

NAME ..... INDEX NO.....

**S850/1**

Subsidiary ICT

Paper 1

2  $\frac{1}{2}$  hours

JULY/AUG 2023

**UMTA MOCK MARKING GUIDING**  
**UMTA MOCK EXAMINATIONS**  
Uganda Advanced Certificate of Education  
**SUBSIDIARY ICT PAPER 1**  
Theory paper  
2 Hours 30 Minutes

**INSTRUCTIONS TO CANDIDATES:**

- ❖ Attempt ALL questions in this paper
- ❖ The maximum time allocated to this paper is 2 hours 30 Minutes
- ❖ Write in dark blue or black pen in the spaces provided on the Question Paper.  
All answers should be written in the spaces provided.
- ❖ No additional materials (answer sheets) are required.
- ❖ The number of marks is given in brackets ( ) at the end of each question or part question

FOR OFFICIAL USE ONLY				
1.			11.	
2.			12.	
3.			13.	
4.			14.	
5.			15.	
6.			16.	
7.			17.	
8.			18.	
9.			19.	
10.			20.	
			<b>TOTAL</b>	

Topic	Application	Knowledge	Comprehension	Analysis	Qns.
Introduction to computers (T1)	1	1			2
Lab. Care trouble shooting & maintenance (T3)	1				1
File management (T2)	1		1		2
Computer hardware (T5)		1	1	1	3
Computer software (T6)	1	1	1		3
Internet & www (T8)	2		1		3
Data com. & networking	1	1			2
Trends in computing (T15)	1			1	2
Applications (T9)(word processors(4&9),spreadsheets(7&13),publisher,presentation,databases)	2 1				2
Total	10	4	4	2	20

1. Your school is planning to introduce a Cashless card system for students to pay for school eats. Each card contains an amount of which is topped by parents. Parents transfer amounts of money into the school system and students place the card close to a reader to upload the money onto the card.

(a) List any three benefits of the cashless card system. (3 Marks)

- ❖ **Reduction in cases of theft at school because of no need of physical cash.**
- ❖ **The parents will be able to monitor the amount of money spent by the student.**
- ❖ **It is convenient where by students will be able to receive money at any time.**
- ❖ **Cost reduction especially during with draw from mobile money and transport costs.**
- ❖ **It eliminates the need to carry physical cash.**
- ❖ **Making transaction quicker and easier.**
- ❖ **Transactions can be tracked digitally for proper budgeting.**
- ❖ **It eliminates cheating between the canteen attendant and the student.**
- ❖ **It reduces spread of diseases through physical contact.**

(b) Explain any two draw-backs of the cashless card system. (2 Marks)

1. **Students may hack into the system and disorganize the normal functioning.**

2. **Failure of the system server may delay the operation. (Technical Issues).**
3. **Failure of the system server may deny the operation. (Technical Issues).**
4. **Encroaches on the privacy of students as their spending is tracked**
5. **Time wastage as it takes time to read the card.**
6. **Over spending. Students may over spend the money on the card.**
7. **Increase in expenses at the side of the school because of servicing and hiring the system.**
8. **The need for training both staff and students which may not be in the students and teachers convenience or schedule.**
9. **Limited payment options as some cashless systems may not support all forms of payments.**
10. **It is more expensive due to transaction charges**
11. **Theft of cards that may lead to additional costs.**

2. A company has placed a firewall between their local Area Network (LAN) and their internet connection. This is used to increase security in their computer systems.

Discuss the effectiveness of using this firewall to increase security. (5 Marks)

- (i) The firewall will filter out all network traffics that are sent onto the network before granting them passage. (Packet filtering)
- (ii) **Virtual Private Network support**, they allow encryption of data traffics between remote users and the network.
- (iii) **Access control**: Firewalls control access to a network by allowing or denying specific types of traffics based on predefined rules
- (iv) **Network segmentation**: Firewalls can be used to segment a network into different zones, each with its security policies
- (v) **Proxying**: they act as intermediaries between internal and external networks. This hides internal network details and enhances security.
- (vi) **Application layer Filtering**: Firewalls can analyze traffic at application layer. Which allows them to identify and control specific application or protocol
- (vii) **Content filtering**: They can block access to certain websites that are harmful
- (viii) **Malware and threat prevention.**

3. Namulindwa has created a diary using word processing software. The diary entry for 25th May 2023 as is shown.

25<sup>th</sup> May 2023

First day of the holidays today and the family went to stay in a hotel near Entebbe Imperial resort beach in Entebbe. This was a lovely place to spend the holidays with a long stretch of beach to play on. It is called the wonder of the pearl of Africa. We visited a number of lagoons in the area and met a lot of people. The weather was lovely, and the sun shone throughout most of the day.

Write down five formatting features of the word processing software used to make this diary entry. (5 Marks)

- i. Feature

**Paragraph border**

- ii. Feature

**Justify**

- iii. Feature

**Word wrap**

- iv. Feature

**Superscript**

- v. Feature.

**Text Wrapping**

Feature

**Font size**

Feature

**Font face/style**

4. A head teacher is planning to hold a video-conference with headteachers from other schools. The headteachers already have basic internet connected desktop computer system with a monitor, keyboard and mouse

(a) Identify three pieces of additional hardware they need in order to participate in conference.

**i. Webcam/Pc camera**

**ii. Projector.**

**iii. Microphones**

**iv. Speakers**

(b) A technician is setting up for the video-conference. State two tasks the technician would need to setup the hardware for video conference. Assume that the hardware required has already been purchased.

- i. **Selecting the platform for the meeting: For example Zoom, Google Meets, Telegram, Microsoft Teams e.t.c.**
- ii. **Scheduling the meeting: Set the date time and duration for the meeting.**
- iii. **Preparing the equipments. Like ensuring that the camera, microphone and speakers are working.**
- iv. **Check internet connections: Make sure you have a stable internet.**
- v. **Create a meeting: set up a meeting within the video conferencing software.**
- vi. **Sending the link to the recipients.**

5. (a) Distinguish between system software and application software (2Marks)

**This is a software that control or manage the operation of the computer and its devices.**

**or**

**System software serves as an interface between users, the application its software and the computer's hard ware.**

**or**

**System software is computer software designed to operate the computer hardware and to provide maintain a platform for running application software.**

**While**

**Application programs are programs (software) that perform specific tasks to end user.**

- (b) List any three advantages of customized software. (3 Marks)

- **They meet the needs of a single user.**
- **Provides maximum utility to the consumer.**
- **They cannot be pirated**
- **They are less exposed to viruses**
- **Increase in productivity as the software is customized.**

6. (a) State two purposes of the recycle bin. (2 Marks)

- ❖ **Keep deleted file and folders. (Temporary storage of deleted files)**
- ❖ **For restoring the files that were deleted accidentally.(Enables File and folder recovery)**

- ❖ **Preventing accidental deletion of files and folders. Because file immediately deleted on the computer are not lost.**
- ❖ **Creation of space on the computer. The recycle bin can be emptied. (Space management)**

(b) List three disadvantages of using traditional file management method

- ❖ **Difficult in locating files.**
- ❖ **Files can be destroyed by natural disasters like flooding.**
- ❖ **Files can occupy a lot of office space.**
- ❖ **The filing system is expensive because they need to buy papers.**
- ❖ **Files cannot easily be shared.**
- ❖ **They cannot easily be edited in case of a need.**

7. (a) What is virtual reality? (2 Marks)

**This is a computer-simulated environment that can simulate physical presence in places in the real world or imagined worlds.**

**Or**

**A technology that creates a simulated, immersive environment using computer- generated sensory experiences often including visual, auditory**

(b) List three areas where virtual reality is applied today. (3 Marks)

- i. **Gaming:** VR gaming offers immersive experiences where players can interact with the virtual world, characters, and objects.
- ii. **Training and Simulation:** industries like aviation health care.
- iii. **In health for cognitive behavior therapy where patients with phobias and anxieties.**
- iv. **VR is also used in cinema halls and themes to simulate movie-like adventures and let people experience favorite**
- v. **Automation during development of smart cars, cars can learn how to drive using AI.**
- vi. **In digital marketing there are many applications**
- vii. **Education in interactive learning by enabling students to explore complex concepts in the virtual environment.**

viii. **Emergency response for preparing first responders for various emergency situation**

8. A recent breakthrough in the manufacturing industry is the development of a fuel Manufacturing plant that can produce vehicles using robots. Despite these advances some manufacturers prefer to use human labor.

(i) Give two advantages and two disadvantages of fully automated manufacturing industry. (4Marks)

**Advantages.**

- ❖ **High product quantity / mass production.**
- ❖ **Reduced labour costs because machine don need a salary**
- ❖ **The ability to operate 24/7**
- ❖ **There is faster production in automated production.**
- ❖ **Automation has the ability to do complex tasks.**
- ❖ **Automation is more accurate in production.**
- ❖ **Making decision without emotions and feelings.**

**Disadvantages**

- ❖ **High startup costs are incurred in the automated system.**
- ❖ **Incase of a technical problem production goes on a stand still.**
- ❖ **The system needs to be reprogramed in case of change.**
- ❖ **Creates unemployment on the side of the society.**
- ❖ **Increase in operation costs especially maintenance.**
- ❖ **Environmental pollution as a result of using machines**
- ❖ **Automation is not versatile it is only limited to what it was programmed.**
- ❖ **Unpredictable costs like machine breakdown.**
- ❖ **Consumes a lot of power.**

(ii) What is an expert system? (1Mark)

**Expert systems are computer programmes that essentially emulate the knowledge of human experts skilled in a particular field.**

**Or**

**This is a computer system emulating the decision-making ability of a human expert. Expert systems are designed to solve complex problems by reasoning through bodies of knowledge.**

9. (a) A school intends to set up an e-learning system. List three problems that are likely

to be encountered.

(3Marks)

- ❖ **Lack of concentration of learners.**
- ❖ **Increased costs by the school especially in terms of setting up.**
- ❖ **Reduced teacher-Student interaction for consultation.**
- ❖ **Increased dodging of lessons as some students will do other business.**
- ❖ **Lesson interruption especially when the network goes down.**
- ❖ **Lesson delivery depends on the availability of power.**
- ❖ **It is exclusive in nature because some students may not afford the devices needed.**

(b) What is a search engine?

(1Marks)

**This is a program designed to help a user find web sites and web pages.**

**Or**

- **Search engines are programs that search documents for specified keywords and returns a list of the documents where the keywords were found.**

(c) Give two examples of search engine.

(1Marks)

- **Yahoo**
- **Google**
- **Bing**
- **DuckDuckGo**
- **Baidu**
- **Yandex**
- **AltaVista**
- **HotBot**
- **Looksmart**
- **WebCrawler**
- **Swisscows**
- **YouTube**

10. (a) List two devices located under the cover of the system unit.

(2 Marks)

- **Motherboard.**
- **Ram Chips**
- **Expansion slots / sockets**
- **CMOS battery**
- **Power Supply**
- **Internal Hard disk**
- **Heat Sink.**
- **Adaptor cards (sound cards, video cards, network cards)**
- **Internal cables**
- **CPU/processor**



(b) Explain one reason which make microcomputers suitable for personal computing work. ( 1 Mark)

- **They are portable hence easily carried from one place to another.**
- **They are less expensive to maintain**
- **They are cheap to buy**

(c) List two things that can spoil a printer if they are not of correct specification and explain what damage may be caused. (2 Marks)

- ❖ **Type of tonner used may damage the cartridge, roller, drum**
- ❖ **Type of cartridge may damage gears, rollers.**
- ❖ **Dust in the printer may damage the print heads.**
- ❖ **Over voltage or excessive power may damage the printer board/fuse unit.**
- ❖ **Poor handling leads to damage of the drum.**
- ❖ **Type of printing materials used (papers) may damage the drum, rollers.**

11. A computer teacher has put a rule that flash disks should not be used in computer laboratory.

a) Give three reasons for the rule. (3 Marks)

- ❖ **Flash disks transmit virus.**
- ❖ **Students may install illegal software carried on the flash disks.**
- ❖ **Students may carry unwanted materials onto the school computers.**
- ❖ **To avoid cases of theft of flash disks.**
- ❖ **To prevent illegal copying of information**

b) Highlight two alternatives that can be used to achieve the same objectives. (2 Marks)

- ❖ **Disabling the computer ports.**
- ❖ **Creating an administrator account to deny access of storage devices to student.**
- ❖ **Punishing whoever is found with a flash disk.**
- ❖ **Installing CCTV cameras to monitor the lab**
- ❖ **Confiscating flash disks.**
- ❖ **Installing an anti-virus utility.**

12. (a) What is warranty with reference to the purchase of computers? (2 Marks)

**This is a guarantee provided by a computer developer or vender that their computer will function as intended without significant defects for a period of time after purchase or installation.**

**Or**

**This is a document provided with a computer which indicates any rights a user may have to replace a piece of computer if it is damaged or faulty.**

(b) List down two issues to understand about warrants. (4 Marks)

- ❖ **Legal Authorization. Warrants are legal documents issued by a court**
- ❖ **Civil liberties**
- ❖ **Cause of the damage/fault.**
- ❖ **Time frame**

13. The following car details are to be entered in a database. Car identification number, Car Make, Date-of-manufacture, colour and cost.

(a) Prepare a suitable database structure showing field names and their field data types.

(4Marks)

Field Name	Data type/ Autonumber
Car identification number	Text/number
Car Make	Text
Date- of- manufacturing	Date/Time
Colour	Text
Cost	Currency

(b) Explain how you index the data such that cars of the same make and colour are together.

(1 Mark)

Select the field, cars then go to design tab. On the ribbon.

- ❖ **In the show “Show / Hide” group, you will find the indexes button then click on it.**
- ❖ **In the “indexes” dialog box you can define the index settings.**
- ❖ **Index Name. choose index type**
- ❖ **Fields: Select the fields you want to include in the index.**
- ❖ **Then click “OK” to create the index.**

14. (a) State and explain any two operating system disk management utilities (2 Marks)

- ❖ **EaseUS Disk Utility- (Partition master), Extend, shrink, delete, create volume**
- ❖ **Windows Disk Utility – Disk Management.**
- ❖ **MacOS Disk Utility**
- ❖ **Unix’s GParted**

Or

- ❖ **Disk compression utilities are used to reduce the size of the contents of a disk increasing the capacity of the disk.**
- ❖ **Disk defragmenters are utility programs used reorganising scattered files and unused space on the hard disk .**
- ❖ **Disk cleaners can find files that are unnecessary to computer and can decide to delete.**

(b) Define the following terms in relation to computer software

(3 Marks)

i) Freeware

**This software is provided at no cost to a user by an individual or a company. E.g  
Adobe PDF, yahoo messenger, Google Talk, MSN messenger**

ii) Propriety

**This is commercial software that owned by a single entity and licensed to other parties.**

**Or**

**A software that is privately owned and controlled by a specific company or individual.**

iii) Open source

**Open source software is software provided for use, modification, and redistribution.**

**or**

**This software has no restrictions from the copyright holder.**

**Or**

**Open source software usually can be downloaded from the Web at no cost.**

15. (a) Distinguish between a file and a folder

(2 Marks)

**A file**

**This is an electronic piece of data or information created by a computer program stored on a computer**

**While**

**A folder is an electronic container for storing and organizing different files and sub folders.**

(b) Explain how you would create a sub folder within a folder on the desktop.

(3 Marks)

- ❖ **Find the folder on the desktop.**
- ❖ **Double click to open the folder / Right click and click on open.**  
**Inside the folder do the following**
- ❖ **Right click.**
- ❖ **Click on New.**
- ❖ **Click on Folder.**

- ❖ **Type the name of the sub- folder**
- ❖ **Press Enter.**

16. Mention the **two** types of Computer memory (2 Marks)

- ✓ **RAM is the memory available for the operating system, programs and processes to use when the computer is running.**
- ✓ **ROM is the memory that comes with your computer that is pre-written to hold the instructions for booting-up the computer.**

(b) As a user of computers list any **three** limitations of computers Today (3 Marks)

**Program correctness.** After data correctness, the question of **program correctness come up.** If the data entered is correct and a program written to process this data has mistakes, once again, the information obtained will be incorrect.

**Computers cannot think.** Unlike the human brain, the computer cannot think but can effortlessly execute all instructions given to them any number of times without errors.

**Data correctness.** In case the data enter into the computer is incorrect then the results will be incorrect

**Alternatives:** computers don't provide an alternative way in case a job fails. Computers lack this ability.

**Experience:** Computers cannot learn from experience.

17. Utility software refers to system software designed to help, analyze, configure, optimize a computer

(a) Distinguish between a disk defragmenter and a file compression utility. (02 marks)

**A disk defragmenter is a utility tool which puts files on a disk together to speed up the file process where as file compression utility refers to program which reduces the size of a file.**

**OR**

**A disk defragmenter is a utility that re arranges scattered files for easy access where as file compression utility refers to program which reduces the size of a file.**

(c) Write down the steps of compressing a folder in the names UMTA mock on the computer desktop.

- ❖ **Right click on the folder called UMTA mocks.**
- ❖ **Click on send to**
- ❖ **Click on compressed (zipped)folder**

18. (a) What is a browser? (1 Marks)

- **A web browser (commonly referred to as a browser) is a software application for retrieving, presenting and traversing information resources on the World Wide Web.**
- **A *web browser* is application software that allows users to view or access web pages.**

(b) Mention any four browsers in use today (4 Marks)

- ❖ **Firefox,**
- ❖ **Internet Explorer,**
- ❖ **Google Chrome,**
- ❖ **Opera,**
- ❖ **Safari,**
- ❖ **Microsoft Edge**

19. What do you understand by the following terms in relation to computer software (2 Marks)

(i) Shareware software

**Shareware is software that you can use on a trial basis before paying for it. shareware often has limited functionality or may only be used for a limited time before requiring payment and registration.**

**This is a copy written software that it is distributed free for a trial period.**

(ii) Customized package

**Is software that is specially developed for some specific organization or other user.**

**Customized software: Is a software designed to meet the needs of a particular organization or user (consumer) and performs function specific for the business or industry.**

**Or**

**This is an application software designed at a user's request and meets the needs of that particular user or organization.**

**Or**

**Is software that is specially developed for some specific organization or other user.**

(b) State three examples of system software (3 Marks)

- **Operating system**
- **Language translators / Programing languages**
- **Utility programs**

20. (a) Define the following terms as applied to data communication. (3 Marks)

(iii) Packet switching

- **Refers to protocols in which messages are divided into packets before they are sent. Each packet is then transmitted individually and can even follow different routes to its destination.**

(iv) Circuit switching

- **is a methodology of implementing a telecommunications network in which two network nodes establish a dedicated communications channel (circuit) through the network before the nodes may communicate.**

**OR**

- **Is a switching technique that establishes a dedicated path between the sender and the receiver.**

(v) Data channel

**Is a path way through which data travels from the sending device to the receiving device.**

(b) Mention two advantages of full duplex mode of data transfer over simplex mode of data transfer. (2 Marks)

- **It allows the simultaneous transmission and receipt of data**
- **Faster transmission of information**
- **Instant feedback in communication**