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S850/1
Subsidiary ICT
Paper 1
JULY/ AUGUST. 2023
2 $\frac{1}{2}$ hours



MATIGO EXAMINATIONS BOARD
Uganda Advanced Certificate of Education
SUBSIDIARY ICT
THEORY
Paper 1
MARKING GUIDE 2023

1. (a) *Robots are used in a factory to build cars, One characteristic of a robot is its mechanical structure.*

State **two** other characteristics of a robot.

(02 marks)

- They operate at high speed.
- They are diligent.
- They Versatile.
- They have no human feelings.
- Artificial intelligence.

- (b) *Suggest three advantages of using robots, instead of humans, to build cars in the factory*
(3 marks)

- They can work for long hours without getting tired.
- They can do same tasks repeatedly without getting bored.
- They follow instructions strictly without any compromise.
- They can be employed in dangerous areas and places in the company.

2. (a) Differentiate between software and hardware.

(2 marks)

Software relates to electronic instructions that control the operations of the computer
while

Hardware are electro mechanical and tangible devices of a computer system

(b) List down any three examples of web authoring software. (3 marks)

- Adobe dream weaver.
- Microsoft Front page.
- Adobe captivate.
- Net objects fusion.
- **Slick plan Website Content Planner–**
- **Corel website Creator.**
- **Xara web designer.**
- **Website X5 Evo.**

3. Write the following acronyms in full as used in Information and Communication technology. (5 marks)

- (i) OS
Operating system
- (ii) URL
Uniform resource locator.
- (iii) OMR
Optical mark recognition.
- (IV) VPN
Virtual private Network.
- (V) FAT
File allocation table.

4. (a) Viruses, pharming and phishing are all examples of potential Internet security issues. Explain what is meant by each of these three terms

(3 marks)

- (i) Virus

A virus is a malicious software which affects the normal functioning of a computer, especially when executed, it replicates its self to fill up storage space and even affects computer files.

(ii) Pharming.

It is a fraudulent practice of directing internet users to a bogus website that mimics the appearance of a legitimate one, in order to obtain personal information such as passwords, account numbers, etc.

(iii) Phishing

“Phishing” is a scam where thieves attempt to steal personal or financial account information by sending deceptive electronic messages that trick unsuspecting consumers into disclosing personal information.

(b) Identify two ways of protecting a computer against viruses. (2 marks)

- Do not connect your computer to unknown networks.
- Do not connect or insert unknown external storage devices to your computer.
- Do not open spam messages from unknown sources.
- Do not install software from unknown sources.
- Always perform a virus scan on your computer to remove all viruses from your computer.

5. (a) Mention any examples of multi-purpose peripheral. (2 marks)

Xerox machine, Fax machine/Fax smile,

(b) Explain the following terms related to display devices. (3 marks)

(i) Refresh rate

The term refresh rate refers to how many times per second your monitor can display a new image, which is measured in hertz (Hz).

The refresh rate refers to how many times per second the display device is able to draw a new image. This is measured in Hertz (Hz).

(ii) Pixels

It is a smallest element of a picture displayed by screen.

(iii) Resolution

It is the clarity of an image displayed by the screen.

6. Differentiate between system software and application software

(2 marks)

System software are programs which are critical to computer operations

While

Application software are computer programs which enable users to accomplish tasks on the computer.

(b) Identify the programs used in the performing of the following tasks.

(3 marks)

- (i) Designing marketing business cards
 - Microsoft office publisher.
 - Adobe creative Cloud Express.
 - Adobe indesign.
 - Poster Mywall.
- (ii) Storing staff member's records
 - Microsoft office excel.
 - Microsoft office access.
 - My Structured query language. (MSQL)
 -
 - File juggler.
 - Tagscanner.
 - Filebot.
 - Easy file organizer.
 - Copy Whiz.
- (iii) Writing minutes of a meeting.
 - Micro soft office word.
 - Lotus word pro.
 - Wordpad.
 - Microsoft Word.
 - Lotus word pro.
 - Notepad.
 - WordPerfect (Windows only),
 - AppleWorks (Mac only),
 - Work pages.
 - OpenOffice Writer.

7. *Indicate true or false against each of the statement below in a table.*

(5 marks)

Statement	True/False
Input devices are examples of hardware	True

A hard disk drive is non-volatile storage	True
Backing storage devices are examples of software	False
A Graphical User Interface is a part of an operating system	True
A laptop computer cannot be carried around	False

8. **(a) Give two examples of Internet browsers. (2marks)**

Microsoft Internet explorer. Mozilla Firefox, Google chrome, Netscape. Opera mini, Microsoft edge, Vivaldi, Brave browser, Chromium, Safari com browser.

(b) Identify any three functions of web browsers (03 marks)

- Web browsers offer access to favorite sites and Bookmarks. As you traverse the Internet, you find sites that offer insights, news, commentary, humor, purchase options and other useful content.
- Browser can track your history as you surf the internet when you reveal this list, you can click on individual items in it to return to those sites or page at high speed.
- Browsers offer a wide set of customization options within their configuration options. You can determine what the browser does when it first loads, control add-ons that extend browser function, set up tab behavior, block pop-ups and so many more functions.
- Internet browsers use a special storage area on your hard drive to file away website elements they can reload to speed up page delivery. When these cached elements become stale, the content on the sites you visit may display incorrectly.

9. **(a) Differentiate between guided and un guided transmission media.**

(2 marks)

Guided Transmission Media, also known as Wired or Bounded transmission media, is the physical medium through which the signals are sent from one device to another using data cables.

While

Unguided transmission media refers to movement data bytes inform of electromagnetic waves through the waves of the air.

(b) Mention three factors that affect the performance of the data transmission media.

(3 marks)

- i. Weather conditions can affect the performance of the transmission media for example heavy rains.
- ii. Heavy data traffic can also affect the performance of the transmission media.
- iii. The positioning of the transmission media especially for wireless can also affect its performance.
- iv. Attenuation or decrease in signal strength due to the distance covered by the data signals can also affect the performance the transmission media.
- v. Compatibility of the transmission media with other equipment in the laboratory can also affect its performance.

10. (a) Nikita wishes to print out some documents and connects her printer to the computer using one of the USB ports. Identify what mode of data transmission is being applied.

(01 mark)

Half duplex mode of data transmission.

(b). Give three reasons for using a USB port.

(03 marks)

- It offers high speed data transmission of signals.
- USB ports can accept connection of many devices of different types and designs.
- USB ports are compatible to many another types of devices and equipments.
- USB ports can be found in many peripheral devices and equipments today with development in technology.
- USB port can be many today on a single laptop there by offering connection of many devices.

(c) Mention the commonly used connector for the category 6 cables in networking.

(1 mark)

Registered Jack 45 connectors. (RJ45 connectors)

11. (a) What is a network model?

(1 marks)

The networking model describes the architecture, components, and design applied to establish communication between the source and destination systems.

(b). Describe the two network models known to you..

(02 mark @)

i. Client server network model. Refers to a network structure in which there is one overall controlling machine over other client computers.

ii. Peer to peer network model it is a network structure in which all computers share equal responsibilities and can transfer data to each and every computer in the network freely.

12. (a). Distinguish between LAN and WAN.

(2 marks)

LAN is computer network that links devices within a building or group of adjacent buildings, especially one with a radius of less than 1 km.

While

WAN a computer network in which the computers connected but far apart from each other almost covering the whole continent or the whole world

(b). Identify three advantages of Fiber optic cables within a LAN.

(3 marks)

- i. Fiber optic cables offer the fastest speeds in data transmission as compared to other types of cables for a local Area Network.
- ii. Fiber optic are of light weight and many of the carried from one place to another while configuring the LAN.
- iii. Fiber optic cables offer guided transmission of data and therefore it is secure it cannot be easily accessed by the unauthorized people.
- iv. They can transfer a lot of data bytes at the same time as compared to other cable types while linking computers in a LAN.
- v. They offer connections over long distances which can physically contain the connection of computers in a LAN.
- vi. Fiber optic cables are strong and durable there by making them suitable for linking of LANs with computers which can be in the same locality.

13. (a) Give two problems that a database can face in a computer?(2 marks)

- Accidental deletion of data from the owner or malicious users.
- Virus attack which can corrupt data stored in the database.
- Wrong criterion typed by users which lead wrong results for queries.
- Wrong validation rules which may limit data entry for users due to poor designs.

(b)Identify three security measures that can be taken to keep database secure.

(03 marks)

- i. Use strong passwords to guard databases from unauthorized access.
- ii. Encrypt database to be transmitted online so that you safe guard from unauthorized use.
- iii. Apply fire walls to networks in order to guard databases accessed via networks from unauthorized use.
- iv. Create data backups regularly to such that database can be recovered in case of data loss.
- vi. Proper validation rules must be activated to guard database from wrong data entry.

14. (a) State any three self employment opportunities related to ICT where you can be engaged during vacation.

(3 marks)

- Operating a mobile money agency or business.
- Selling computer accessories.
- Designing and selling web sites.
- Selling and installing software applications.

- Working as data entrants for institutions such as NIRA.
- Working as computer laboratory attendant.

(b) Mention any two roles of a webmaster. (2 marks)

- Crating and designing websites.
- Updating information on to website.
- Maintaining the website.
- Managing information pasted and uploaded on the website.
- Offering web hosting services for customers.

15. (a) Briefly explain the concept of virtual reality. (1 mark)

It refers to a computer-generated simulation of a three-dimensional environment that can be interacted with in a seemingly real or physical way by a person using special electronic equipment.

e.g such as a helmet with a screen inside or gloves fitted with sensors.

(b). Identify at least one innovation in each of the following areas. (4 marks)

(i) Hardware

- 3Dimansional displays.
- Gloves fitted with sensors for computer games.
- Unmanned aerial vehicles (drones)
- Self driving cars.
- Satellites.
- Smart phones.

(ii) Software

- Artificial intelligence software.
- Social media applications.
- Global positioning systems.
- Multimedia applications (virtual DJ)

(iii) Communication

- Internet commutations.
- Social media applications.
- Smart phones.
- Cloud computing services.

- Email communications.

(iv) Security.

- *Figure print recognition systems.*
- *Voice recognition equipments.*
- *Facial recognition equipments.*
- *Vein recognition systems.*
- *Signature recognition equipment.*

16. (a) Differentiate between a file and a folder (2 marks)

A file is a resource for recording data in computer system. or

A file is a collection of related data records

While

A folder is virtual space for storage and organization of computer file. or

It is a virtual container for computers files and subfolders.

(b) Give three precautions to protect your document from deletion and editing by unauthorized persons? (3 marks)

- i. Hide the file from the desktop where it can be accessed by almost everyone on the system.
- ii. Apply strong passwords such that it cannot be misused by everyone.
- iii. Encrypt files most especially if they are to be transferred via the network.
- vi. Keep files on removable storage devices and on office machines.
- v. Use cloud storage to keep file from the office but rather online.
- vi. Share files via secure networks only.
- vii. Install fire walls on the network to stop unauthorized access to files on the systems.

17. (a) What is meant by the term Cache Memory? (1 mark)

It is a high speed memory chip on the mother board that is installed to supplement the available working memory to improve access speed.

Or

Cache memory refers to a block of memory chip that holds data files which are most likely to be accessed over and over again.

(b) Give two advantages of a cache memory (02 marks)

- It improves access speed to data files stored on the systems.
- It improves speed at which applications load on the system.
- It improves the overall performance of the whole computer system for vital tasks.

(c) Give two disadvantages of a cache memory. (02 marks)

- i. Cache memory chip is expensive and if inbuilt in to the system it can make it costly.
- ii. Cache memory is temporally and therefore it does not keep files permanently.

18. (a) Define the following terms related computer viruses. (3 marks)

(i) Worms

Worms are malware programs that replicate to damage computers by filling up storage devices and mainly spread via computer networks

(ii) Trojan

It is malicious software that downloads on to users' machine disguised as a legitimate program and there after performs backdoor actions and spying on users' machine.

(iii) Spyware:

Spyware is malicious software that enters a user's computer gathers personal data from the device and sends it to third parties without owner's consent.

(b). Differentiate between Cyber bullying and a Sexting in relation to system security.

(2 marks)

Cyber bullying is the act of using digital equipments and telecommunication facilities to cause harm or psychological torture to another person.

While

Sexting is an action or practice of sending sexually explicit photographs or messages via mobile phones.

19. (a). Differentiate between spreadsheet and word processor. (2 marks)

A spread sheet is a collection of rows and columns or

It is the arrangement of data in form of rows and columns.

While

A word processor is an application program that allows user to create and produce text based documents.

(b). Give three features of a word processor. (3 marks)

- Spelling and grammar checkers.
- Text wrapping.
- Changing page lay outs.
- Allows addition of pictures and objects
- Word warp
- Font manipulation
- Exporting of data to other applications.
- Lay out adjustments.
- Search and find feature.

- Insertion of tables in to documents.
- Auto correct feature.
- Mail merge feature.

20. Briefly explain the following terms in relation to programming language. (5 marks)

(a) High-level programming language

A high-level language programming refers to software that allows user to develop of computer instructions in a much more user-friendly context using normal English words and statements.

(b) Low-level programming language

This refers to programming software that consists of instructions which are closer to the computers architecture and can be directly manipulated by the processor.

(c) Syntax

This refers to the rules that define the structure of symbols and statements written in a given programming language.

(d) Assembly language.

It refers a second generation programming language consisting of simple English statements which can easily be manipulated by the processor.

(e) Translator

Refers to computer software that converts high level programming language statements into machine code.

END