

THE UNITED REPUBLIC OF TANZANIA
PRIME MINISTER'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT



SENGEREMA DISTRICT COUNCIL
FORM TWO TERMINAL JOINT EXAMINATION

COMPUTER SCIENCE-MARKING GUIDE

SECTION A: MULTIPLE CHOICE QUESTIONS -15 MARKS

1. Multiple Choice Questions (1 Mark @ Total 10 Marks)

(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
C	B	B	B	C	B	B	C	B	C

2. Matching Items Questions (1 Mark @ Total -5 Marks)

(i)	(ii)	(iii)	(iv)	(v)
B	C	D	A	E

SECTION B (70 Marks)

3. Briefly define the following terms as used in Computer Science: (2 Marks @ Total 10 Marks)

(i) Computer System: An integrated set of physical hardware components, non-tangible software programs, data, and human users (liveware) working collectively to input, process, store, and output information.

(ii) Programming: The process of designing, writing, testing, debugging, and maintaining a systematic set of logical source code instructions that command a computer system to perform specific tasks.

(iii) Problem Solving: The structured process of identifying a challenge or need, analyzing it, establishing logical steps (algorithms), and designing a computational solution to resolve it efficiently.

(iv) The Internet: A global network of interconnected computers, servers, and local networks spanning the world that uses standard communication protocols (TCP/IP) to share data and information.

(v) Cybersecurity: The practice and body of technologies, processes, and controls designed to safeguard networks, computers, programs, and data from unauthorized access, cyber-attacks, or damage.

4. A candidate should explain hardware Evolution & Characteristics (10 Marks)

(a) Why First-Generation computers produced extreme heat and needed specialized cooling: 4 Marks

- They relied on thousands of large **vacuum tubes** as their primary internal electronic components. These vacuum tubes functioned like high-power light bulbs, consuming immense amounts of electrical energy and generating intense thermal heat as a byproduct, which required powerful continuous cooling systems to prevent the glass tubes from burning out or melting.

(b) Two physical characteristics of 4th Generation computers that make them different from 1st Generation: (Any two 3 marks @)

1. **Highly Compact Size:** They are small, highly portable, and fit easily on top of ordinary office desks (desktops, laptops), unlike massive 1st Generation computers that filled entire rooms.
2. **Use of Microprocessors (LSI/VLSI):** Their entire central processing circuitry is integrated onto a single tiny silicon chip rather than thousands of bulky glass vacuum tubes.
3. **Extremely Low Power Consumption:** They consume very little electricity and generate minimal operational heat compared to the power-hungry architectures of the past.

5. Computer Laboratory Maintenance (10 Marks)

(a) Two examples of "Preventive Maintenance" actions in a school computer lab: (Any two 2.5 marks)

1. Regularly blowing out dust from keyboards, system units, and air vents using electronic blowers.
2. Installing and updating antivirus software utilities to scan and prevent malware infections.
3. Covering computers with dust covers when not in use and maintaining proper room ventilation/air conditioning.
4. Ensuring all loose power cables are organized safely and checked for wear to prevent electrical short-circuits.

(b) Distinguish between computer routine maintenance and computer corrective maintenance: 2.5 marks @

- **Routine Maintenance:** Scheduled, proactive, and periodic care actions (like daily cleaning, routine virus scans, and dusting) performed regularly to keep computer components running smoothly and prevent sudden unexpected failures.
- **Corrective Maintenance:** Reactive maintenance actions performed *after* a hardware component breaks down or a software crash occurs (such as replacing a dead power supply unit or reinstalling a corrupted operating system) to restore the computer back to working condition.

6. Programming Languages & Lifecycle (10 Marks)

(a) Why it is easier for a Form Two student to learn Python than Machine Language: 4 marks

- Python is a **High-Level Language** written using English-like syntax and standard mathematical notations, making it highly readable and intuitive for humans to comprehend. On the other hand, Machine Language is a **Low-Level Language** consisting

entirely of binary digits (0s and 1s), which is extremely difficult for human students to read, write, memorize, and debug.

(b) First two stages of the Program Development Life Cycle (PDLC): 3 marks @

1. **Problem Recognition / Definition (Problem Analysis)**
2. **Program Design (Algorithm development, flowcharts, or pseudocode design)**

7. Interdependence & Digital Ethics (10 Marks)

- **(a) How Hardware and Software work together to make a computer functional: 4 marks**
 - They share a mutually dependent relationship. Hardware acts as the physical, solid structural body or engine of the system, but it is completely lifeless and useless without software to control it. Software provides the logical instructions, data rules, and software code programs that direct the hardware on what actions to execute. Without hardware, software has no physical platform to run on; without software, hardware is an inanimate object.
- **(b) Two ethical uses of the Internet for secondary school students: (Any two 3 marks)**
 1. Using search engines and digital portals to research academic topics, download learning notes, or read digital books.
 2. Participating in online educational forums, video classes, or collaborating on school group assignments.
 3. Communicating respectfully with teachers, peers, and mentors through formal electronic mail (email).

8. Operating Systems (10 Marks)

- **(a) How Windows OS differs from Mac OS with examples: 2 marks**
 - **Windows OS** is developed by Microsoft Corporation and is designed to run on a massive variety of hardware platforms built by different manufacturers (e.g., Dell, HP, Lenovo). *Example:* Windows 10 or Windows 11.
 - **Mac OS** is developed exclusively by Apple Inc. and is uniquely optimized to operate only on Apple's proprietary hardware devices. *Example:* macOS Ventura or macOS Sonoma running on a MacBook Pro.
- **(b) Four functions of a computer operating system: any four points 2 marks @**
 1. **Processor Management:** Scheduling and distributing CPU processing time to various running application tasks.
 2. **Memory Management:** Tracking and allocating primary RAM memory addresses to running programs and clearing them when tasks end.
 3. **File Management:** Organizing, naming, storing, locating, and retrieving files within secondary storage systems.
 4. **Device / Peripheral Management:** Coordinating communication between the system and all attached input/output hardware via device drivers.
 5. **User Interface Provision:** Offering a Graphical User Interface (GUI) or Command Line Interface (CLI) that enables humans to interact with the system hardware.

9. Practical Communication Application: Email (10 Marks)

- **(a) Steps to follow to compose and send the email as a class monitor: 1 mark @**
 1. Open an internet browser (e.g., Google Chrome) and navigate to the email service provider website (e.g., Gmail) to sign in using your username and password.
 2. Click on the **Compose** or **New Mail** button to open a blank email drafting window.

3. In the "**To**" field, type the mailing list address or individual email addresses of all the class students.
 4. In the "**Subject**" field, type a clear, short title, such as "*Urgent: Change in Next Week's Timetable*".
 5. Click inside the main body section and type out a polite message outlining the details of the modified timetable.
 6. Review the message text for accuracy, then click the **Send** button to deliver the email over the network.
- **(b) Two advantages of using email compared to handwritten letters in this situation: 2 marks @ any other relevant point accepted**
 1. **Instantaneous Mass Delivery:** The message reaches all students in the class simultaneously within seconds, whereas distributing physical letters takes a long time.
 2. **Cost-Effective and Eco-Friendly:** It does not require printing paper, ink cartridges, or physical distribution logistics, saving financial and physical resources.

SECTION C (15 Marks)

10. Analytical Case Study: Cyber Security (15 Marks)

Suggested Marking Grid for the Essay Component:

- **Introduction (2 Marks):** Correctly defines the cybersecurity scenario as a **Phishing/Social Engineering** trap attempting financial scamming.
- **Body Points (10 Marks):** Five distinct, practical security actions explained cleanly (2 marks each).
- **Conclusion (3 Marks):** Summarizes the vital role of individual digital vigilance and awareness in modern computing environments.

Model Essay Implementation:

Introduction The WhatsApp message received by Anna promising a prize of 1,000,000 TZS in exchange for her mobile money PIN is a classic example of a **Phishing** and **Social Engineering** attack. In cybersecurity, these attacks exploit human psychology, curiosity, or greed rather than technical system vulnerabilities to steal personal information. To secure her personal assets, data, and devices, Anna must follow standard safety practices.

Core Defensive Measures for Anna:

1. **Never Reveal Sensitive Financial Credentials:** Anna must never share personal authentication details like passwords, online credentials, tokens, or mobile money PINs with anyone. Financial service operators will never request a PIN via message or voice call.
2. **Verify the Identity of the Sender Through Official Channels:** Anna should treat unsolicited lottery awards with skepticism. She must contact her mobile network service operator directly using their official customer care lines to confirm if the message is authentic.
3. **Ignore and Block the Suspicious Number Immediately:** To prevent repeated harassment and minimize the risk of accidental exposure, she should use her messaging app's security settings to block the number and report the interaction as spam.
4. **Maintain General Discretion Online:** Anna must avoid clicking on unverified hyperlinks attached to random winning notifications. These links can lead to malicious cloning websites or trigger background malware downloads designed to spy on her phone.
5. **Report the Incident to Relevant Authorities:** She should forward the scam details and the sender's telephone number to her school authorities, parental guardians, or service

providers so they can flag the threat and protect other community members from falling victim to the fraud.

Any relevant conclusion is accepted

Conclusion Modern technological threats demand strong individual safety habits alongside software tools like firewalls. By remaining cautious, safeguarding credentials, and reporting suspicious behavior, Anna can navigate online spaces safely and protect her data from bad actors.

Any relevant conclusion is accepted