S 850/1
Subsidiary ICT
Paper 1
UMTA GUIDE
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2½ hours

GUIDE

UGANDA ADVANCED CERTIFICATE OF EDUCATION
SUBSIDIARY ICT PAPER I

1. (a) Distinguish between data and information (2 Marks)

(Any 2x1=2 marks)

- ✓ ***Data are streams of raw facts with little or no meaning whereas Information is simply processed data or data which has been turned into a meaning full form.***

(b)Explain the importance of the three basic parts of the computer (3 Marks)

(Any 3x1=3 marks) any 3 hardware components and their uses

- ***Computer Case/system case/system unit. The computer case is the metal and plastic box that contains the main components of the computer. It houses the motherboard, central processing unit (CPU), the power supply, and more.***
- ***Monitor. The monitor works with a video card, located inside the computer case, to display images and text on the screen. Newer monitors usually have LCD (liquid crystal display) or LED (light-emitting diode) displays.***
- ***Power Cord. The power cord is the link between the power outlet and the power supply unit in the computer casing. If the power cord is not plugged in, the computer will not power on.***
- ***Keyboard. The keyboard is one of the primary ways we communicate with the computer and enter data.***
- ***Mouse. The mouse is a peripheral that is known as a pointing device. It lets you point to objects on the screen, click on them, and move them.***

2. (a) What is a computer competency? (1 Mark)

(Any 1x1=1 mark)

- ***is a process whereby a student/somebody can demonstrates his or her ability to perform school level basic computing work.***
- ***Applying skills with computers to meet information needs***

(b) Explain the four basic steps of the computer processing cycle (4 Marks)

(Any 4x1=4 mark) (explain steps in their order from input, processing, storage to output.

- ***Input – raw data that is entered into a computer***
  Examples of Input – letters or numbers entered on a keyboard, mouse click on a icon, photos, videos songs. Input devices: Keyboard, mouse, scanner, microphone

- ***Storage – when the computer save data, either in short term storage or long term storage .Example of Storage – saved file, keyboard information stored in RAM. Storage devices: Hard disk drive, flash drives, CD/DVD disks, RAM, or ROM***

- ***Processing – when the computer is turning raw data into meaningful information. Example of processing – add two numbers together; display a picture on the screen. Processing devices: CPU, central processing unit and now the video adapter.***

- ***Output – sending the feedback (information) to the user.Example of Output – the number is displayed after addition, document is printed. Output devices: Monitor, printer, speakers.***

3. Explain the step of restoring a computer to an early date (5 Marks)

- ***Click the windows start button***
- ***Select control panel from the menu***
- ***Click on system***
- ***Select advanced system settings***
- ***Dialog box appears for system settings appears select system protection.***
- ***Select Restore***
- ***System restore dialog box appears click next.***
- ***Select restore date and click next.***

Or

- ***Click windows start button***
- ***In search window type system restore***
- ***Select system restore.***
- ***System restore dialog box appears click next.***
- ***Select restore date and click next.***

4. (a) In file management distinguish between save and save as (2 Marks)

(Any 2x1=2 mark)

- ***"Save" simply saves your work by updating the last saved version of the file to match the current version you see on your screen while as "Save***

As..." brings up a prompt to save your work as a file with a different name.

- ***Save is used to make changes to an existing file while save as is used to save/ store a file with new name***

(b) Briefly Describe a fragmented file (2 Marks)

(Any 2x1=2 marks)

- ***Is a file whose information is spread / scattered all over the storage media rather than sitting in one little section.***

(c) What is a file extension? (1 Mark)

(Any 1x1=1 mark)

- ***A string of characters attached to a filename, usually preceded by a full stop and indicating the format of the file.***

5. Describe how you can create a folder on local disk C (5 Marks)

(Any 5x1=5 mark) when the first step is wrong, all steps proves to be wrong too

- ***Double click my computer***
- ***Double click local disk C***
- ***Right click anywhere on local disk C***
- ***Select New***
- ***Then selectfolder.***

6. (a) Differentiate between a serial port and parallel port (2 Marks)

(Any 1x2=2 marks)

- ***Serial ports are types of ports where data is transferred one bit at a time while parallel ports transfer several bits at a time.***
- ***Parallel ports transmits for short distance while serial port transmit for fairly long distance, up to 15M***
- ***Parallel port transfers data more faster rate while a serial port transmits data at a slow rate.***

(b) Give an example and define the following terms (2 Marks)

(i) Optical storage media ***(Any 1x1=1 mark)***

- ***It's a storage media which use laser beams of light to read and write data.***

- ***Optical storage media is a light readable media, where Data is recorded by making marks in a pattern that can be read back with the aid of light, usually a laser beam of light precisely focused on a spinning optical disce.g CDs,DVDs etc.***

(ii) Solid state storage media ***(Any 1x1=1 mark)***

- ***Solid-state storage media is a storage device made from silicon microchips/ integrated circuits. Solid state storage media stores data electronically. Example Memory cards, Flash disks, smartcards.***

(c) What is a key board? (1 Mark)

(Any 1x1=1 mark)

- **A keyboard is a hardwaretext input device used to enter data in the computer.**
- **This is a primary input device which is composed of keys used to enter data in the computer usually in form of text.**

7. (a) Mention four reasons why an LCD monitor is preferred than a CRT Monitor ***(Any 4x1=4 marks)*** (4 Marks)

Slim Factor	Bulky, the back size is proportionate to the size of the monitor	LCDs are much slimmer than their CRT counterparts. So it saves space and its portable.
Radiation	CRTs emit electromagnetic radiation. Radiation still passes through the screen and some people regard them as hazardous.	LCDs emit a very small amount of radiation compared to CRTs. Health conscious consumers prefer them for this one reason.
Weight	CRTs weigh heavier, especially in their front (the display area)	LCDs are very light, hence being portable.
Power Requirements	Higher power usage, more than 200% to an LCD of equivalent size.	Considerably lower power usage. 17 inch LCD requires around 35 watts.
Glare	Glare is reduced by the use of special filters and treated glass.	Little or no glare its inbuilt you can easily reduce the light.
Display Sharpness	The quality of picture is poor compare to that of LCD	Sharper and the quality of picture is good.(resolution)
Refresh Rate (Screen Flicker)	A minimum of 75hz is required for a flicker free image. All CRTs already support this, except at ultra high resolutions 2048++.	LCDs do not "paint" their image. They provide a flicker free image every time.
Warmness	Back gets noticeably warm after some	Little warmth experience

	time	

(b) List one advantage of using a compact disc other than a floppy disc
(Any 1x1=1 mark) (1 Mark)

- ***CDs are not prone to virus attack as the case of floppy disk.***
- ***The cost of storing data on a CD is very low in terms of costs per megabyte compared to that of a floppy disk.***
- ***CD's have a much higher capacity than floppy disc.***
- ***Data access time of CD's is higher thanthat of floppy discs.***

8. (a) Briefly describe how the following function
   (i) Optical mark recognition (2 Marks)
   (Any 1x2=2 marks)
   - ***Optical mark recognition (OMR) devices read hand-drawn marks such as small circles or rectangles. A person places these marks on a form, such as a test, survey, or questionnaire answer sheet.The OMR device first reads a master document, such as an answer key sheet for a test, to record correct answers based on patterns of light.***

   (ii) Optical character recognition (2 Marks)
   (Any 1x2=2 marks)
   - ***Optical character recognition (OCR) is a technology that involves reading typewritten, computer-printed, or handwritten characters from ordinary documents and translating the images into a form that the computer can understand.***

   (b)What is a biometric device? (1 Mark)
   (Any 1x1=1 mark)
   - ***is a security identification and authentication device, which uses automated methods of verifying or recognizing the identity of a living person based on a physiological or biological characteristic. These characteristics include fingerprints, facial images, and iris and voice recognition.***
   - ***OR these are devices which can capture human body features and translate them into digital/electronic form which can be entered in the computer.***

9. Explain any five resources that are managed and controlled by the operating system ***(Any 5x1=5 marks)***

Key Resource	OS Program
Processors	Processor Scheduling
Storage	Memory management
I/O devices	I/O management
Data	File management
Application software	Software Management

10. Write the file extension for the file mention in the table below(5 Marks) ***(Any 5x1=5 marks)***

Description	Extension
A video/Audio file	.avi,.mpg,.flv,.wmv.mp3/4,.wav, .mpeg
An image file	.jpeg,.gif,.bmp,.png,.ppm,.raw
A Microsoft word document file	.doc,.docx
Files containing a series of commands loaded during boot	.exe,.dat,.app, .bat
System files that perform fundamental operations in a computer	.sys,.dll,.fmp

11. (a) What is a software suit? (1 Marks)
(Any 1x1=1 mark)

- ***A software suite also called an application suite or productivity suite is a collection of two or more software programs that are bundled and sold together.***
- ***A software suite or application suite is a collection of computer programs usually application software or programming software of related functionality, often sharing a similar user interface and the ability to easily exchange data with each other.***

(b) Explain why an operating system may fail to boot (2 Marks)

(Any 2x1=2 marks)

- ***Effect of a computer virus which may have tempted with system files (boot sector virus).***
- ***Incorrect Bios sequence.BIOS is a program which works to find a bootable hard drive based on its boot device order when a computer is started.***
- ***Damaged Hard Disk or Partition. Provided that the hard disk or partition is damaged, "disk boot failure" error will occur as well.***
- ***Hard drive Not Properly Plugged in. Apart from misconfiguration, if your hard drive is not properly plugged in, it will not be able to get connected to your computer successfully, which will also cause the "disk boot failure" error.***
- ***Software Conflicts with System Settings. Sometimes, after you install any third party software and restart PC next time, you may receive such an error as well. In such a case, there are great chances that the software is conflicted with your system.***

(c) List any two likely solutions to the problem in 11(b) above (2 Marks)

(Any 2x1=2 marks)

- Solution (Boot ***sector virus***). Install a fresh copy of OS with updated anti-virus.
- Solution(***in correct Bios Sequence***): In this case, you can change the BIOS boot order. When restarting your PC, open the BIOS, and then turn to the Boot tab. next change the order to ensure the internal hard drive is the first boot option. Finally save the settings and start your PC again.
- Solution (***Damaged Hard Disk or Partition)***: Under this circumstance, you had better replace the drive and reinstall your Windows operating system right now.
- Solution(***Hard drive Not Properly Plugged in)*** In this case, you can power off your PC and then check the connection of the hard drive and motherboard. After confirming that all are correct, you can try to run your Windows again.

12. (a) Define the term Electronic mail (2 Marks)

(Any 1x2=2 mark)

- ***Electronic mail (email) refers to the use of communication software to send and receive messages through a network.***

(b) Explain the three basic elements of an e-mail compose window (3 Marks)

(Any 3x1=3 marks)

- ***To(Recipient email address.): carries the address of the recipient.***
- ***cc: Enables copies of the E-mail message to be sent to the third party while acknowledging other recipients.***
- ***Bcc: Enables copies of the e-mail message to be sent to the third party without acknowledging any other recipients (if present)***
- ***Subject. Subject is a description of the topic of the message and displays in most email systems that list email messages individually.***
- ***Sender (From). This is the senders Internet email address.***
- ***Date and time received (On). The time the message was received.***
- ***Reply-to. This is the Internet email address that will become the recipient of your reply if you click the Reply button.***
- ***Attachments. Attachments are optional and include any separate files that maybe part of the message.***
- ***Body***
- ***Forward***

13. (a) State three advantages and two disadvantages of using the internet today

Advantages ***(Any 3x1=3 marks)***

- ***Information on almost every subject imaginable.***
- ***Has Powerful search engines***
- ***Ability to do research from your home versus research libraries.***
- ***Information at various levels of study. Everything from scholarly articles to ones directed at children.***
- ***Message boards where people can discuss ideas on any topic. Ability to get wide range of opinions. People can find others that have a similar interest in whatever they are interested in.***
- ***The internet provides the ability of emails. Free mail service to anyone in the country.***
- ***Platform for products like SKYPE, which allow for holding a video conference with anyone in the world who also has access.***
- ***Friendships and love connections have been made over the internet by people involved in love/passion over similar interests.***
- ***Things such as Yahoo Answers and other sites where kids can have readily available help for homework.***
- ***News, of all kinds is available almost instantaneously. Commentary, on that news, from every conceivable viewpoint is also available.***
- ***Can be used as a storage device(cloud)***

Disadvantages ***(Any 1x2=2 marks)***

- ***There is a lot of wrong information on the internet. Anyone can post anything, and much of it is garbage.***
- ***There are predators that hang out on the internet waiting to get unsuspecting people in dangerous situations.***
- ***Some people are getting addicted to the internet and thus causing problems with their interactions of friends and loved ones.***
- ***Pornography that can get in the hands of young children too easily.***
- ***Easy to waste a lot of time on the internet. You can start surfing, and then realize far more time has passed than you realized.***
- ***Internet has a lot of "cheater" sites. People can buy essays and pass them off as their own far more easily than they used to be able to do.***
- ***There are a lot of unscrupulous businesses that have sprung up on the internet to take advantage of people.***
- ***Hackers can create viruses that can get into your personal computer and ruin valuable data.***
- ***Hackers can use the internet for identity theft.***
- ***It can be quite depressing to be on the internet and realize just how uneducated so many people have become in today's society.***

14. (a) Distinguish between a website and a blog (2 Marks)

(Any 1x2=2 marks)

Website is a collection of related web pages, while a blog is an online journal or informational website displaying information in the reverse chronological order, with latest posts appearing first.

(b) Briefly explain how you would browse to the ministry of Education and Sports website (3 Marks)

(Any 3x1=3 mark)

- ***Open a web browser***
- ***Open a search engine of your choice.***
- ***Type the keywords of the ministry of education***
- ***Click the search button***
- ***Look for the website from the search results and open***

Or

- ***Open a browser***
- ***In the web address bar, type the address (URL) of the site.***
- ***And press enter***

15. (a) What is computer networking? (1 Mark)

(Any 1x1=1 mark)

- ***Computer networking refers to the process of connecting computers and other devices in order to share resources.***

(b) What can your school benefit from networking of the school premises
(Any 4x1=1 marks) (4 Marks)

- ***Speed. Networks provide a very rapid method for sharing and transferring files. Without a network, files are shared by copying them to storage media.***
- ***Cost. Networkable versions of many popular software programs are available at considerable savings when compared to buying individually licensed copies.***
- ***Security. Files and programs on a network can be designated as "copy inhibit," so that you do not have to worry about illegal copying of programs.***
- ***Centralized Software Management. One of the greatest benefits of installing a network at a school is the fact that all of the software can be loaded on one computer (the file server). This eliminates that need to spend time and energy installing updates and tracking files on independent computers throughout the building.***
- ***Resource Sharing. Sharing resources is another area in which a network exceeds stand-alone computers. Most schools cannot afford enough laser printers, fax machines, modems, scanners, and CD-ROM players for each computer and can easily be shared on the network.***
- ***Electronic Mail. The presence of a network provides the hardware necessary to install an e-mail system. E-mail aids in personal and professional communication for all school personnel***
- ***Flexible Access. School networks allow students to access their files from computers throughout the school. Workgroup Computing. Workgroup software (such as Microsoft BackOffice) allows many users to work on a document or project concurrently.***
- ***Online learning***

16. (a) Explain the meaning of the term router? (1 Mark)
(Any 1x1=1 mark)

- ***A router is a networking device that forwards data packets between computer networks of different types.***
- ***A router is hardware device designed to receive, analyze and move incoming packets to another network.***

(b) List any four factors that affect the rate of data transmission (4 Marks)

(Any 4x1=4 marks)

- ***Bandwidth of the transmission media.***
- ***Type of transmission Medium***
- ***Amount of data transferred.***
- ***Protocols used for negotiation amongst others.***
- ***Distance the data travels.***
- ***Speed of the communication device(baud rate)***

- ***Connection type (point-point / multi-point)***
- ***Network traffic***

17. (a)Illustrate two elements of green computing with the help of examples.
(Any 2x1=2 marks)
- ***Reduce on the use of hazardous materials, eg use LCD monitors rather than CRT monitors***
- ***Promote recyclability of materials. Take them to recycling centers.***
- ***Maximize energy efficiency of a product during the product's life time. Use energy star technology, use LED bulbs***

(b) List three ways of implementing green computing
(Any 3x1=3 marks)

- ***Set the CPU and all peripherals to hibernate during extended periods of inactivity.***
- ***Try to do computer-related tasks during contiguous, intensive blocks of time, leaving hardware off at other times.***
- ***Switch off devices which are not in use.***
- ***Use of energy saving devices such as liquid-crystal-display (LCD) monitors rather than cathode-ray-tube (CRT) monitors.***
- ***Use notebook computers rather than desktop computers whenever possible.***
- ***Use the power-management features to turn off hard drives and displays after several minutes of inactivity. Eg. Reduce the brightness of your screen***
- ***Minimize the use of paper and properly recycle waste paper.eg, sharing information electronically***
- ***Dispose of e-waste according to federal, state and local regulations.eg, take them to recycling centers***
- ***Employ alternative energy sources for computing workstations, servers, networks and data centers.eg use of solar energy, bio-gas***
- ***Use of bio-degradable materials when working with computers eg papers, soft boards***

18. (a)Define the term cyber ethics (1 Mark)
(Any 1x1=1 mark)

- ***Moral guidelines or acceptable behaviors followed when using internet.***

(b) Mention four ways of protecting data on your computer (4 Marks)
(Any 4x1=4 marks)

- ***Using of updated antivirus software***
- ***Using of windows firewall***

- ***Restricting entry to computer systems***
- ***Educate users***
- ***Encrypt all important data***
- ***Use secure passwords***
- ***Implement additional security checks (biometric devices)***
- ***Restrict Plug and Play devices***
- ***Use of possessed objects***

19. The table below shows results of Bachelors of information technology extracted from spreadsheet application. Use it to answer the questions (a) to (c) below;

	A	B	C	D	E	F
1	Name	Course work	Test	Examination	Total	Rank
2	Ismeal	56	74	89	219	3
3	Lindah	82	45	85	212	4
4	Clarie	100	95	90	285	1
5	Tracy	90	90	65	245	2
6	John	60	57	80	197	5
7	Amina	38	77	62	177	6
8						

(a) Write the formulae that was used to generate the totals (02 Marks)
(Any 1x2=2 marks)

=SUM(B2:D2)
=(B2+C2+D2)
=SUM(b2,c2,d2)
=SUM(B2+C2+D2)
=SUM(B2:C2:D2)

(b) Write the formulae that was used in Cell F4 to generate the rank
(Any 1x2=2 marks) (02 Marks)
=RANK(E2,$E$2:$E$7), or =RANK(E2,$E$2:$E$7,0)

(c) If rows are sorted in ascending order by Test, who will be at the top of the list?
(Any 1x1=1 mark) (01 mark)
Linda with 45

20. The schools' debate club keeps a file of members on a computer system. Part of the file is shown in the following diagram.

ADMIN CODE	SURNAME	INITIAL	SEX	PHONE NO	DATE OF BIRTH
FF024	Namuli	NM	F	0771458275	04/01/88
FF067	Namusoke	NZ	F	0702584656	15/05/86
FF078	John	JP	M	0705289678	18/02/87
FF089	Namusisi	MN	F	0794582759	21/07/86
FF045	Ishimwe	A	M	0714568927	09/02/88

(a) How many fields are there in table above? (2 Mark)

(Any 1x2=2 marks)

- ***6 Fields***

(b) State the data type that should be used for the Admin code data

(Any 1x1=1 mark)

- ***Text***
- ***Short text***

(c) Outline one reason why the data in the sex field has been coded. (1 Marks)

(Any 1x1=1 mark)

- ✓ ***Because sex has two options Female and male.***
- ✓ ***To help for quick selection using a lookup wizard***
- ✓ ***Allow quick data entry***
- ✓ ***To limit entry of wrong data***
- ✓ ***To guide users on the data to enter***

(d) Mention one data type used in Microsoft access. (1 Marks)

(Any 1x1=1 mark)

- ***Currency***
- ***Text***
- ***Numbers/values***
- ***Date/ time***
- ***Yes/no***
- ***Ole***
- ***Hyperlink***
- ***Auto number***

END