell value or cell reference
#NUM	Invalid number in a formula, for example, a negative instead of a positive number	Correct the value in the relative cells

Functions

A function is a predefined spreadsheet formula that performs a calculation. The spreadsheet automatically recognises the function name and performs the calculation associated with that particular function.

1 Formulas versus functions

- A formula in a spreadsheet is an equation which does calculations and displays the result in the cell in which it was entered.
- For example, you can use the formula:
=C2+D2+E2+F2
or you can use a the function:
=SUM(C2:F2).
- The function in the example above is shorter than the formula because it refers to a cell range, instead of using cell references for each separate cell.
- Using functions can save you time, especially if you need to calculate a large range of cells.
- Functions also reduce the chances of typing errors because they eliminate the need for typing long, complicated formulas.

2 Basic functions

- Most functions consist of an equals sign, the function name and the cell range on which the function needs to perform a calculation.
- The cell range is always enclosed in brackets.
- For example the function : =SUM(C2:F2)
- can also be written as: =<function_name>(<cell range>).
- The words between angled brackets, and the angled brackets themselves, will be replaced by the appropriate function name or cell range.

Table 2.1: Examples of some basic functions

Function name	Purpose	Example
SUM	Calculates the total value of a range of cells	=SUM(A3:A8)
AVERAGE	Calculates the average of the numbers in the specified cell range	=AVERAGE(A3:A8)
MIN	Finds the smallest value in the specified cell range	=MIN(A3:A8)
MAX	Finds the highest value in the specified cell range	=MAX(A3:A8)
COUNT	Finds the total number of cells that contain a numerical value in the specified cell range	=COUNT(A3:A8)
TODAY	Returns the current date, as set on the computer	=TODAY()
RAND	Generates a random number each time the function is calculated	=RAND()
MODE	Returns the value that occurs most often in the specified cell range	=MODE(A3:A8)
MEDIAN	Returns the middle value of the values in the specified cell range	=MEDIAN(A3:A8)

- The SUM, MIN, MAX, and AVERAGE functions are the most commonly used functions in a spreadsheet.

1.1 Using functions

- To insert a function, click the cell where you want to insert the function and select the Formulas ribbon tab.
- From the Function Library group, choose the type of function you need, for example a text function or date function.
- Click on the type and then choose the function that you need.
- This inserts the function and a pair of brackets into the selected cell.
- Finally, specify a cell range by typing the range between the brackets and press the Enter key.
- It is good practice for you to enter the functions manually.
- This teaches you the correct syntax to use for functions and the sequence in which the elements must be entered.

1.2 The COUNTIF function and relational operators

- Whereas the COUNT function counts all the cells in the specified cell range, the COUNTIF function counts only those cells that meet a certain condition.
- If we use the COUNT function to count the cells in the range A1:A7, the function returns a value of 7 because there are 7 cells in the cell range.
- We can use the COUNTIF function to specify that, in the same range, only cells with a value of 50 must be counted:
`=COUNTIF(A1:A7,50)`
- We can also use the COUNTIF function to count the cells in a range that contain a certain text value, such as the word 'Car'.
`=COUNTIF(A1:A7,"Car")`

2.1 Relational operators

- You can also use the COUNTIF function to find all the numbers that are higher than a certain number or lower than a certain number.
- For this you need to use relational operators.
- There are six relational operators that we can use in spreadsheet functions:
 - > (greater than)
 - < (less than)
 - = (equal to)
 - <= (less than or equal to)
 - >= (greater than or equal to)
 - <> (less or greater than, but not equal to)
- With a relational operator, we can, for example, change `=COUNTIF(A1:A7,50)` so that Excel will count only the cells in the cell range that contain numbers greater than 50.
- To do so, the function would read:
`=COUNTIF(A1:A7,">50")`

2 Rounding numbers with cell formatting

- Sometimes you need to round off your numbers to the nearest decimal point or nearest whole number.
- Select the relevant cells and right-click them.
- Select the Format Cells option on the context menu to open the Format Cells dialogue box. See Figure 29.
- On the Number tabbed page of the dialogue box, specify the number of decimal places in the Decimal Places revolving list box and click OK.
- To round the amount to the nearest whole number, change this value to 0.

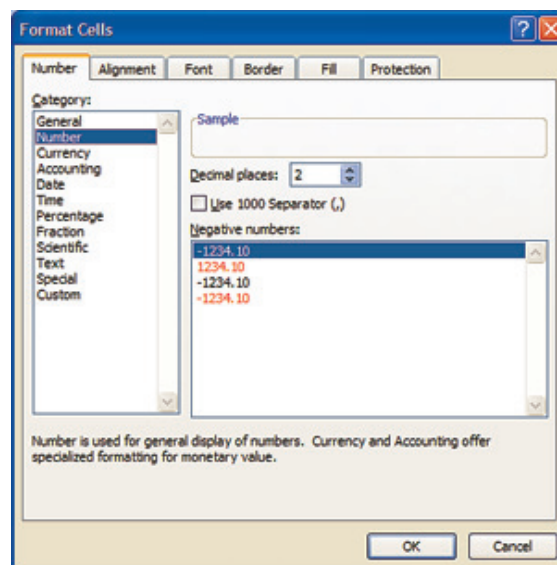


FIGURE 29 The Format cells dialogue box

3 Renaming sheets

- You can change the default worksheet names (Sheet1, Sheet2 and Sheet3) to more descriptive names.
- Right-click the tab that you want to rename and select Rename from the context menu.
- Then type the new worksheet name directly onto the tab and press Enter.

4 Sorting

- When sorting data on a spreadsheet, first select the data to sort.
- Click Sort & Filter in the Editing group of the Home ribbon tab, click Custom Sort to open the Sort dialogue box.
- Select the criterion by which you would like to sort the table, usually this will be Values, then select the order, either ascending or descending.
- If you need to sort the table by more than one column, click the Add level button, and repeat the above steps.

2.5 Headers and footers

- To access the header and footer menu, click the Insert ribbon tab, then click Header and Footer in the Text group.
- Type a header into the Header field.
- To insert a footer, scroll down to the bottom of the page and click on Click to add footer.
- Keep in mind that any changes to the header or the footer will affect all the pages of the spreadsheet when you print them.

Graphs and integration

1 Introduction to graphs

- Pie charts represent a series of data as percentages that add up to 100%.
- The data are shown as slices of the circle.
- Bar, column and line charts all represent one or more series of data graphically.
- In this way, it is easier for the reader to see any change in a data series.

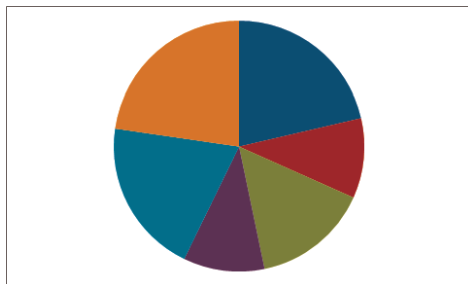


FIGURE 106 Pie chart

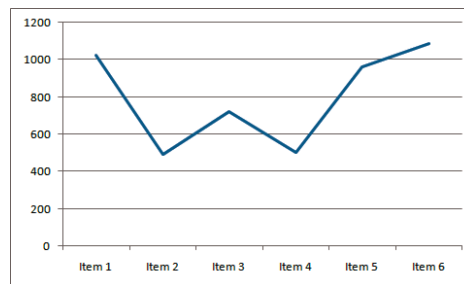


FIGURE 107 Line chart

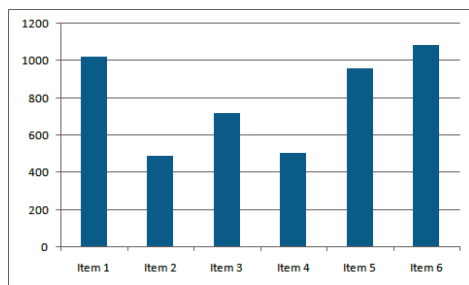


FIGURE 108 Column chart

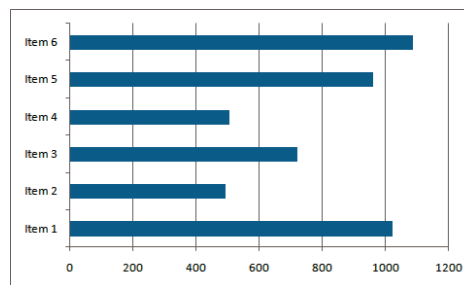


FIGURE 109 Bar chart

1.1 Creating a chart

- Step 1 – select the data required for the chart.
- Step 2 – select the Insert ribbon tab, and click on the type of chart that you would like to insert from the Charts group.
- Step 3 – select which subtype of the chart you want to use.

1.2 Formatting a graph

- Every part of a chart can be edited.
- If you select the chart by clicking it, the Chart Tools contextual ribbon becomes available.
- The Chart Styles group on the Design ribbon tab lets you change the style of the chart.

- On the Layout ribbon tab of the Chart Tools contextual ribbon, you can add:
 - a title to the chart
 - data labels for each data section
 - axis names to the vertical and horizontal axes
 - position a legend
 - show or hide gridlines.

2 Basic integration

Spreadsheets can be integrated with other applications in different ways. Integration is using data from one program in another program. We briefly look at ways of doing this.

- Copying and pasting a table from a spreadsheet to a word processing document.
- Copying and pasting a graph from a spreadsheet to a word processing document.
- Importing data from a different data source, such as a table in a word processing document.
- When you import data from a text file, you need to remember a few points.
- Every row in the text file will represent a row in the spreadsheet.
- Each value in the row of the text file should be separated from other values by a delimiter, such as a comma.
- The delimiter indicates when to stop putting data into one cell and start putting it into the next cell.
- You start the import function by clicking the From Text option in the Get External Data group on the Data ribbon tab.
- External data are data that come from a document created by an application other than Excel.

3 Troubleshooting spreadsheets

- When spreadsheets are created, errors may occur.
- In cases such as these, it is important to be able to find the problems and correct them.
- This process is called troubleshooting.
- Not all errors will necessarily show up as error messages.
- In many cases, formulas will appear to work, but the range may be incorrect or the function not fully specified.
- It is important to always check your formulas before finalising a spreadsheet.

Questions

Question 1: Multiple choice

Choose the correct answer. Only write the letter of the answer you select.

1.1 You can use the formula tab to:

- A Format cells containing numbers
- B Create and edit formula containing functions
- C Enter assumption data
- D Copy a range of cells. (1)

1.2 Which of the following cannot be a FUNCTION in Excel?

- A COUNTIF
- B MAX
- C MINI
- D MIN. (1)

1.3 Which of the following is not an error indicator:

- A #REF!
- B #N/A!
- C #OUT!
- D #VALUE! (1)

1.4 A formula in Excel uses:

- A Operations
- B Opera
- C Operators
- D Operettas. (1)

1.5 Which of the following will a spreadsheet contain:

- A Bulleted lists
 - B Page borders
 - C Numerical calculations
 - D None of the above (1)
- (5)

Questions

Question 2: Terminology

Choose an item/word from COLUMN B that matches a description in COLUMN A. Write only the letter (A–N) next to the question number (2.1–2.10).

COLUMN A	COLUMN B
2.1 A group of adjacent cells	A. cell value
2.2 The data that you type into a cell is called the _____	B. spreadsheet
2.3 A workbook consists of one or more _____	C. worksheets
2.4 An application with an interface that contains a table with rows and columns	D. function
2.5 The result of trying to divide by 0 when it is displayed in the cell	E. formula
2.6 The data displayed in the cell is called the _____	F. cell range
2.7 The combination of the column letter and the row number is called a _____	G. cell contents
2.8 An equation which does calculations and displays a result in a certain cell	H. cell reference
2.9 Using data or information from one program in another program	I. #DIV/o!
2.10 A predefined spreadsheet formula that performs a calculation	J. Integration
	K. data type
	L. #####
	M. gridlines
	N. #VALUE!

(10)

Question 3: Short answers

Answer the following questions:

- 3.1 List three uses of spreadsheets. (3)
- 3.2 With reference to spreadsheets, what is a workbook? (1)
- 3.3 What is a cell reference? (1)
- 3.4 List the relational operators that can be used in spreadsheet functions. (3)
- 3.5 What functions are most commonly used in a spreadsheet? (2)

(10)

[25]

Answers to questions

Question 1: Multiple choice

- 1.1 B ✓
 - 1.2 C ✓
 - 1.3 C ✓
 - 1.4 C ✓
 - 1.5 C ✓
- (5)

Question 2: Terminology

- 2.1 F ✓
 - 2.2 G ✓
 - 2.3 C ✓
 - 2.4 B ✓
 - 2.5 I ✓
 - 2.6 A ✓
 - 2.7 H ✓
 - 2.8 E ✓
 - 2.9 J ✓
 - 2.10 D ✓
- (10)

Question 3: Short answers

Answer the following questions:

3.1 Uses of spreadsheets: (any 3)

- creating a budget, ✓ creating an invoice ✓ that calculates all values, ✓ such as VAT and totals ✓, calculating the term marks of learners in a class ✓ and the class average ✓, using charts or graphs ✓ to compare two sets of data. ✓

3.2 A workbook is a file that contains one or more worksheets. ✓

3.3 A cell reference is a combination of the column letter and the row number. ✓

3.4 Relational operators: (any 3)

- > (greater than) ✓, < (less than) ✓, = (equal to) ✓, <= (less than or equal to) ✓,
- >= (greater than or equal to) ✓, <> (less or greater than, but not equal to) ✓

3.5 SUM ✓, MIN ✓, MAX ✓, and AVERAGE ✓ are the most commonly used functions in a spreadsheet. (any 2)

(10)

[25]

Presentations

Overview

With Microsoft PowerPoint 2007 you can create lively and high-impact presentations faster than ever. Slideshows can be improved with clip art, SmartArt diagrams, tables, graphics, objects, text, charts and customised animations.

CHAPTER 7 Page 117

Presentations

UNIT 1 Page 118

Basic skills

- Presentation pro-grams and their uses
- Opening, saving and printing files
- Slide views, layouts and designs
- Text formatting, editing and review-ing
- Inserting tables and illustrations
- Custom animations and slide transitions
- etting up and running a slide show

Basic skills

A presentation program is an application that is used to compile an electronic presentation in the form of a slide show. A presentation program enables you to:

- insert and format text
- insert and manipulate graphic images
- present a slide show.

1 Presentation programs and their uses

- A slide show, or a presentation, consists of a collection of slides that are shown to an audience.
- This information can take the form of text, images, tables, diagrams, maps and multimedia.
- The combination of audio and visual functions makes it easier for the audience to understand a slide show.

1.1 Guidelines for creating an effective presentation

- Keep it short and simple.
- Use a clear layout.
- Limit punctuation, capital letters and fancy fonts.
- Use contrasting colours.
- Rather use fewer slides.
- Use illustrations effectively.

1.2 Uses of presentation programs

- Presentation programs are used for information, advertisements, learning and training, business and marketing meetings, and sales gatherings.
- You can present slide shows on a computer screen or use a data projector for larger meetings.
- Slide shows are sometimes also used in webcasts.

2 Opening, saving and printing files

- To open PowerPoint from the Start menu, select: All programs, Microsoft Office, Microsoft Office PowerPoint.
- Alternatively, click the PowerPoint desktop icon if it is available.
- Opening PowerPoint opens a blank PowerPoint file.
- To save a PowerPoint file, click the Office button and select Save.
- If this is the first time that you save the file, the Save As dialogue box will open.
- Select the folder in which you want to save the file, specify a filename in the File name field and a file type in the Save as type field, and click Save.

2.1 Opening and saving files

- Click the Office button and select New, Blank Presentation.
- Alternatively, select New, select one of the predefined templates, click the Create button.
- To open a saved PowerPoint file, click the Office button, select Open,
- To save a PowerPoint file, click the Office button and select Save.
- Specify a filename in the File name field and a file type in the Save as type field, and click Save.
- You can save a PowerPoint files as either a PPTX or a PPSX file type.
- A PPTX file is the default PowerPoint file, which enables you to make changes to the file.
- A PPSX file is a finished file, which automatically runs the slide show when it is opened.

2.2 Printing files

- In the Print dialogue box, specify your print preferences.
- To print the notes in the Notes pane as handouts, select Handouts from the Print what drop-down menu.
- When you have specified your print options, click OK.

3 Workspace

The workspace is shown in Figure 34.

- The current slide in the Presentation pane is the slide that you are currently working on.
- Use the background of the Presentation pane to temporarily store illustrations and textboxes while designing a slide.
- The Slide tab displays miniature images, called thumbnails, of the slides in the presentation.
- Click on a thumbnail to change a current slide, or drag it to change the order of the slides.
- The Notes pane enables you to enter notes about what you need to say to the audience.
- You can also print out these notes to use as a handout for audience members at a presentation.

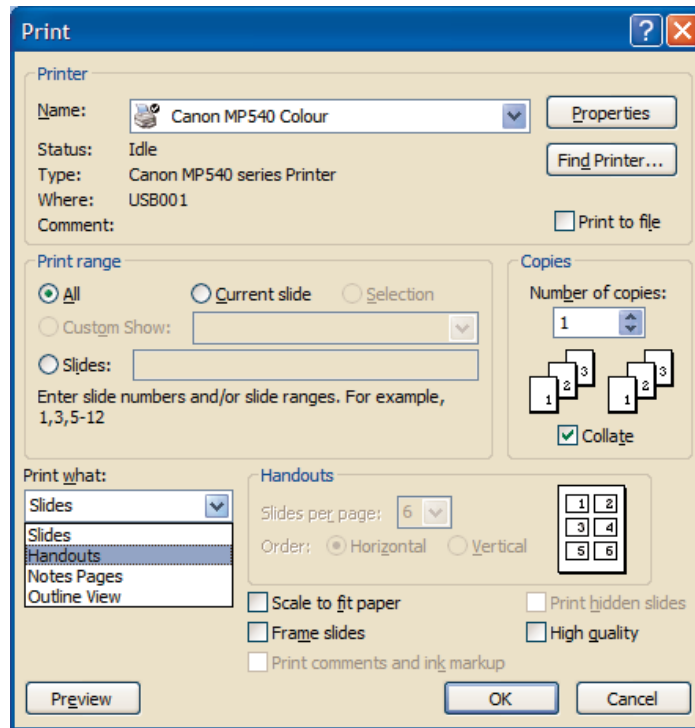


FIGURE 34 A blank presentations workspace in Normal view

4 Slide views, layouts and designs

- Switch between these views in the Presentation Views group of the View ribbon tab.
- Alternatively, click the view buttons on the status bar to switch between Normal view, Slide Sorter view and Slide Show view.

4.1 Slide views

See Figure 35 for illustrations of slide views.

- Normal view enables you to see, edit and format one slide at a time.
- Slide Sorter view displays all the slides in a slide show at the same time. You can navigate between slides in this view, or delete or move slides.
- Slide Show view presents the slide show in full-screen mode, as it appears when you are making a presentation.
- Press the ESC key on the keyboard to exit full-screen mode and end the slide show.
- Notes Page view enables you to view your notes and work with them in full page format. In this view, you can edit the speaker notes.

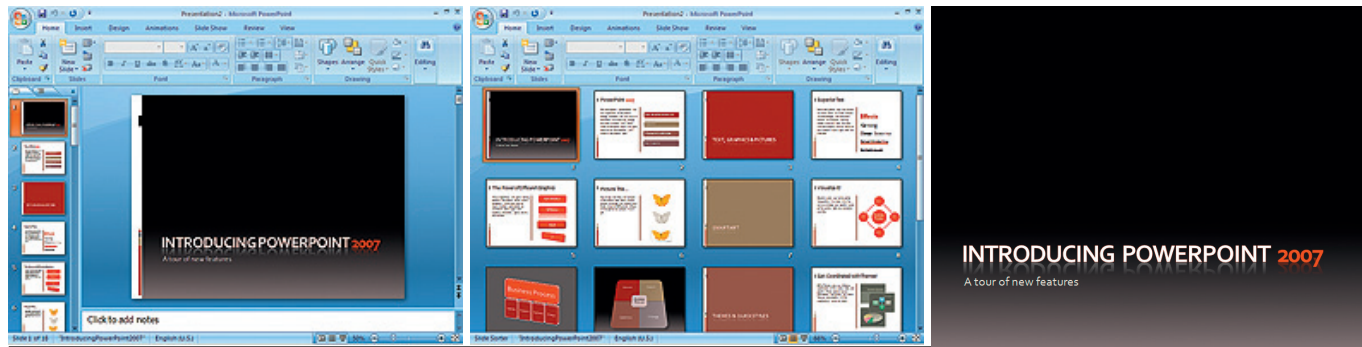


FIGURE 35 Normal view, Slide Sorter view and Slide Show view

4.2 Inserting and deleting slides and applying layout styles

- In the Slides group of the Home ribbon tab, click the More button under the New Slide icon.
- This opens several layout styles that you can use to specify the layout.
- You can also change the layout of an existing slide that you have selected in PowerPoint.
- Click the Layout button in the Slides group of the Home ribbon tab and select a new layout from the available layout styles.
- To delete a slide, right-click it and select Delete from the context menu.

4.2 Inserting headers and footers and slide numbers

- Click the Insert ribbon tab, and then Header & Footer in the Text group. This opens the Header and Footer dialogue box.
- Specify the information for the slide footer on the Slide tabbed page of the dialogue box.
- Select the checkboxes for Date and time and Slide number if you want to include this information in your footer.
- Select the Footer checkbox and type the footer text.
- Click the Apply button to use the footer only on the selected slide, or the Apply to all button to use the footer on all the slides.

4.3 Applying themes

- A theme in PowerPoint is a uniform design that you can apply to all the slides in a slide show. It gives your presentation a professional appearance.
- Click the Design ribbon tab and select a theme from the Themes group.
- If you want more themes to choose from, click the More button, to the left of the Effects button to open the Themes Gallery.

4.4 Page layout and slide orientation

- Click the Design ribbon tab. In the Page Setup group, click either the Page Setup button or the Slide Orientation button to specify the settings that you want.

5 Text formatting, editing and reviewing

- Click in a placeholder and type or paste text into it.
- If your text exceeds the size of the placeholder, the program reduces the font size and line spacing as you type, to make the text fit.

5.1 Formatting text

- Select the text that you want to format.
- Click the Home ribbon tab. You can apply paragraph formatting by clicking the appropriate buttons in the Paragraph group of the Home ribbon tab.
- To apply font formatting, click the appropriate buttons in the Font group of the Home ribbon tab.
- Alternatively, click the appropriate buttons on the Mini Toolbar that appears when you select text.

5.2 Editing and reviewing text

- Edit text by clicking in a placeholder that contains the text that you want to change.
- Add or delete text, as required. You can use keyboard shortcuts (Ctrl+X, Ctrl+C or Ctrl+V) to cut, copy or paste text.
- Use the buttons in the Editing group of the Home ribbon tab such as Find and Replace to perform editing functions.
- Find and replace text in PowerPoint works the same way as it does in Word and Excel.
- To review the text in a presentation, click the Review ribbon tab. See Figure 36.
- In the Proofing group, click the Spelling button, for example, to run a spell check.

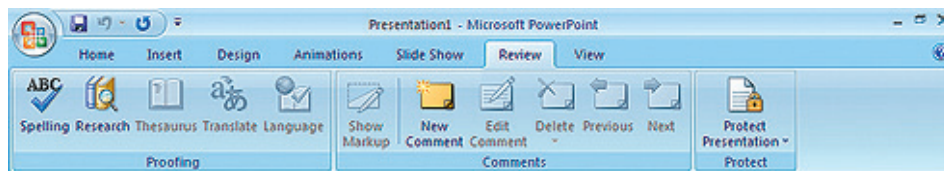


FIGURE 36 The Review ribbon tab

6 Inserting tables and illustrations

- Specify the table or type of illustration that you want to insert by clicking the appropriate icon for tables, charts, SmartArt graphics, pictures, clip art and media.
- The placeholders on slides are either textboxes for inserting text or content placeholders for inserting tables and illustrations.

1.6.1 Inserting Tables (integration with Excel or Word)

- You can create a table directly in PowerPoint.
- To do so, select the slide where you want to insert the table.
- Click the Insert ribbon tab and click Table in the Tables group.
- Specify the number of rows and columns in the Insert table dialogue box and click OK.
- Alternatively, drag the mouse to specify the number of rows and columns in the Insert Table feature.
- This creates a table on the PowerPoint Slide. Add text to the table as you would do in Excel or a Word table.

6.2 Inserting charts (integration with spreadsheets)

- Insert a chart by clicking the Chart icon in a placeholder on a slide.
- Alternatively, click the Insert ribbon tab and click Chart in the Illustrations group.
- In the Insert Chart dialogue box, select the type of chart that you want to use.
- Click OK. An Excel spreadsheet with sample data opens in a split window. See Figure 37.
- Click each cell on the worksheet and replace the sample data with the actual data that you want to represent in the chart.
- Click OK to close the spreadsheet and display the amended chart.

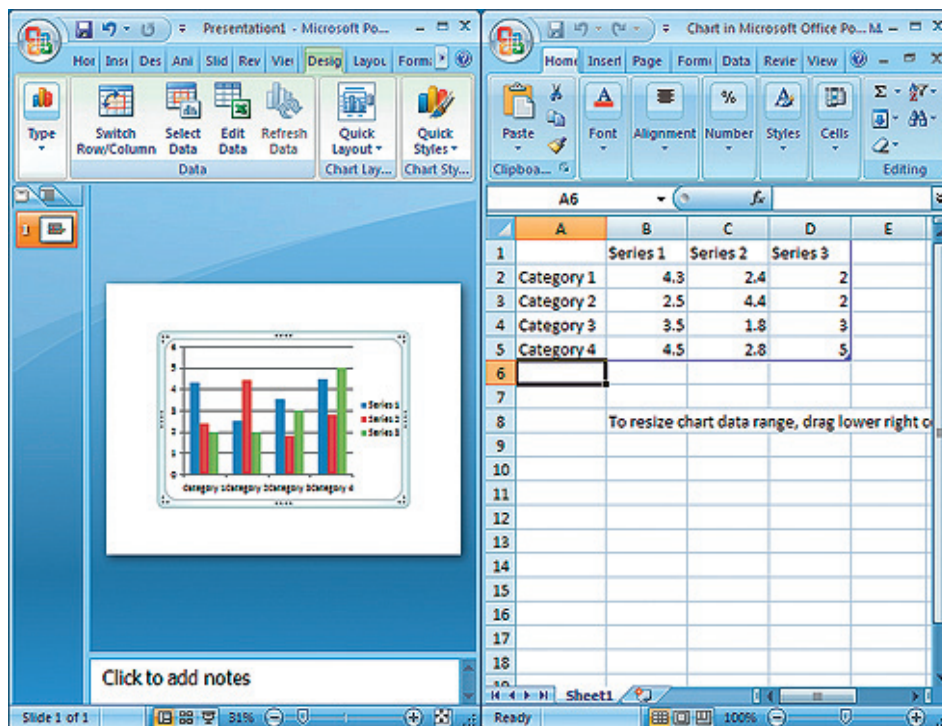


FIGURE 37 Split window showing a chart and data from a spreadsheet

6.3 Inserting pictures

- Insert a picture by clicking the Pictures icon in a content placeholder on a slide.
- Click the Insert ribbon tab and click Picture in the Illustrations group.
- Navigate to the folder where your pictures are stored and double-click to open the folder.
- Double-click the picture to insert it in the slide.

6.4 Inserting clip art

- Double-click the picture to insert it in the slide.
- Insert clip art by clicking the Clip Art icon in a content placeholder on a slide.
- Click the Insert ribbon tab and click Clip Art in the Illustrations group.
- This opens the Clip Art task pane on the right-hand side of the Presentation pane.
- In the Clip Art task pane, enter a keyword, for example 'school' in the Search for field and click Go.
- This displays images related to the keyword that you specified.
- Select the image that you want, then drag it onto your open slide.
- Alternatively, select Insert from the drop-down menu that appears if you click the down-pointing arrow next to the selected image.

6.5 Inserting SmartArt graphics

- To insert a SmartArt graphic, click the Insert ribbon tab and click SmartArt in the Illustrations group.
- This brings up the Choose a SmartArt Graphic dialogue box.
- Select the SmartArt graphic of your choice and drag your mouse across the slide to draw the shape.
- To add text to a SmartArt Graphic, click in the graphic and type or paste text into it.

6.6 Inserting shapes

- To insert a shape, click the Insert ribbon tab and click Shapes in the Illustrations group.
- Add text to shapes by right-clicking the shape and selecting Add Text from the context menu.
- Type or paste the text that you want to enter into the shape.
- Text added to a shape becomes part of that shape and moves and rotates with the shape.

7 Custom animations and slide transitions

- Click the Animations ribbon tab to apply special effects to text and objects, and to specify settings for slide transitions. See Figure 38.
- Slide transitions are the movements that you see in Slide Show view when you change from one slide to another.
- Click the Custom Animation button in the Animations group of the Animation ribbon tab, to open the Custom Animation task pane.
- The Custom Animation pane opens on the right-hand side of the presentation pane.
- Select an element such as a textbox or an illustration and then click the Add Effect button.
- Specify the settings for the entrance, emphasis or exit of the element by selecting effects from the drop-down menu that appears.

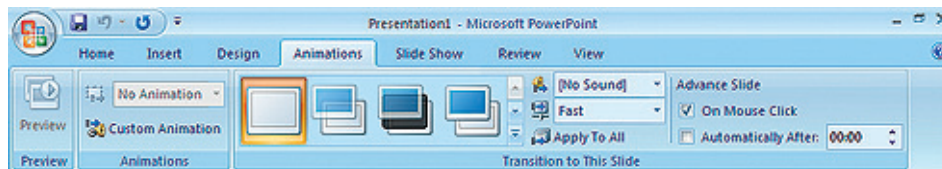


FIGURE 38 Commands on the Animation ribbon

8 Setting up and running a slide show

- Click the Slide Show ribbon tab.
- In the Set Up group, click the Set Up Slide Show icon.
- This brings up the Set Up Show dialogue box, where you can specify various settings.
- When you have specified all the required settings, click OK.
- To run the slide show on your computer, switch to Slide Show view by clicking the Slide Show icon on the status bar.

Questions

Question 1: Multiple choice

Choose the correct answer. Only write the letter of the answer you select.

1.1 A PowerPoint presentation consists of:

- A Pages
- B Slides
- C Sheets
- D Worksheets.

(1)

1.2 Data entered into a slide is entered in:

- A Tables
- B Objects
- C Cells
- D Placeholders.

(1)

1.3 Presentations are used for:

- A Learning and training
- B Advertisements
- C Business and marketing meetings
- D All of above.

(1)

1.4 In a presentation, the slide that you are currently working on is the:

- A Presentation pane
- B Page pane
- C Slide page
- D Main slide.

(1)

1.5 A uniform design that you can apply to all the slides in a slide show:

- A Fill
- B Highlight
- C Theme
- D Graphic.

(1)

Questions

- 1.6 Contains common objects that will be displayed in every slide added to the presentation:
- A Default screen
 - B Default master slide
 - C Default pane
 - D Default layout. (1)
- 1.7 Provides the ability to insert designer quality graphics into a presentation:
- A Pictures graphics
 - B SmartArt graphics
 - C ClipArt graphics
 - D WordArt graphics. (1)
- 1.8 This view allows you to edit and format the slides of a presentation.
- A Slide Sorter View
 - B Preview
 - C Interview
 - D Normal View. (1)
- 1.9 Which tab is used to add tables, graphics, text boxes and illustrations?
- A Home Tab
 - B Insert Tab
 - C Design Tab
 - D Animations Tab. (1)
- 1.10 Which tab is used to setup and run a slide show?
- A Slide Show Tab
 - B Animations Tab
 - C View Tab
 - D Design Tab. (1)
- (10)

Questions

Question 2: Terminology

Choose an item/word from COLUMN B that matches a description in COLUMN A. Write only the letter (A–N) next to the question number (2.1–2.10).

COLUMN A	COLUMN B
2.1 This page is used to enter and edit handout notes.	A. Slide Show
2.2 Restricts accidental changes to the slides by other people.	B. Custom animations
2.3 A sequence of photographic slides projected on a screen or wall as education or entertainment.	C. Slide Sorter View
2.4 Displays all the slides in a slide show at the same time.	D. Protect presentation
2.5 Making visual movement changes to individual objects.	E. Notes Page
2.6 A box that can hold text or graphical elements.	F. Slides Pane
2.7 Pages used in a PowerPoint presentation.	G. Slide transitions
2.8 Displays all the slides in your presentation.	H. Notes Pane
2.9 The movements that you see in Slide Show view when you change from one slide to another.	I. Placeholder
2.10 Used to add notes to your slides.	J. Slides
	K. Current slide
	L. Clip Art
	M. Picture
	N. Page Setup

(10)

Question 3: Short answers

Answer the following questions:

- 3.1 What does a presentation program enables you to do? (3)
- 3.2 List the main view options in a presentation. (3)
- 3.3 What is the default master slide used for? (3)
- 3.4 State the guidelines to creating effective presentations. (3)
- 3.5 List the types of data that can be presented in a presentation. (3)
- 3.6 What is a placeholder? (1)

(16)

[36]

Answers to questions

Question 1: Multiple choice

- 1.1 B ✓
- 1.2 D ✓
- 1.3 D ✓
- 1.4 A ✓
- 1.5 C ✓
- 1.6 B ✓
- 1.7 B ✓
- 1.8 D ✓
- 1.9 B ✓
- 1.10 A ✓ (10)

Question 2: Terminology

- 2.1 E ✓
- 2.2 D ✓
- 2.3 A ✓
- 2.4 C ✓
- 2.5 B ✓
- 2.6 I ✓
- 2.7 J ✓
- 2.8 F ✓
- 2.9 G ✓
- 2.10 H ✓ (10)

Answers to questions

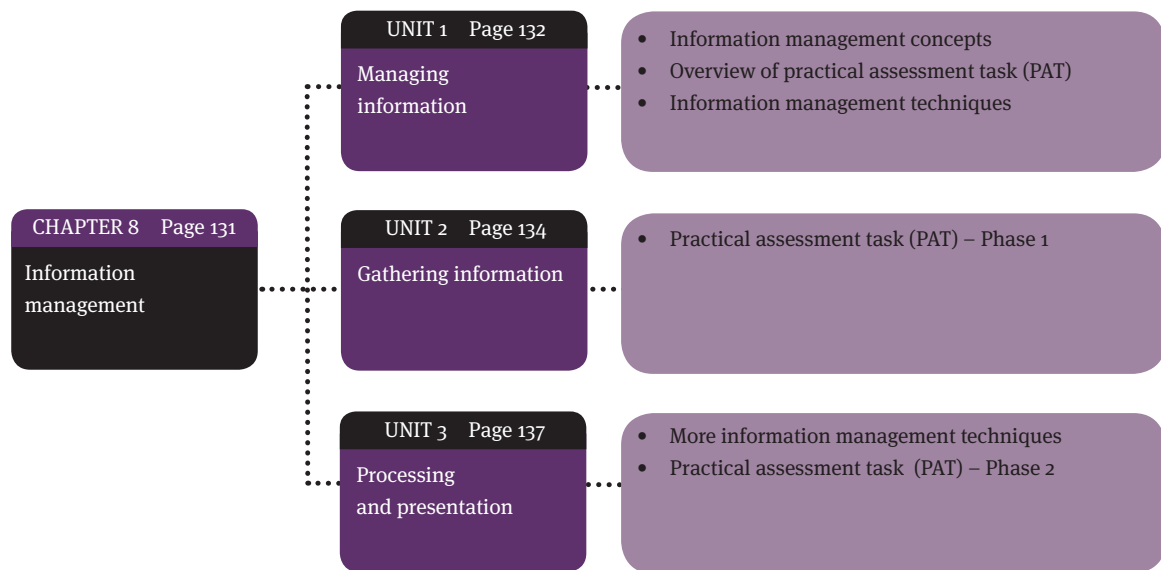
Question 3: Short answers

- 3.1 Insert and format text, ✓ insert and manipulate graphic images, ✓ present a slide show ✓
- 3.2 Normal view, ✓ Slide Sorter view, ✓ Slide Show view, ✓ Notes Page view ✓ (any 3)
- 3.3 The default Master Slide contains common objects ✓ that will be displayed in every slide added to the presentation. ✓ All slides that are added will always be based on the settings of the Master Slide. ✓
- 3.4 Keep it short and simple. ✓ Use a clear layout. ✓ Limit punctuation, capital letters and fancy fonts. ✓ Use contrasting colours. ✓ Rather use fewer slides. ✓ Use illustrations effectively. ✓ (any 3)
- 3.5 Text ✓ Objects ✓ Tables ✓ Charts ✓ Smart art Graphics ✓ Pictures ✓ Clipart ✓ Media ✓
- 3.6 A placeholder is a box that can hold text or graphic elements. ✓
- (16)
- [36]

Information management

Overview

Businesses, other organisations and governments constantly manage information to help them achieve their goals. The information enables managers to make good decisions that will improve performance in these organisations. It also can also be presented to other audiences, such as company directors, government authorities, customers and interest groups.



Managing information

Information management is the process of gathering, selecting, organising and interpreting information, and presenting it to a target audience. When data is processed, it becomes information that conveys meaning and is useful to people.

1 Overview of practical assessment task (PAT)

- The practical assessment task (PAT) for Computer Applications Technology is a research project. In the PAT you need to demonstrate your information management skills and your ability to produce quality outputs by using the applications which you have studied during the year.
- The PAT is an important part of your CAT course because it makes up 25 per cent of your final promotion mark (year mark).
- You need to complete and submit this project before you start your end-of-year examinations.
- If you don't submit your PAT in time, your marks will be incomplete.
- This will have a negative effect on your results and your promotion to the next grade.

2 Information management techniques

Techniques related to the information management process include identifying the task requirements, possible sources of information and the problems associated with the topic.

2.1 Understanding the task requirements

- Before you attempt a research project such as the PAT, you need to understand exactly what is expected of you.
- The PAT will define the task to some extent, so you need to study and follow the PAT instructions carefully.
- Write a task definition in your own words.
- Expand the task statement with bulleted lists or a mind map to plan your course of action.

2.2 Identifying problems associated with the topic

- After defining the task, you need to take the process further by deciding how you will approach the task.
- The best way of finding out what information you need, is to ask questions. These include:
 - questions that lead to factual information and usually start with words such as, What? When, Where? Why?
 - questions that explore and begin with Why? or How?
 - questions that predict are questions that start with If? or what If?
 - questions that help make judgments.

2.3 Possible sources of information

You need to consult a variety of sources of information in order to be well informed about the subject.

- Publications, such as books, newspaper articles, magazines, brochures.
- Electronic media, such as the Internet, including encyclopaedias and social networks, other electronic resources on disk, if available.
- Interviews are a direct source of information and people are often happy to share what they know. Interviews are also useful for getting referrals to other people who might have some knowledge about your subject.
- Surveys are useful tools to find out more about the attitudes and circumstances of people. You will need to prepare a questionnaire with questions that respondents can complete in a short time.

Gathering information

1 Practical assessment task (PAT) – Phase 1

- Phase 1 of the practical assessment task (PAT) involves the inputs of the information management process. This phase consists of three parts:
 - define the task
 - ask questions
 - gather and summarise information.
- The PAT will contain a scenario for a task or a problem, such as:
 - organising a field trip for your class
 - living a healthy and balanced lifestyle
 - the dangers facing users of ICT
 - security and ethical issues relating to computers
 - a proposal about a community garden to your school governing body.

1.1 Create a folder and file structure

- You need to create a suitable file structure for saving all your PAT files.
- One way of doing this is to create folders.
- Follow instructions about the folder structure exactly.
- Remember, always keep a backup of all your saved work.

1.2 Write a task definition and ask questions

- To show that you understand why you are doing this research project, you need to write a task definition in your own words.
- Use the following questions to help you write your task definition:
 - why are you doing the research?
 - what needs to be done?
 - what information do you need to find?
 - where will you find the information you need?
 - who is the information for?
 - how must your information be presented?
 - when must the task be completed?

1.3 Gather and summarise information

- You will need data and information to write the report and finalise the presentation at the end.
- You could brainstorm a variety of ways to source data and information on your own. You could also do this in a group to find possible and realistic ways of solving any of the problems.

1.4 Information versus knowledge

- Keep in mind that the data and information that you will be accessing is aimed at increasing knowledge.
- Information is items of knowledge.
- Knowledge is an understanding of a topic, and you will gain understanding through experience and by looking for information.

1.5 How to evaluate a website

- Not all information on websites is reliable. Some websites contain biased or one-sided information.
- It is good to access more than one source of information so that you are able to compare the information found.
- Use the following criteria to help you assess the reliability of websites.
- The type of Internet site – academic or educational and government websites are usually reliable because much of their information has been researched.
- The author – you can use a search engine to look for more information on the author or the company that publishes the website.
- Regular updating – many web-pages show when they were created and when they were last revised.

1.6 Saving a webpage or part of it

- You can save a webpage by selecting File from the menu bar in your Web browser and select Save Page As.
- In the Save As Type drop-down list, you can choose to save as:
 - webpage, complete – this will save the whole webpage, together with its images, but you may not be able to access the links
 - webpage, HTML – this will save the original page without pictures and enable you to access links on the webpage
 - text files – this will save the original page as a text file, which you can open in a text editor, such as Notepad or WordPad, with access to links.

1.7 Sifting information

- You will find that the websites and the other sources that you have identified contain more information than you are able to use.
- You will have to go through the available information and select the most relevant aspects.
- This process is called sifting the information.

1.8 Role of surveys and questionnaires

- The PAT usually includes instructions for a survey that you need to conduct by asking people to respond to questions in questionnaires.
- The completed questionnaires that you have collected from the respondents form an important part of the information that you need for completing the PAT.

Processing and presentation

1 Analyse and summarise questionnaire results

Capture statistics from the questionnaire in a spreadsheet and use the COUNTIF function to count how many responses meet a certain criterion.

1.1 Manipulating information

You need to manipulate the information that you have collected.

- Identify the most important aspects of the information that you have gathered.
- Summarise it in your own words and add your own insights.
- Use clear language and logical arguments.
- Add graphs, tables and illustrations to make the material more understandable.

1.2 Processing data with a spreadsheet

- The results obtained from the survey questionnaire are a small data sample compared to the responses that you would have analyse in a real-life situation.
- While you could manually analyse the sample of responses you received in your survey, you must capture and analyse them in a spreadsheet.
- If the sample were larger, such as hundreds or thousands of data items, you could not do it manually.
- In your PAT, you use a small sample of data items to demonstrate that you understand the principles and methods needed to process larger samples.

1.3 Write a report

When you are asked to write a report, you will be expected to:

- analyse information that you are given
- find more information by consulting with people, reading books, visiting websites or consulting other sources relevant to the investigation
- draw conclusions from facts, make recommendations, persuade or give an opinion
- end with a conclusion.
- The structure of a report is usually as follows:
 - Cover or title page: the topic of the report, include the author's name and the date on which the report was prepared
 - Table of Contents: use the References feature of your word processor to generate and update an automatic table of contents
 - Introduction: outlines the task definition and the reason for the investigation.
 - Body paragraphs: use main headings and subheadings to organise central themes in the report, and present the information in a logical way
 - Recommendations or findings: suggest how the problem could be solved or how the situation can be improved, recommendations about what action should be taken

- Conclusion: end the report with a conclusion where you draw all the main points together to present an overview
- Bibliography or list of references: use one method consistently and correctly to cite your references.

1.4 Create a slide show presentation

- The slide presentation that you compile for the PAT must cover the same information as the report, fact sheet or proposal.
- The presentation deals with the information more briefly than the report does.
- Select only the main points of the report for inclusion in your presentation.

1.5 Declaration of authenticity

- It is important that the work you hand in is your own work.
- Submit a declaration of authenticity to state that you have not copied from any other learner and that you have not plagiarised in any way.

1.6 Referencing

- It is important to reference all the work that you are using in your report.
- This provides evidence of where the information came from, how up-to-date the information is, the extent of your research and how many sources you have used.
- Authentic work is important. In other words, do not plagiarise. Plagiarism is when you take the thoughts, writing and work of another person and pass them off as your own.
- A reference list is a list of sources that are quoted in the document.
- A bibliography is a list of all the sources used, some of which are quoted in your document.

1.7 Final check

Before you hand in your work:

- Check against the marking checklist that you have done everything you were meant to do.
- Proofread your work carefully.
- Correct any spelling and grammar errors.
- Check the visual appeal of your documents. In other words, check the layout, font styles, colour, artwork and graphics.
- Check that all sources have been acknowledged correctly.

Questions

Question 1: Multiple choice

Choose the correct answer. Only write the letter of the answer you select.

- 1.1 The process of gathering, selecting, organising and interpreting information and presenting it to a target audience is called:
- A Research
 - B Information management
 - C Data management
 - D Sequencing. (1)
- 1.2 A collection of unprocessed items – such as numbers, text, images, audio and video:
- A Data
 - B Information
 - C Records
 - D Facts. (1)
- 1.3 A method of getting information about a sample of a population:
- A Record
 - B Surveys
 - C Research
 - D None of the above. (1)
- 1.4 Going through the available information and selecting the most relevant information:
- A Sourcing information
 - B Researching information
 - C Scattering information
 - D Sifting information. (1)
- 1.5 Process of entering data on a computer:
- A Record
 - B Capture
 - C Copy
 - D Input. (1)

Questions

- 1.6 A document that gives information about an investigation or research done:
- A File
 - B Record
 - C Survey
 - D Report. (1)
- 1.7 A list of sources that are quoted in the document:
- A Information list
 - B Research list
 - C Reference list
 - D Bibliography. (1)
- 1.8 A list of all the sources used, of which some were quoted in your document:
- A Bibliography
 - B Reference list
 - C Research list
 - D Information list. (1)
- (8)

Question 2: Short answers

Answer the following questions:

- 2.1 When data are processed, what does it become, what does it do, and why is it important? (3)
- 2.2 What three steps make up the information management process? (3)
- 2.3 What kind of information and data sources can you consult to obtain factual and reliable information for your report? (3)
- 2.4 Explain how you evaluate a website? (3)
- 2.5 What evidence is provided when referencing information for a report? (3)
- (15)
- [23]**

Answers to questions

Question 1: Multiple choice

- 1.1 B ✓
 - 1.2 A ✓
 - 1.3 B ✓
 - 1.4 D ✓
 - 1.5 B ✓
 - 1.6 D ✓
 - 1.7 C ✓
 - 1.8 A ✓
- (8)

Question 2: Short answers

- 2.1 When data are processed it becomes information ✓ it conveys meaning ✓ it is important because it is useful to people ✓.
- 2.2 The three steps of information management are inputs, ✓ processing ✓ and outputs. ✓
- 2.3 Information and data sources (any 3):
- Publications, ✓ such as books, newspaper articles, magazines, brochures. ✓
 - Electronic media, ✓ such as the Internet, including encyclopaedias and social networks. ✓
 - Other electronic resources on disk, if available. ✓
 - Interviews are a direct source of information. ✓
 - Surveys are useful tools ✓ to find out about the attitudes and circumstances of people. ✓ You will need to prepare a questionnaire that respondents can complete in a short time. ✓
- 2.4 Evaluating a website (any 3):
- The type of Internet site, ✓ academic or educational and Government websites are usually reliable. ✓
 - The author, ✓ use a search engine to look for more information on the author or the company that publishes the website. ✓
 - Regular updating, ✓ check when the site was last revised. ✓
- 2.5 Referencing (any 3):
- Referencing information provides evidence of where the information came from, ✓ how up-to-date it is, ✓ the extent of your research, ✓ how many sources you have used, ✓ that the work is your own and no plagiarism has taken place. ✓
- (15)

[23]

Exam Papers

Paper 1 – June Practical Examination

TIME: 2 HOURS

MARKS: 100

In order to answer this paper your exam folder should contain the following folders/files:

Folders:	
SnappingStudents	(Question 1)
Word processing documents:	
Photographerseye.doc	(Question 2)
Spreadsheets:	
Invoice.xls	(Question 3)
Picture:	
Camera.jpg	(Question 4)

QUESTIONS

QUESTION 1: WORD PROCESSING

Scenario

Photography has become more accessible to everyone with the advent of digital photography. More and more people are buying digital cameras and using them. You have decided to start a photography club at school. The club will be known as *SnappingStudents*. To do the administration of the club as effectively as possible you will need to use a computer. You enlist the help of a few friends at school but, unfortunately, they are not as computer literate as you are. Help them to finish the documents needed by answering the questions contained in this question paper. The first problem is that membership of the club is growing rapidly and you need a form that potential members will complete to provide information needed by the club.

Create the following document in a suitable word processing program using the indicated criteria. All text is Arial 12 except where indicated. Save the document as *form.doc*. Use a table for the main part of the form.

Exam Papers

SnappingStudents

Word-Art
Arial 40
Centred

Text Border

Membership Application

Bold & Italic

Please fill in the following form for the club records

Surname:			Name:		
Grade:		Class:		Cell:	
e-mail:					
Which type of camera do you own? (Mark with an X)				P & S	
				Advanced	
				DSLR	
				Film	

Why do you want to join the club?

Table inserted
Row height 1cm
Column width 2.75cm

All text aligned to the right
and in the centre

[20]

Exam Papers

QUESTION 2: WORD PROCESSING

One of the members of the club has created a document called *The Photographer's Eye*. He isn't very happy with how the document looks. Open the document called *photographerseye.doc* and answer the questions that follow.

Photographer's eye

A good point to start is to develop a "photographer's eye". Get into the habit of looking at scenes around you through your "viewfinder". One of the most amazing quotes I have ever heard was by one of the legendary photographers of our time:

"The single most important component of a camera is the twelve inches behind it."

Ansel Adams (February 20, 1902 – April 22, 1984)

I am a firm believer in the theory that less than 50% of a good photo is the equipment that you use. Yes, of course a digital single-lens reflex (DSLR) camera will produce a better quality picture than a cell phone. We all know that. But put that same DSLR camera in the hands of a complete novice? A good photographer "sees" the photo before even touching a camera. When you pick up the camera you should know exactly how you want to compose the scene. This is something that some people are naturals at, but you can learn to do this by just looking at what other people photograph. Take the time to look at the work other photographers produce.

Practise, practise, practise! Take as many photos as possible. Try new techniques. And never be disappointed if you fail to get exactly the effect or composition you were after. NOBODY becomes a professional photographer overnight. Remember that you are never too old or intelligent to learn something new.

One of the main mantras to keep in mind is: "Never give up!", especially when you finally decide to upgrade to a DSLR camera. Nobody picks up a DSLR camera and takes awesome pictures ready to be posted away to National Geographic. All great photographers started somewhere. You are going to make many mistakes, photographs are going to appear useless, you will want to smash the camera into a million pieces. This is NORMAL!

Just keep taking pictures, experiment, research techniques in magazines and on the internet, but most of all, NEVER give up! Patience is a virtue!

- 2.1 Change the font of the main heading, The Photographer's Eye, to Arial 18 Bold. (3)
- 2.2 Set the page margins top and bottom to 2 cm and the left and right margins to 3 cm. (4)
- 2.3 Justify the whole document, excluding the heading. (2)
- 2.4 A quote by famous photographer Ansel Adams appears after the first paragraph. Change the quote to italics, right align the line containing the name Ansel Adams and dates he was born and died. (2)
- 2.5 Add a double line as a page border around the whole page. (2)
- 2.6 Add the picture, camera.jpg, from your exam folder to the bottom centre of the document. Edit the picture in such a way that it appears in monochrome with a blue border. (4)
- 2.7 Insert the page number in a footer at the bottom right-hand side. The page number should automatically update on the next page. (3)
- 2.8 Insert a frame around the page number from the previous question using an AutoShape. (1)
- 2.9 Change the first P of the title, Photographer's eye, to a dropped capital so that it extends over two lines. Indent the title by 1 cm.

Exam Papers

2.10 Insert the following at the end of the document:

1. Introduction
2. Cameras
 - 2.1 Point and Shoot
 - 2.2 Bridge camera
 - 2.3 DSLR
3. Film or memory card?
4. Conclusion

The line spacing should be 1.5.

2.11 Save the document as Question2Complete.

(5)

(1)

[30]

QUESTION 3: SPREADSHEET

The members of the photographic club will be assisted by one of the local professional photographers. The photographer has asked them to help create an invoice as a spreadsheet in which all calculations are done automatically. Open the spreadsheet called *invoice.xls* and answer the following questions regarding the spreadsheet:

	A	B	C	D	E	F
1	SnappingStudents				Invoice No:	
2						
3	Photographic services					
4						
5				Price	Amount	Total
6	Distance traveled			68	2.5	
7	Hours spent			49	180	
8	Photos printed	A3		5	85	
9		A4		24	35	
10		A5		15	15	
11		Jumbo		60	4.5	
12		Other		0	0	
13	Other expenses				0	0
14					Subtotal	
15					VAT	
16					Total of this Invoice	
17						

3.1 Add borders to the headings Price, Amount and Total in such a way that the heading borders are the same as the borders of the rest of the document.

(3)

3.2 Shade the cells A1:F1 in light blue.

(2)

3.3 The amount in cell D6 has been entered incorrectly. Change the amount to 45.

(1)

3.4 Add a suitable formula in cell F6 to work out the total of each item in the invoice by multiplying the Price (Column D) by the Amount (Column E).

(2)

3.5 Copy the formula from the previous question down to the rest of the column.

(1)

3.6 Work out the subtotal in cell F14 using a suitable function to add the totals in column F together.

(2)

3.7 Add a formula in cell F15 to work out the VAT as 14% of the subtotal in cell F14.

(2)

3.8 Work out the total for the invoice in cell F16 by adding the VAT in cell F15 to the subtotal in cell F14.

(2)

Exam Papers

- 3.9 Change the data type of all the relevant cells on the worksheet to South African Rand. (2)
 - 3.10 Add the words 'SnappingStudents Invoice' to the header of the spreadsheet. Use a function to add Page 1 of 1 to the footer. The page numbers must automatically update. (3)
 - 3.11 Add a right aligned heading called 'Average' to cell E18 and a function to cell F18 to work out the average of the amounts in column F. Exclude the values in cells F14:F16. (3)
 - 3.12 Add a right aligned heading called 'Highest' to cell E19 and a function to cell F19 to find the highest number in column F. Exclude the values in cell F14:F16. (3)
 - 3.13 Add the telephone number 0123456789 to cell F3 in such a way that the 0 in the front of telephone number does not disappear. (2)
 - 3.14 Change the column width of column D, E and F to 10. (2)
- [30]

QUESTION 4: WORD PROCESSING

The local photography shop has agreed to offer members of the club a special price on certain items in their shop. They have asked you to create the following table in a suitable word processing program to advertise their specials. Create the following table and save the document as *Question4Complete.doc*.

<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">Arial 18 Bold</div> <div style="border: 1px solid black; padding: 2px;">Border Thickness - 2 1/4pt</div> <div style="border: 1px solid black; padding: 2px;">Arial 24 WordArt</div> </div>				
<h1 style="margin: 0;">SnappingStudents - Specials</h1>				
Valid until 2 July 2010	<i>Item on Special</i>	<i>Normal Price</i>	<i>Discount</i>	<i>Club Price</i>
	8GB CF Card	R 249	R 50	R 199
	Nikon D40 + 18-55mm	R 3999	R 500	R 3499
	Nikon D90 + 18-55mm	R 6999	R 700	R 6299
	4GB SD Card	R 129	R 20	R 109

Heading- Bold, Italic and centred

Arial 11 Bold & Italic in Red

- 4.1 Add a row to the bottom of the table and calculate the total of the Club Price using a formula.
- 4.2 Save the completed document in your examination folder by creating a new folder called Question 4. The document should be set as read-only.

[20]
[100]

Memorandum

Paper 1 – June Practical Examination

TIME: 2 HOURS

MARKS: 100

QUESTION 1: WORD PROCESSING

Number	Allocation of marks	Comments	Marks	Total
1.1	Add correct wording as heading ✓ WordArt ✓ Arial 40 ✓			3
1.2	Membership application is Bold ✓ and Italic ✓			2
1.3	Text border added ✓			1
1.4	Table added for the rest of the details on the document, ✓ Row height – 1 cm ✓ Column width – 2.75 cm ✓			3
1.5	Telephone symbol ✓			1
1.6	Cells merged in correct places ✓✓			2
1.7	Borders removed in correct places ✓✓			2
1.8	Types of camera right aligned horizontally ✓ and centred vertically ✓			2
1.9	Spelling mistakes ✓✓✓✓	-1 per error		4
			Total	20

QUESTION 2: WORD PROCESSING

Number	Allocation of marks	Comments	Marks	Total
2.1	Font of main heading ✓ Arial 18 ✓ Bold ✓			3
2.2	Margins, Bottom and top 2 cm ✓✓ Left and right 3 cm ✓✓			4
2.3	Justify the whole document ✓ excluding the heading. ✓			2
2.4	Quote in italics ✓ and second line is right aligned. ✓			2
2.5	Double line ✓ page border. ✓			2
2.6	Add picture camera.jpg ✓ bottom centre ✓ change to monochrome ✓ with a blue border. ✓			4
2.7	Page number inserted ✓ to right of footer, ✓ update automatically. ✓			3
2.8	Frame around page number. ✓			1
2.9	Dropped capital letter ✓ over two lines. ✓ Indent 1 cm. ✓			3
2.10	Insert table of contents. ✓ Automatic numbering. ✓ Correct levels. ✓✓ No typing errors. ✓			5
2.11	Save as Question2Complete. ✓			1
			Total	30

Memorandum

QUESTION 3: SPREADSHEET

Number	Allocation of marks	Comments	Marks	Total
3.1	Add borders ✓ to correct cells ✓ to match the rest of the table. ✓			3
3.2	Shade cells A1:F1 ✓ in blue. ✓			2
3.3	Change D6 to 45. ✓			1
3.4	=D6*E6 ✓ ✓	1 per cell reference		2
3.5	Copied down. ✓			1
3.6	=SUM(F6:F13) ✓ ✓	1 per function 1 per cell range		2
3.7	=F14*0.14 ✓ ✓	1 per cell reference 1 per percentage		2
3.8	=F14+F15 ✓ ✓	1 per cell reference		2
3.9	Change suitable cells ✓ to South African currency. ✓			2
3.10	Words SnappingStudents Invoice to header. ✓ Use function to add Page 1 of 1 to the footer ✓ update automatically. ✓			3
3.11	Right aligned heading to E18. ✓ F18=AVERAGE(F6:F13) ✓ ✓	1 for aligned heading, 1 per cell range		3
3.12	Right aligned heading to E19. ✓ E19=MAX(F6:F13) ✓ ✓	1 for aligned heading, 1 per cell range		3
3.13	Number added ✓ with data type text or (*) added. ✓			2
3.14	Change column width of columns D, E and F ✓ to 10. ✓			2
			Total	30

QUESTION 4: WORD PROCESSING

Number	Allocation of marks	Comments	Marks	Total
4.1	Heading left Arial 18 ✓ Bold ✓ and aligned vertically. ✓			3
4.2	Two borders ✓ 2¼pt. ✓			2
4.3	Arial 24 ✓ WordArt to heading. ✓			2
4.4	Other headings bold ✓, italic ✓ and centred. ✓			3
4.5	Last column – Arial 11 ✓ Bold, Italic ✓ red ✓			3
4.6	Outline border ✓			1
4.7	Add row ✓ add formula e.g. =SUM(E3:E6) ✓ ✓			3
4.8	Folder Question 4 created. ✓			1
4.9	Saved as Question4Complete.doc. ✓			1
4.10	File read-only. ✓			1
			Total	20

Exam Papers

Paper 2 – June Theory Examination

TIME: 2 HOURS

MARKS: 100

QUESTION 1: MULTIPLE CHOICE

Options have been provided as possible answers to the following questions. Choose the most appropriate answer and write only the letter (A – D) next to the question number (1.1 – 1.10).

- 1.1 Which one of the following is an example of software?
A Printer
B Windows 7 Home Basic
C LCD Monitor
D None of the above are examples of software. (1)
- 1.2 Raw, unprocessed facts are known as:
A Information
B Data
C Work
D None of the above. (1)
- 1.3 This memory is used to temporarily store data while it is being processed.
A ROM
B RAM
C Hard drive
D CD. (1)
- 1.4 The keys A S D F and J K L ; on a keyboard are called the:
A Main keys
B House row
C Home row
D Function keys. (1)
- 1.5 Which one of the following devices would be used to create hardcopy:
A Printer
B Scanner
C Speaker
D Stylus Pen. (1)
- 1.6 What type of storage method does a DVD use?
A Electronic
B Magnetic
C Optical
D None of the above. (1)
- 1.7 Which one of the following could possibly be associated with a scanner?
A DPI
B RSI
C RAM
D None of the above. (1)

Exam Papers

- 1.8 Which one of the following is not an example of an operating system?
- A Microsoft Office 2007
 - B Microsoft Windows 7
 - C Ubuntu 9.10
 - D Linux.
- (1)
- 1.9 Which one of the following terms is not associated with free software?
- A Freeware
 - B Shareware
 - C Open Source software
 - D Proprietary software.
- (1)
- 1.10 When copying an image from one document to another the image is temporarily stored in the:
- A Clipboard
 - B Notepad
 - C Wordpad
 - D Noteboard.
- (1)
[10]

QUESTION 2: MATCHING TERMS

Choose an item/word from COLUMN B that matches a description in COLUMN A. Write only the letter (A – N) next to the question number (2.1 – 2.10).

COLUMN A	COLUMN B
2.1 An example of a device that is used for input and output.	A Bluetooth
2.2 This program in Windows is used for system settings.	B Screen
2.3 A type of program used in conjunction with a scanner.	C EULA
2.4 A word used to describe the layout of a keyboard.	D Hard drive
2.5 Company that manufactures microprocessors.	E Wireless
2.6 An example of secondary memory.	F LICAGR
2.7 A type of monitor.	G Light
2.8 Acronym for an end user licence agreement.	H Qwerty
2.9 Form of wireless connectivity.	I LED
2.10 An electronic component that emits light.	J Modem
	K LCD
	L Control Panel
	M OCR
	N Intel

[10]

QUESTION 3: SHORT ANSWERS

Scenario

Photography has become more accessible to the average person with the advent of digital photography. More and more people are buying digital cameras and using them. You have decided to start a photographic club at school. The club will be known as SnappingStudents. To do the administration of the club as effectively as possible you will need to use a computer with the appropriate software and hardware. The computer will also be useful for the different club activities.

To help make the purchase decisions, you enlist the help of some of the members. After shopping around you have found some computer advertisements which look reasonable. However, some of the details on the advertisements do not make sense to the other members.

Exam Papers

Answer the following questions relating to the hardware and software of the computer.

- 3.1 Explain the difference between hardware and software? (2)
- 3.2 Name the four stages in the information processing cycle. (4)
- 3.3 A local computer supplier has given you two quotes for computers that can be used for the club. Club members are questioning what some of the information means. Answer the following questions for them:

Computer A

FUJITSU Esprimo P2550 Desktop
PC
Intel Pentium Dual Core 2,6 GHz
320 GB HDD
2GB RAM 677 Mhz
Dual layer DVD writer
Integrated video adapter and LAN
Card reader
Includes Keyboard and mouse
Windows 7 Basic

Computer B

FUJITSU Amilo Li3710 Laptop
Pentium Dual Core 2,1 GHz (T4300)
250 GB HDD
2GB RAM 677 Mhz
Connectivity: WLAN/LAN
Dual Layer DVD writer
Card Reader
15.6" Display
Webcam
Windows 7 Premium
1 Year collect and return Warranty

- 3.3.1 Which computer would be portable? Which word indicates this? (2)
 - 3.3.2 How big is the hard drive in Computer A? (1)
 - 3.3.3 Which computer has the faster CPU? (1)
 - 3.4 One of the members does not understand the difference between memory and storage. Explain the difference between memory and storage under the following headings:
 - 3.4.1 Speed (2)
 - 3.4.2 Technology (2)
 - 3.5 Explain what a driver is by referring to its function. (1)
 - 3.6 For each of the following, say whether they fall into the category of system software or application software.
 - 3.6.1 Word processor. (1)
 - 3.6.2 Operating system. (1)
 - 3.7 What does GUI mean? (Do not just write out the words that make up the acronym.) (1)
 - 3.8 What is the difference between an icon and a shortcut? (2)
 - 3.9 Name two typical components of a GUI interface, excluding icons and shortcuts. (2)
- [22]

QUESTION 4: SHORT ANSWERS

The club members would like to connect all of the computers in a network and to the Internet. Answer the following questions to help them in this regard.

- 4.1 What is a network? (2)
 - 4.2 Name three advantages of using a network in the photography club. (3)
 - 4.3 Name two possible disadvantages of a network. (2)
 - 4.4 Why is the Internet described as an example of a network? (1)
- [8]

Exam Papers

QUESTION 5: SHORT ANSWERS

The club is considering the social implications their use of computing devices will have on the community and the environment.

- 5.1 For the club to fulfil its ethical responsibilities they want to make sure they are using legal software on the computers. This involves licence agreements. (3)
- 5.1.1 Name three types of licence agreements. (3)
- 5.1.2 What is the main difference between these three licence agreements? (1)
- 5.2 Name an advantage of computers relating to each of the following headings: (1)
- 5.2.1 Saving paper (1)
- 5.2.2 Accuracy (1)
- 5.2.3 Communication costs. (1)
- 5.3 List three ways in which a computer can authenticate a user wanting to work on the computer. (3)
- [12]

QUESTION 6: SHORT ANSWERS

To create all of the documents needed by the club you need to get some of the club members to help you. The only problem is that some of the members are not fully computer literate. Help them by answering the following questions relating to the programs they will be using.

- 6.1 One of the members compiled a document regarding the rules and regulations of the club in a word processor. Unfortunately the member misspelled the name of the club throughout the document in 112 places. Which function in Microsoft Word could be used to quickly solve this problem? (1)
- 6.2 The secretary created a document containing the agenda of the next meeting for the club. All of a sudden the document looked as follows:

```

Agenda¶
¶
¶
→ Welcome¶
→ Introductions¶
→ Venues¶
→ Photographs¶
→ Fees¶
→ Varia¶
¶
Drinks¶
    
```

- 6.2.1 The secretary is worried that it could be a virus. Is it a virus? Motivate your answer. (2)
- 6.2.2 What do the two strange symbols mean? (2)
- 6.3 The following spreadsheet has been set up by a member of the club to keep track of the stationery budget of the club. They need some help regarding the final details on the spreadsheet.

	A	B	C	D	E
1	Stationery Budget				
2					
3	Item	Budget	Spent	Balance	
4	Blue Pens	R 450.00	R 300.00		
5	Green Pens	R 210.00	R 190.00		
6	Permanent markers	R 760.00	R 350.00		
7	A4 Paper	R 3,700.00	R 100.00		
8	Staples	R 280.00	R 105.00		
9					
10		Total Spent			
11					

Exam Papers

- 6.3.1 Write down the formula you would use to calculate the balance in cell D4 by deducting the amount that was spent in cell C4 from budget in cell B4. (3)
- 6.3.2 Why do we use cell references instead of amounts in cases such as the example above? (2)
- [10]

QUESTION 7: SHORT ANSWERS

For the club to run as smoothly as possible, the members of the club will need to help with many of the computer related tasks. You need to present a computer literacy course at the club to help these members become more knowledgeable about computers. Answers to the following questions need to be included in the presentation.

- 7.1 Portable computing is growing in popularity amongst the members. Define each of the following portable computing devices:
- 7.1.1 Laptop (1)
 - 7.1.2 Tablet (1)
 - 7.1.3 Netbook. (1)
- 7.2 Name two mobile operating systems that one might find on modern smartphones. (2)
- 7.3 Joe, one of the club members, would like to connect his cellular phone to his computer in order to copy photos from his phone to the computer. You explain to him that there are basically two ways, wireless or using a cable.
- 7.3.1 Name two advantages of using a Bluetooth connection instead of infrared to connect to the phone. (2)
 - 7.3.2 What is the name of the port that is used to connect digital cameras that need a high speed port? (1)
- 7.4 The club needs to invest in new monitors for the computers. Name two reasons why they should opt for LED monitors instead of LCD monitors. (2)
- 7.5 What type of printer should the club buy for high quality photo printing? (1)
- 7.6 Name three pointing devices that can be used on a laptop instead of the mouse. (3)
- 7.7 Sarah, the secretary of the club, has come across three terms she has never heard before. Explain to her what each of the following means:
- 7.7.1 MICR (2)
 - 7.7.2 RFID (2)
 - 7.7.3 OMR (2)
- 7.8 One of the biggest investments at the club will be new software. Name one disadvantage of using each of the following type of software:
- 7.8.1 Freeware (1)
 - 7.8.2 Open source (1)
 - 7.8.3 Shareware (1)
 - 7.8.4 Proprietary (1)
- 7.9 Joe would like to use information from the Internet in one of the projects he is currently working on.
- 7.9.1 Explain to him what plagiarism is by referring to copyright. (2)
 - 7.9.2 What impact would it have if the information on the website were released under the creative commons licence? (2)

[28]

[100]

Memorandum

Paper 2 – June Theory Examination

TIME: 2 HOURS

MARKS: 100

QUESTION 1: MULTIPLE CHOICE

- 1.1 B ✓
- 1.2 B ✓
- 1.3 B ✓
- 1.4 C ✓
- 1.5 A ✓
- 1.6 C ✓
- 1.7 A ✓
- 1.8 A ✓
- 1.9 D ✓
- 1.10 A ✓

[10]

QUESTION 2: MATCHING TERMS

- 2.1 J ✓
- 2.2 L ✓
- 2.3 M ✓
- 2.4 H ✓
- 2.5 N ✓
- 2.6 D ✓
- 2.7 K ✓
- 2.8 C ✓
- 2.9 A ✓
- 2.10 I ✓

[10]

QUESTION 3: SHORT ANSWERS

- 3.1 Hardware components are the physical parts of a computer that can be touched. ✓ Software is the programs that make the hardware work and provide the interface between people and computers. ✓
- 3.2 Input, ✓ processing, ✓ output, ✓ storage ✓
- 3.3 Computer specifications:
 - 3.3.1 B, ✓ laptop ✓
 - 3.3.2 320 GB ✓
 - 3.3.3 A ✓
- 3.4 Memory and storage:
 - 3.4.1 Memory is much faster than storage. ✓✓
 - 3.4.2 Memory is electronic ✓ and storage is mechanical or optical. ✓
- 3.5 A small program that allows software to communicate with hardware. ✓
- 3.6 Software categories:
 - 3.6.1 Application software. ✓
 - 3.6.2 System software. ✓
- 3.7 The use of graphics, such as icons, simplify human interaction with the computer. ✓
- 3.8 An icon is a small picture that represents a file or a program or a folder. ✓ A shortcut is an icon that provides quick and easy access to a folder or program. ✓
- 3.9 Buttons, dialogue boxes. ✓✓

[22]

Memorandum

QUESTION 4: SHORT ANSWERS

- 4.1 Two or more computing devices ✓ connected together via a communications medium such as a cable. ✓
- 4.2 Advantages of a network: (any 3)
- Share a high-speed internet connection. ✓
 - Share devices such as printers and scanners. ✓
 - Share information amongst computers. ✓
 - Installation of programs is easier. ✓
 - Data security may be better. ✓
- 4.3 It is expensive to install the network ✓ and expertise is needed to keep the network in working order. ✓
- 4.4 The Internet is made up of computing devices and servers all over the world connected to each other by cable, satellite and telecommunication systems. ✓

[8]

QUESTION 5: SHORT ANSWERS

- 5.1 Licence agreements:
- 5.1.1 Site, ✓ single user, ✓ multi-user. ✓
- 5.1.2 Single user is only valid on one computer at a time. ✓ A multi-user licence allows software to be installed on the number of computers specified in the licence agreement. ✓ A site licence allows the user to install the software on as many computers as the company owns. ✓
- 5.2.1 Send documents electronically. ✓
- 5.2.2 Data validation. ✓
- 5.2.3 Cheaper to communicate via e-mail. ✓
- 5.3 Username and password, ✓ fingerprint, ✓ voice recognition, ✓ handprint. ✓

[12]

QUESTION 6: SHORT ANSWERS

- 6.1 Find and replace OR spelling check. ✓
- 6.2 Agenda:
- 6.2.1 No, it is not a virus. ✓ Hidden symbols have been turned on. ✓
- 6.2.2 Enter and tab ✓✓
- 6.3 Stationery budget:
- 6.3.1 = B4-C4 ✓✓✓
- 6.3.2 If the values in the source cells are changed ✓ the answers will automatically change. ✓

[10]

QUESTION 7: SHORT ANSWERS

- 7.1 Portable computing
- 7.1.1 A portable computer. ✓
- 7.1.2 A device that uses a touch screen interface. For example, an iPad. ✓
- 7.1.3 A small laptop – usually the monitor is not bigger than 25 cm. ✓
- 7.2 Any two of: Android, ✓ Apple iOS, ✓ Symbian, ✓ Windows Phone. ✓
- 7.3 Cell phone connection:
- 7.3.1 Any two of the following: faster, ✓ longer distance between devices, ✓ Bluetooth not a line-of-sight device. ✓
- 7.3.2 Firewire. ✓
- 7.4 They use less electricity ✓ and take up less desk space. ✓
- 7.5 An inkjet printer. ✓

Memorandum

- 7.6 Any three of the following: touch pad, ✓ trackball, ✓ pointing stick, ✓ stylus. ✓
- 7.7 Terminology:
 - 7.7.1 Magnetic ink character recognition, used to identify characters such as those printed on cheques. ✓✓
 - 7.7.2 Small electronic markers, containing information, such as barcodes, that can be scanned and read. ✓✓
 - 7.7.3 Optical mark recognition. Scanners recognise marks on paper, such as the marks on lottery tickets. ✓✓
- 7.8 Software:
 - 7.8.1 Very little support. Copyright still applies. ✓
 - 7.8.2 Technical support is difficult to find, few manuals and little help available. Compatibility with existing programs may be a problem. ✓
 - 7.8.3 Only certain features are available. ✓
 - 7.8.4 Costs of purchase and upgrades are high, licences may be restrictive. ✓
- 7.9 Plagiarism:
 - 7.9.1 The original creator/writer holds copyright on a product ✓ meaning that you may not copy and use the information without permission. Copying information and presenting it as your own work is plagiarism. ✓
 - 7.9.2 Information is still copyrighted ✓ but may be used and distributed under certain circumstances. ✓

[28]

[100]

Exam Papers

Paper 3 – November Practical Examination

TIME: 2 HOURS

MARKS: 120

In order to answer this paper your exam folder should contain the following folders/files:

Folders:	
LibraryAdmin	(Question 1)
Word processing documents:	
LibraryHistory.doc	(Question 4)
Spreadsheets:	
Budget.xls & Fines.xls	(Question 3 & 5)
Picture:	
texture.jpg & books.jpg	(Question 1 & 4)

QUESTIONS

The questions are based on the following scenario.

Scenario

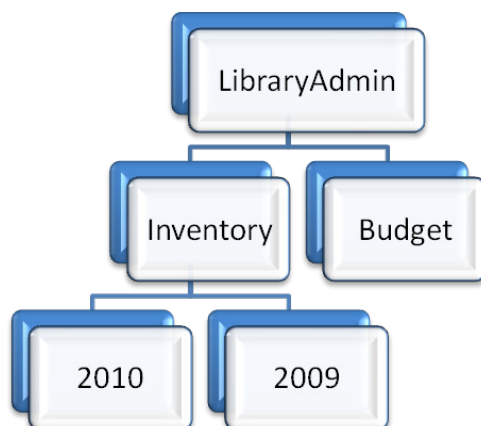
The school librarian recently decided to buy new computers that she would like to use in the library and for administration. Students will be able to use the computers for research as well as other project-related tasks. A computer will also be set aside for the librarian, Mrs Books, to use for administration, such as an inventory of all the books in the library.

Answer the following questions relating to the running of the library on the computers that Mrs Books would like to use.

QUESTION 1: FILE HANDLING

Mrs Books wants to organise all of the files on her computer in order to do her job effectively. Help her by answering the following questions relating to the folder names *LibraryAdmin*.

1.1 Change the LibraryAdmin folder structure as follows:



- 1.2 Move all the spreadsheets in the LibraryAdmin folder to the Budget subfolder. (3)
- 1.3 Add the password XYZ to the file called Authors.doc. (2)
- 1.4 Delete all of the compressed files in the LibraryAdmin folder. (2)
- 1.5 Change the name of the largest file in the LibraryAdmin folder to Largest. (1)

[10]

Exam Papers

QUESTION 2: WORD PROCESSING

Mrs Books needs to add all of the books that the library buys to her inventory. In order for her to do this, she would like to use a form designed for this exact purpose. Create the following form in a word processing program according to the specifications listed. Save the completed form as Question2.doc. Font is Arial 12, unless otherwise specified.

Tab stops and leaders used. Stops at 7, 7.5 and 16 cm.

New Book Form

Wordart – Use Texture.jpg from your exam folder.

Book Title: Author:

ISBN: Pages:

Answer the following questions regarding the book by adding an X in the boxes:

Cover Type	Condition	Acquired
Hard cover	New	Bought
Soft cover	Used	Donated

Table inserted
Column widths
3 cm and 1 cm.

Do we already have a copy of this book?	Classify this book in one of the following categories:	
	Fiction	General
	Hobbies	Sport
	History	Technology
Yes	Health	Other
No	If other, please specify below:	
Amount		

Cells shaded light grey where input is needed.

School Stamp

Textbox – Font
Arial 20 – Bold –
Light grey

Signature:

Date:

Tab stop and leader at 6 cm.

[25]

Exam Papers

QUESTION 3: SPREADSHEETS

Mrs. Books would like to use a spreadsheet to keep track of the expenditure and income of the library. However, she does not know how to add formulas and functions to the spreadsheet to make calculations automatic. Open the spreadsheet named *Budget.xls*, and help her to improve the look of the spreadsheet as well as adding suitable formulas.

You will be working on multiple worksheets, so please make sure that you know on which sheet you should be working! Questions 3.1 to 3.10 are to be completed on the worksheet *Income*.

	A	B	C	D
1	Library Income - 2010			
2				
3	Item	Projected Income	Expected income	
4	Cake sale - February	1200		
5	Cake sale - June	1200		
6	Cake sale - August	1200		
7	Cake sale - November	1200		
8	Sale of old books	1500		
9	Sale of old magazines	500		
10	Donations	2000		
11				
12	Total			
13	Average			

- 3.1 Merge cells A1 to C1. (1)
- 3.2 Centre the heading, Library Income – 2010, in the newly merged cells and change the font size to 20. (1)
- 3.3 Change the background shading of the main heading and the headings in row 3 to a light green. Make the font colour of all the headings blue. (2)
- 3.4 Mrs. Books knows that not all of the income she budgeted for will be collected in the year. She thinks they should manage about 80% of the totals. Calculate the *expected income* in cell C4 as 80% of the *projected income* in cell B4 using a formula. (2)
- 3.5 Autofill the formula from C4 to C10. (1)
- 3.6 Calculate totals for columns *Expected Income* and *Projected Income* in cells B12 and C12 using suitable functions. (4)
- 3.7 In cell C13 use a function to calculate the average *Projected Income* for each item. (2)
- 3.8 Add South African currency to all of the cells that contain values, and round the values off the nearest whole number. (3)
- 3.9 Change the tab colour of the *Income* worksheet to yellow. (1)
- 3.10 Right align the headings in cells A12 and A13. (2)

Exam Papers

Questions 3.11 to 3.15 are based on the worksheet named Expenditures.

	A	B	C	D	E
1	Library Expenditures - 2010				
2					
3	Item	Amount	Price pe	Total price	
4	Table	21	310		
5	Chair	2	165		
6	Computer	5	3210		
7	Book A	13	75		
8	Book B	52	83		
9	Book C	31	102		
10					
11		Total - Excluding VAT			
12			VAT		
13			Total		

- 3.11 Change the formatting of the headings in row 3 in such a way that all of the words are visible, without changing the width of the columns. (1)
- 3.12 Calculate the totals in column D of each item by multiplying the Amount with the Price per Item. (2)
- 3.13 Autofill the formula from D4 to D9. (1)
- 3.14 Calculate the values in cells D11, D12 and D13 using suitable formulas and/or functions, using the following criteria: (6)
- The total in cell D13 is the total of the values in column D.
 - VAT is INCLUDED in the totals of column D.
 - VAT is calculated at 14%.
 - (HINT: The sum of the values in column D must be equal to the value in cell D13 and NOT equal to the values in cell D11.)
- 3.15 Add the current date to the footer. (1)
- [30]

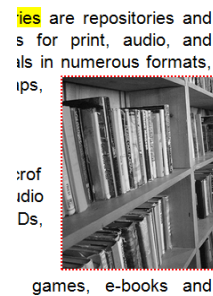
QUESTION 4: WORD PROCESSING

Mrs Books has done some research regarding the history of the library. She has saved the data in a word processing document called LibraryHistory.doc. She is unhappy about the way the document looks. Open the document and answer the following questions relating to it:

- 4.1 Change the font of the two headings (Library & Antiquity) to Arial 18. (2)
- 4.2 Justify the whole document. (2)
- 4.3 Change the top and bottom margins to 1.5 cm and the left and right margins to 2.5 cm. (2)
- 4.4 Change the section starting with the heading Library, but excluding the heading, to three columns with a line between the columns. The two outer columns must be 6 cm in width and the centre column 3 cm. (4)
- 4.5 The second column should start with the words "Public and..." and the third column should start with the words "Today's libraries...". These words are highlighted in yellow. (2)

Exam Papers

- 4.6 Add a picture to the document using the following criteria:
- 4.6.1 Use the picture called Books.jpg from your examination folder. (1)
 - 4.6.2 Add the picture to the third column, and change the formatting so the picture and text looks like the insert to the right. Note the position of the picture in relation to the text. (2)
 - 4.6.3 Change the size of the picture to 4 × 3 cm. (1)
 - 4.6.4 Add a dashed line as a border to the picture in a red colour. (2)
- 4.7 Remove the Enter between the last two paragraphs so the last two paragraphs look like one paragraph. (1)
- 4.8 Add a hyperlink to the words Information retrieved from Wikipedia pointing to the website www.wikipedia.org. (1)
- 4.9 Add page numbers within a circle to the document in the centre of the footer. (2)
- 4.10 Add the name of the librarian, Mrs Books, to the document as a watermark on both pages using an Arial font. (2)
- 4.11 Save the document as Question 4.doc. (1)
- [25]



QUESTION 5: SPREADSHEETS

Mrs Books is implementing a new system for fines on books returned late. She would like to use a spreadsheet for this purpose. Open the spreadsheet *Fines.xls* and answer the following questions regarding the sheet:

	A	B	C	D	E	F
1	Outstanding fines for late books					
2						
3	Amount of books outstanding					
4	Surname and Initials	7 - 14 days	14 - 21 days	21 - 60 days	60+ days	Totals
5	JONKER, K		3	1	1	
6	MBEKI, L	6	4			
7	MBEWU, S	1	10			
8	ROUX, C	1	8			
9	KROG, J			12		
10	NIEMAN, M			2	5	
11	SAAIMAN, P		1	7		

- 5.1 Use a suitable function in cell B13 to find the highest number of books outstanding in the range B5:E11. (2)
 - 5.2 Add a formula to cell F5 to work out the value of fines outstanding. Use the data representing the number of books outstanding and multiply those numbers by the value of the fine found in cells J4:J7. (4)
 - 5.3 Autofill the formula in cell F5 down to cell F11. (1)
 - 5.4 Mrs Books would like to see the fines data represented in a chart/graph. (1)
 - 5.4.1 Use a bar graph. (1)
 - 5.4.2 Use the Surnames & Initials (Column A) and the Totals (Column F) as data. (2)
- (HINT: If you could not do the formulas for column F, then just add any numbers in order to create the graph.)

Exam Papers

- 5.4.3 No legend should be shown. (1)
 - 5.4.4 The graph should be in a separate worksheet, named *FinesChart*. (2)
 - 5.4.5 The heading should read *OUTSTANDING TOTALS*. (1)
 - 5.4.6 The names of the people must be angled at 45 degrees. (2)
 - 5.4.7 The background of the chart must be covered in any of the standard textures available. (1)
 - 5.4.8 Major and minor gridlines must be shown. (1)
 - 5.4.9 Change the measurement units of the vertical axis to a minimum of 50 and a maximum of 320. (2)
 - 5.5 Add a function to cell B14 to calculate cell B13 as a percentage of the total number of books outstanding. The total number of books outstanding is the sum of cell range B5:E11. Cell B14 should be shown in percentage format with only one decimal place. (4)
 - 5.6 Copy and paste the table A4:F11 of the Fines worksheet to Sheet2. Only the values should be pasted without any formatting such as colours and borders. (2)
 - 5.7 Change the name of Sheet2 to NewFines. (1)
 - 5.8 Sort the data in worksheet NewFines in descending order of the Total column. (2)
 - 5.9 Save the spreadsheet as Question 5.xls. (1)
- [30]
[120]

Memorandum

Paper 3 – November Practical Examination

TIME: 2 HOURS

MARKS: 120

QUESTION 1: FILE HANDLING

Number	Allocation of marks	Comments	Marks	Total
1.1	Sub folders added. ✓✓✓			3
1.2	Spreadsheets moved ✓ to the Budget subfolder. ✓			2
1.3	Password XYZ added to file Authors.doc ✓✓			2
1.4	Compressed files ✓ deleted. ✓			2
1.5	Largest file renamed Largest ✓			1
				10

[10]

QUESTION 2: WORD PROCESSING

Number	Allocation of marks	Comments	Marks	Total
2.1	Wordart added. ✓ Correct wordart. ✓ Texture added. ✓			3
2.2	Tab stops added at 7 (Right) ✓ 7.5 (Left) ✓ and 16 cm (Right). ✓			3
2.3	Tab leaders added ✓ correctly. ✓			2
2.4	Table inserted. ✓			1
2.5	No spelling or typing mistakes in the table. ✓✓	-1 per error		2
2.6	Column widths 3 cm ✓ and 1 cm. ✓			2
2.7	Borders added correctly. ✓✓	-1 per error		2
2.8	Correct cells shaded ✓ in light grey. ✓			2
2.9	Cells merged as indicated. ✓			1
2.10	Alignment as indicated. ✓			1
2.11	Correct Autoshape ✓ added behind table. ✓			2
2.12	Place added for signature and date with tab stop at 6cm and tab leader. ✓✓			2
2.13	Textbox added ✓ including words School Stamp in Arial 20, light grey. ✓			2
				25

[25]

Memorandum

QUESTION 3: SPREADSHEETS

Number	Allocation of marks	Comments	Marks	Total
3.1	Merge cells A1:C1 ✓			1
3.2	Centre the heading and change font size to 20. ✓			1
3.3	Headings background to light green ✓ and font to light blue. ✓			2
3.4	=B4*0.8 ✓ ✓ OR =B4*80% OR =(B4/100)*80			2
3.5	Autofill from C4 to C10. ✓			1
3.6	B12 =SUM(B4:B10) ✓ ✓ AND C12 =SUM(C4:C10) ✓ ✓			4
3.7	C13 =AVERAGE(B4:B10) ✓ ✓			2
3.8	South African currency ✓ in all suitable cells ✓ rounded to nearest whole number. ✓			3
3.9	Income Tab colour to yellow. ✓			1
3.10	Right align ✓ A12 and A13. ✓			2
3.11	Wrap text ✓ on all headings in row 3.			1
3.12	=B4*C4 ✓ ✓			2
3.13	Autofill from D4 to D9. ✓			1
3.14	D11=SUM(D4:D9)/1.14 ✓ ✓ OR D11=(SUM(D4:19)/114)*14 D12=D11*0.14 ✓ ✓ D13=D11+D12 ✓ ✓			6
3.15	Date in footer. ✓			1
				30

[30]

Memorandum

QUESTION 4: WORD PROCESSING

Number	Allocation of marks	Comments	Marks	Total
4.1	Library & Antiquity ✓ Arial 18. ✓			2
4.2	Justify ✓ the whole document. ✓			2
4.3	Top & bottom margins 1.5 cm. ✓ Left & right margins 2.5 cm. ✓			2
4.4	Three columns, ✓ lines between columns. ✓ Outer columns 6 cm, ✓ centre column 3 cm. ✓			4
4.5	Second column starts with “Public and...” ✓ and the third column with “Today’s libraries...”. ✓	Column Breaks!		2
4.6.1	Books.jpg ✓			1
4.6.2	Inserted into third column ✓, square formatting. ✓			2
4.6.3	Size of the picture 4 × 3 cm. ✓			1
4.6.4	Dashed ✓ red border. ✓			2
4.7	Remove the unnecessary enter. ✓			1
4.8	Hyperlink pointing to www.wikipedia.org added to Information retrieved from Wikipedia ✓			1
4.9	Page numbers centre of the footer ✓ within a circle. ✓			2
4.10	Mrs Books as a watermark ✓ in Arial font. ✓			2
4.11	Saved as Question 4.doc. ✓			1
				25

[25]

Memorandum

QUESTION 5: SPREADSHEETS

Number	Allocation of marks	Comments	Marks	Total
5.1	B13=MAX(B5:E11) ✓ ✓			2
5.2	=(B5*5)+(C5*13)+(D5*25)+(E5*40) ✓ ✓ ✓ ✓ OR =(B5*J4)+(C5*J5)+(D5*J6)+(E5*J7)	-1 per error		4
5.3	Autofill F5 to F11. ✓	No mark if cell references have been used for column J, as autofill would not have worked.		1
5.4.1	Bar graph. ✓			1
5.4.2	Column A ✓ and Column F ✓ used as data.			2
5.4.3	No legend. ✓			1
5.4.4	Separate worksheet ✓ FinesChart. ✓			2
5.4.5	Heading is OUTSTANDING TOTALS. ✓			1
5.4.6	Names ✓ angled at 45 degrees. ✓			2
5.4.7	Texture as background. ✓			1
5.4.8	Minor and major gridlines shown. ✓			1
5.4.9	Minimum 50 ✓ and maximum 320. ✓			2
5.5	B14=B13/SUM(B5:E11) ✓ ✓ ✓ Percentage format. ✓			4
5.6	Copy and paste ✓ only values. ✓			2
5.7	Change Sheet2 to NewFines. ✓			1
5.8	Sorted ✓ descending. ✓			2
5.9	Save as Question 5.xls. ✓			1
				30

[30]

[120]

Exam Papers

Paper 4 – November theory examination

TIME: 1½ HOURS

MARKS: 100

QUESTION 1: MULTIPLE CHOICE

Various options have been provided as possible answers to the following questions. Choose the most appropriate answer and write only the letter (A – D) next to the question number (1.1 – 1.10).

- 1.1 Which one of the following will be normally associated with withdrawing money?
A MON
B RSI
C ATM
D ASP. (1)
- 1.2 Which one of the following devices can be classified as both an input and an output device?
A Keyboard
B Scanner
C Touch screen
D Laptop. (1)
- 1.3 Which one of the following would be the cheapest way of sending a message to more than 100 people?
A SMS
B E-mail
C MMS
D Fax. (1)
- 1.4 Which one of the following will normally be associated with computer monitors?
A DPI
B LED
C LCD
D All of the above. (1)
- 1.5 Which one of the following devices is an example of secondary memory?
A RAM
B ROM
C Printer
D Memory Card. (1)
- 1.6 Which one of the following devices will affect the speed of a computer the most?
A CPU
B ROM
C Hard drive
D Monitor. (1)
- 1.7 Which one of the following is not an example of a computer printer?
A Book printer
B Inkjet printer
C Laser printer
D Optical printer. (1)

Exam Papers

- 1.8 Which one of the following is not an example of application software?
A Microsoft Windows 7
B Microsoft Word 2010
C Photoshop CS5
D Paint. (1)
- 1.9 Which one of these is not directly linked to the Internet?
A URL
B ISP
C IP
D IEB. (1)
- 1.10 Which one of the following types of programs would you use to create an invoice that would calculate values automatically?
A Spreadsheets
B Word processing
C Authoring software
D None of the above. (1)
- [10]

QUESTION 2: MATCHING TERMS

Choose an item/word from COLUMN B that matches a description in COLUMN A. Write only the letter (A – N) next to the question number (2.1 – 2.10).

Column a	Column b
2.1 File extension for a graphic image.	A F1
2.2 A series of stripes indicating a unique identifying number.	B Volatile
2.3 An angry message posted on the Internet.	C Smart Card
2.4 Special magnetised ink that can be read by scanners.	D Bitmap
2.5 RAM is said to be _____ because electricity is needed to keep data stored.	E PDF
2.6 Word describing the use of laser based technology.	F Barcode
2.7 Used for SIM cards and some credit cards.	G Picture
2.8 Function key used to refresh the screen.	H LED
2.9 A grid of colour values as captured by a scanner.	I MICR
2.10 Type of file that generally cannot be edited in any way.	J F5
	K Flame
	L JPG
	M Optical
	N DOC

[10]

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QUESTION 3: SHORT ANSWERS

Scenario

The school librarian recently decided to buy new computers that she would like to use in the library and for administration. Students will be able to use the computers for research as well as other project-related tasks. A computer will also be set aside for the librarian, Mrs Books, to use for administration such as an inventory of all the books in the library.

Buying new computers is a new experience for Mrs Books. Help her to understand the technical information she needs by answering the following questions relating to computer hardware.

- 3.1 Explain to Mrs Books how you would distinguish between hardware and software by referring to the definition of hardware. (1)
- 3.2 What is the difference between data and information? (2)
- 3.3 The stages of the information processing cycle are input, processing, output and storage. For each of the following, give the stage of the information processing cycle under which it falls:
 - 3.3.1 Typing an SMS. (1)
 - 3.3.2 Printing a photograph. (1)
 - 3.3.3 Listening to music on a cellular phone. (1)
 - 3.3.4 Copying data from your computer to your flashdrive. (1)
 - 3.3.5 Taking a photograph of your family. (1)
- 3.4 For each of the following statements, decide if the statement refers to storage or memory by only writing down the word storage or memory.
 - 3.4.1 Fastest of the two. (1)
 - 3.4.2 Cheaper per MB. (1)
 - 3.4.3 Non-volatile. (1)
 - 3.4.4 Uses magnetic or optical technology. (1)
 - 3.4.5 Temporary storage. (1)
- 3.5 Mrs Books would like to know some more regarding the basic input devices used on computers, namely the keyboard and mouse.
 - 3.5.1 Why are keyboards sometimes called QWERTY keyboards? (1)
 - 3.5.2 What is the name given to the row on the keyboard containing keys J, K, L, ; and A, D, S, F? (1)
 - 3.5.3 What is the main difference between a mechanical mouse, an infrared mouse and an optical mouse? (3)
- 3.6 Mrs Books' computer at home has a problem. When she moves the mouse, the cursor moves very erratically. Explain briefly what the problem is, and how to solve it. (2)
- 3.7 Why do you not need a mouse pad for an optical mouse? (1)
- 3.8 Health is an important issue for Mrs Books when deciding on what hardware to buy. She has heard people mentioning RSI.
 - 3.8.1 Explain briefly what RSI is. (Do not just write out the abbreviation!) (2)
 - 3.8.2 Name two ways in which she can prevent RSI. (2)
- 3.9 Define ergonomics. (2)
- 3.10 The local IT technician has recommended that Mrs Books purchase LED screens instead of LCD monitors. Name two advantages of LED monitors over LCD monitors. (2)
- 3.11 She decides to buy 18.5 inch monitors for the computers in the library, but when unpacking the monitor she noticed the width of the monitor is less than 18.5 inches. Why is this? (1)

Exam Papers

- 3.12 Some of the monitors in the shop were more expensive because of their higher resolution. Explain why you would need a high resolution monitor by referring to the definition of the term. (2)
- 3.13 The library will need a printer for students to print out their research. In each of the following cases, say whether you think Mrs Books should buy this type of printer. Motivate your answer in each case. (2)
- 3.13.2 Inkjet printer. (2)
- 3.13.3 Dotmatrix printer. (2)
- 3.14 Mrs Books is worried about data being removed from her computer by mistake. You recommend that she backup her data to CDs. Name two reasons why CDs are ideal for this function. (2)
- 3.15 What is the main difference between a DVD and a Blu-ray disc? (1)
- 3.16 The IT technician gave her the following specifications regarding the computers she would like to buy.

Foxconn/Biostar Motherboard
Intel Celeron 1.8 Ghz
2048 GB RAM DDR2
250 MB Seagate Hard drive
DVD-writer
102 Keyboard and Mouse
18.5" LCD Monitor

Answer the following questions about the specifications:

- 3.16.1 There are two mistakes in the above specifications. Write down the mistake as well as the correction. (2)
- 3.16.2 What does the 102 signify about the keyboard? (1)
- 3.16.3 How fast is the CPU? (1)
- 3.16.4 Would this computer be able to browse the Internet without any hardware additions? Motivate your answer. (2)
- 3.17 Mrs Books would like to use her old film camera to take photos of her library containing the new computers. You recommend that she rather use a digital camera for this purpose. Name two reasons why a digital camera would be better suited to the job. (2)
- 3.18 Explain to Mrs Books why the computers might need a driver when installing new hardware. (1)
- [50]

QUESTION 4: SHORT ANSWERS

For the new computers in the library to be useful to Mrs Books and the students, the computers will need some software. Answer the following questions that Mrs Books has regarding the software for the computers.

- 4.1 Name the two major types of software according to which programs are classified. (2)
- 4.2 Most software products these days use a GUI. Explain to Mrs Books what a GUI is. (Do not just write out the abbreviation!) (1)
- 4.3 Mrs Books has already spent too much money on the hardware of the computers and needs to save money on software. You recommend using Freeware and Open Source software. Briefly define each of these. (2)

Exam Papers

- 4.4 In each of the following cases, name the type of program (not brand name) that will be used to complete the task:
- 4.4.1 Creating a website. (1)
 - 4.4.2 Copying files from your hard drive to a flash-drive. (1)
 - 4.4.3 Surfing the Internet. (1)
 - 4.4.4 Creating a slideshow. (1)
 - 4.4.5 Keeping records of purchases and sales. (1)
- 4.5 Name two reasons why Mrs. Books should buy an office suite. (2)
- 4.6 Mrs Books would like to install the software she has at home on the computers at school. You explain to her that this is illegal. Briefly define each of the following types of licence agreement for her to better understand which she would need:
- 4.6.1 Multi-user agreement. (1)
 - 4.6.2 Site agreement. (1)
 - 4.6.3 Single user agreement. (1)
- [15]

QUESTION 5: SHORT ANSWERS

One of the major sources that the students will be using for research purposes is the Internet. Mrs Books is very worried about the students using the Internet, and would like to understand more before taking the plunge. Answer the following questions to help her.

- 5.1 Mrs Books will need an ISP to connect to the internet. Explain to her what an ISP is by referring to the function of an ISP. (2)
- 5.2 Name two advantages of communicating via e-mail, excluding the fact that they are cheaper and faster to send than normal mail. (2)
- 5.3 Mrs Books would like to know what each part of an e-mail address means. Briefly explain to her what each part of the following address means by using the numbering shown:

jimmysandals@mweb.co.za

3.1 3.2 3.3 3.4

- 5.4 Mrs Books is worried about offending or angering anybody when sending e-mails. Name two netiquette rules that she should adhere to in order to avoid this problem. (2)
- 5.5 The biggest worry for Mrs Books is the possibility of contracting a virus while surfing the Internet.
- 5.5.1 Define virus. (2)
 - 5.5.2 Name two possible indications that your computer may be infected with a virus. (2)
- 5.6 What is spam? (1)

[15]
[100]

Memorandum

Paper 4 – November theory examination

TIME: 1½ HOURS

MARKS: 100

QUESTION 1: MULTIPLE CHOICE

- 1.1 C ✓
- 1.2 C ✓
- 1.3 B ✓
- 1.4 D ✓
- 1.5 D ✓
- 1.6 A ✓
- 1.7 D ✓
- 1.8 A ✓
- 1.9 D ✓
- 1.10 A ✓

[10]

QUESTION 2: MATCHING TERMS

- 2.1 L ✓
- 2.2 F ✓
- 2.3 K ✓
- 2.4 I ✓
- 2.5 B ✓
- 2.6 M ✓
- 2.7 C ✓
- 2.8 J ✓
- 2.9 D ✓
- 2.10 E ✓

[10]

QUESTION 3: SHORT ANSWERS

- 3.1 Hardware is anything that you can touch. ✓
- 3.2 Data are raw, unprocessed facts. ✓ Information is the result of the processing of data and should be meaningful. ✓
- 3.3 Input, output, storage and processing:
 - 3.3.1 Input ✓
 - 3.3.2 Output ✓
 - 3.3.3 Output ✓
 - 3.3.4 Storage ✓
 - 3.3.5 Input / Storage ✓
- 3.4 Storage or memory.
 - 3.4.1 Memory ✓
 - 3.4.2 Storage ✓
 - 3.4.3 Storage ✓
 - 3.4.4 Storage ✓
 - 3.4.5 Memory ✓
- 3.5 Keyboard and mouse:
 - 3.5.1 Because those are the first six letters on the keyboard. ✓
 - 3.5.2 Home row. ✓
 - 3.5.3 A mechanical mouse uses a rubber ball. ✓

Memorandum

- 3.5.4 An infrared mouse uses infrared to connect to the computer instead of a cable. ✓
- 3.5.5 An optical mouse uses an LED instead of a rubber ball. ✓
- 3.6 The rollers inside the mouse are dirty ✓, clean the rollers. ✓
- 3.7 An optical mouse does not have a rubber ball that needs traction in order to move. ✓
- 3.8 RSI.
 - 3.8.1 Bad posture and repetitive motion ✓ will result in pain and inflammation of the wrists. ✓
 - 3.8.2 Take frequent breaks ✓ and use ergonomically designed hardware. ✓
- 3.9 The study of people in their work environment. ✓✓
- 3.10 LED monitors instead of LCD monitors: (any two)
 - Uses less electricity. ✓
 - Takes up less desk space. ✓
- 3.11 The size of monitors is determined by the diagonal measurement from one corner to the opposite corner. ✓
- 3.12 Resolution is the number of pixels that can be displayed on the monitor. ✓ The higher the resolution the better the image quality. ✓
- 3.13 Printers:
 - 3.13.1 Yes ✓ can be used for basic research printing like text. ✓
 - 3.13.2 Yes ✓ can be used for printing photographs. ✓
 - 3.13.3 No ✓ print quality is bad. ✓
- 3.14 Backups: (any two)
 - They are cheap. ✓
 - Easy to use. ✓
 - Fairly reliable. ✓
- 3.15 Blu-ray has a much larger storage capacity, ✓ 25 GB as opposed to 4.7 GB.
- 3.16 Computer specifications:
 - 3.16.1 2048 GB RAM – should be 2048 MB RAM ✓ 250 MB hard drive – should be 250 GB hard drive. ✓
 - 3.16.2 The number of keys on the keyboard. ✓
 - 3.16.3 1.8 GHz ✓
 - 3.16.4 No ✓ needs a modem, or a network card to connect to a router. ✓
- 3.17 Digital camera: (any two valid reasons)
 - Cheaper, because you do not need to develop photos. ✓
 - Photos can be copied onto the computer. ✓
 - Can see photo immediately. ✓
 - Delete and retake the photo if needed. ✓
- 3.18 Drivers are small programs that control hardware. They act as a translator between the software and the hardware device. ✓

[50]

Memorandum

QUESTION 4: SHORT ANSWERS

- 4.1 System ✓ and Application ✓ software.
- 4.2 A program that uses icons and buttons to make it easier for people to use computers. ✓
- 4.3 Freeware is software that is distributed free. It is the version of the program. ✓ Open source software is distributed under licence and is also free. Y can get the source code for the program, and make changes to it to suit your requirements. ✓
- 4.4 Type of program:
- 4.4.1 Authoring program. ✓
 - 4.4.2 Operating system or file explorer .✓
 - 4.4.3 Web browser.✓
 - 4.4.4 Presentation software. ✓
 - 4.4.5 Accounting software. ✓
- 4.5 Office suite: (any two valid reasons)
- Cheaper than buying the programs separately. ✓
 - Each application has the same user interface. ✓
 - Data can be interchanged. ✓
- 4.6 Licence agreements:
- Multi-user: can be installed on multiple computers, as specified in the agreement.✓
 - Site agreement can be installed on as many computers as owned by the company. ✓
 - Single user agreement can only be installed on one computer at a time. ✓

[15]

QUESTION 5: SHORT ANSWERS

- 5.1 An ISP is a company with a permanent fast connection to the Internet. ✓ They sell access to this connection to their customers for a monthly fee. ✓
- 5.2 Can add attachments ✓ and can send the same e-mail to more than one recipient. ✓
- 5.3 E-mail address:
- 5.3.1 Username registered for the individual user or business. ✓
 - 5.3.2 ISP name. ✓
 - 5.3.3 Type of website. ✓
 - 5.3.4 Geographic location. ✓
- 5.4 Netiquette rules: (any two)
- Do not type in capital letters. ✓
 - Do not be rude. ✓
 - Do not send personal information. ✓
 - Do not send large attachments. ✓
 - Check for viruses before sending an attachment. ✓
- 5.5 Virus:
- 5.5.1 A computer virus is a computer program designed to spread to other computers. The purpose of a virus is to disrupt the normal operation of infected computers. ✓✓
 - 5.5.2 Symptoms: (any two)
 - Strange error messages. ✓
 - Programs not working. ✓
 - Files disappearing. ✓
- 5.6 Unwanted, bulk e-mail. ✓

[15]

[100]

Glossary

Acronyms and Abbreviations	
3G	Third generation of cellular wireless
ADSL	Asymmetric digital subscriber line
ATM	Automated teller machine
BIOS	Basic input output system
CD	Compact disk
CPU	Central processing unit
DLP	Digital light processor
DVD	Digital versatile disk
EFT	Electronic funds transfer
FOSS	Free open source software
FTP	File transfer protocol
GIGO	Garbage-in garbage-out
GPS	Global positioning system
GUI	Graphical user interface
HAN	Home area network
HTML	Hypertext markup language
HTTP	Hypertext transfer protocol
HTTPS	Hypertext transfer protocol secure
I/O	Input-output
ICT	Information and communication technology
IP	Internet protocol
ISP	Internet service provider
LAN	Local area network
LCD	Liquid crystal display
MICR	Magnetic ink character recognition
MMS	Multi-media message service
OCR	Optical character recognition
OMR	Optical mark recognition
OS	Operating system
PAN	Personal area network
PAT	Practical assessment task
PC	Personal computer
PDA	Personal digital assistant
PnP	Plug-and-Play
PoA	Programme of Assessment
POS	Point of sale
RAM	Random access memory
RFID	Radio-frequency identification
ROM	Read only memory
RSI	Repetitive strain injury
RSS	Really simple syndication
SMS	Short message system
SOHO	Small office home office
URL	Uniform resource locator
USB	Universal serial bus
VoIP	Voice over internet protocol
VPN	Virtual private network
WAN	Wide area network
Wi-Fi	Wireless fidelity
WiMAX	Worldwide interoperability for microwave access
WWW	World wide web