THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL

GRADE A TEACHERS' CERTIFICATE EXAMINATION

635 INFORMATION AND COMMUNICATION TECHNOLOGY

Time: 3 Hours. **ANSWER** **Year: 2002**

Instructions

1. This paper consists of sections **A**, **B** and **C.**
2. Answer **all** questions in sections A and **two (2)** questions from each sections B and C.
3. Mobile phones and unauthorized materials are **not allowed** in the examination room.
4. Write your **Examination Number** on every page of your answer **booklet(s).**

SECTION A (40 Marks)

Answer all questions from this section.

1. Give four functions of the operating system.

The operating system manages hardware resources of the computer. It coordinates the use of the processor, memory, and input/output devices so that different programs and users can work efficiently without conflict.

It provides a user interface which allows people to interact with the computer. This may be a command-line interface where users type commands or a graphical interface with windows, icons, and menus, making computers easier to use.

The operating system handles file management. It organizes files in folders and directories, controls how files are saved or retrieved, and ensures that users can access information quickly while keeping data secure.

It enforces system security and access control. The operating system verifies user accounts, requires passwords, and applies permissions to files and devices so that unauthorized users cannot misuse the system.

2. Mention four uses of ICT in libraries.

ICT allows libraries to create electronic catalogues of books and materials. This makes searching for resources faster because users can type keywords and immediately find what they need instead of browsing shelves manually.

It makes it possible for libraries to introduce automated borrowing and returning systems. With barcode readers or RFID tags, books can be issued and returned electronically, reducing errors and saving staff time.

ICT expands access to information by connecting libraries to online databases, e-books, and journals. This allows students and researchers to find updated information beyond the physical collection.

It also improves library administration. ICT systems track overdue books, calculate fines automatically, and help in stock-taking, which makes the library more efficient and accurate.

3. State four limitations of oral communication in organizations.

Oral communication does not leave a permanent record. Once spoken words are forgotten, there is nothing to refer back to, which can cause disputes when agreements are not written.

Messages may be distorted as they pass through different people. Each listener may interpret the words differently, which leads to misunderstanding and loss of important details.

Oral communication is prone to misinterpretation. Differences in tone, accent, or speed of speaking may cause the listener to misunderstand what the speaker intended.

It is not suitable for conveying detailed or technical information. Long oral instructions may be forgotten quickly, especially if they are complex and not supported by written notes.

4. List four examples of secondary storage devices.

A hard disk drive is a common secondary storage device that uses magnetic platters to store large amounts of data permanently. It is reliable for everyday computing needs.

A solid-state drive stores data on flash memory chips. It has no moving parts, which makes it faster, more durable, and energy-efficient compared to hard disk drives.

Optical discs such as CDs, DVDs, and Blu-rays are used to store information using laser technology. They are useful for distributing software, music, and videos.

External drives like portable hard drives or USB drives provide additional storage. They can be carried easily and connected to different computers for transferring large files.

5. Mention four benefits of teleconferencing.

Teleconferencing reduces the need for travel. Managers, teachers, or officials can hold meetings from their offices or homes, saving money on transport and accommodation.

It saves time because people in different places can meet instantly without waiting for travel arrangements. This allows quicker decisions and faster response to issues.

It increases collaboration across distances. Teams spread across different cities or countries can discuss projects and share ideas in real time without meeting physically.

It supports inclusivity by allowing people who cannot travel due to health, distance, or cost to still participate in discussions, ensuring wider involvement.

6. State four types of computer networks.

A Local Area Network (LAN) connects computers within a small physical area such as a school, office, or building. It allows sharing of printers, files, and internet connections easily.

A Wide Area Network (WAN) spans large geographical areas such as regions or countries. The Internet itself is the largest example of a WAN, connecting millions of networks globally.

A Metropolitan Area Network (MAN) covers a city or a large campus. It is larger than a LAN but smaller than a WAN, often used by universities or municipalities to link buildings.

A Personal Area Network (PAN) is the smallest network that connects devices around a single person, such as linking a laptop, smartphone, and wireless headphones through Bluetooth.

7. Give four differences between RAM and ROM.

RAM is volatile memory, which means that when the computer is switched off, all the data stored in it is erased. ROM is non-volatile memory, meaning it retains data even when power is turned off.

RAM is used to temporarily hold data and instructions that the CPU needs while running applications. ROM stores permanent instructions that are needed to start the computer, such as the firmware.

RAM can be read from and written to freely by both the system and users, which makes it flexible. ROM normally allows reading only, with its data written at the time of manufacture and rarely changed.

RAM usually has a large capacity in modern computers, often several gigabytes, to handle multitasking. ROM is much smaller, containing only essential startup programs.

8. Explain four signs that show a hard disk is failing.

A failing hard disk may make unusual sounds such as clicking, buzzing, or grinding. These noises are produced by mechanical failures inside the disk.

The computer may frequently freeze or crash, especially when trying to open or save files, which shows the system is struggling to read data from the disk.

Files may disappear or become corrupted. Users may find that some files cannot be opened, are missing, or show errors when accessed.

The computer may show boot errors, where the operating system fails to load, indicating that the system cannot find or read startup files stored on the hard disk.

9. State four ways ICT can improve transport systems.

ICT makes it possible to book tickets online. Passengers can reserve seats and pay through websites or apps, reducing long queues at stations.

It improves traffic management. Traffic cameras, sensors, and real-time monitoring help reduce congestion by controlling signals and providing updates.

GPS navigation systems guide drivers and passengers with the fastest routes, helping them save time and fuel.

ICT enhances logistics and delivery systems by allowing companies to track vehicles and goods, ensuring that customers receive accurate information about deliveries.

10. List four examples of antivirus software.

Norton Antivirus provides protection against viruses, malware, and spyware, and is widely used in personal and business computers.

Kaspersky Antivirus is known for its strong detection rates against ransomware, trojans, and phishing attacks.

Avast Antivirus offers both free and premium versions, protecting users from malware, unsafe websites, and network threats.

McAfee Antivirus provides enterprise and personal protection, securing multiple devices and offering additional tools like firewalls and identity protection.

SECTION B (30 Marks)

Answer any two questions from this section

11. Discuss five benefits of ICT in distance education.

ICT enables access to learning materials from anywhere and at any time. Through online platforms, students in remote areas can access lectures, e-books, and notes without needing to travel to physical institutions.

It supports interactive communication between students and instructors. Tools like video conferencing, email, and discussion forums allow learners to ask questions and receive timely feedback, which strengthens the learning process.

ICT provides flexibility in learning. Learners can study at their own pace, review recorded lectures, and balance education with work or family responsibilities. This is especially beneficial for adult learners.

It reduces the cost of education. Students save money on transport, accommodation, and printed materials, while institutions reduce expenses on classroom space and resources.

ICT also enhances collaboration among learners. Students from different geographical locations can work together on projects, share experiences, and build knowledge collectively.

12. Explain five measures to be taken to reduce computer virus attacks.

Installing and regularly updating antivirus software is the first measure. Antivirus programs detect and remove malicious files before they damage the system, but they must be updated to stay effective against new threats.

Using firewalls helps control incoming and outgoing traffic. Firewalls act as barriers that prevent unauthorized access to networks, reducing the chances of virus infections.

Practicing safe browsing habits is essential. Users should avoid suspicious websites, refrain from downloading pirated software, and be cautious with pop-up ads that may contain harmful code.

Regular system updates are another preventive measure. Updating the operating system and applications closes security loopholes that viruses exploit to penetrate computers.

Educating users on cybersecurity is also important. When people are aware of phishing scams, fake links, and unsafe practices, they are less likely to expose computers to virus attacks.

13. Analyse five challenges of implementing ICT projects in rural schools.

One major challenge is lack of reliable electricity. Frequent blackouts or absence of power makes it difficult to run computers and internet-connected devices.

Limited internet connectivity is another problem. Many rural areas have weak or no internet signals, making it hard to access online learning resources and digital tools.

High costs of ICT infrastructure also hinder progress. Purchasing computers, projectors, and networking equipment requires funds that many rural schools cannot afford.

There is a shortage of skilled teachers in ICT. Many educators in rural schools lack proper training in digital tools, making it hard to integrate ICT into teaching effectively.

Poor maintenance and support systems add to the problem. When equipment breaks down, rural schools often lack technicians or resources for quick repairs, leading to long downtimes.

14. Describe five ways in which ICT has improved financial transactions.

ICT has made financial services faster. Customers can transfer money instantly through mobile banking and online platforms without waiting in queues.

It has improved security in transactions. Encryption and secure authentication reduce risks of fraud compared to carrying cash.

ICT provides convenience by enabling 24/7 access to banking services. Customers can pay bills, check balances, and send money at any time.

It supports financial inclusion. Even people in remote areas without access to physical banks can use mobile money services to save, send, and receive funds.

ICT has also improved record-keeping. Digital systems automatically store transaction histories, making it easier for both customers and institutions to track finances and resolve disputes.

SECTION C (30 Marks)

Answer any two questions from this section

15. Critically analyse five ways in which ICT influences cultural change in society.

ICT exposes people to global cultures through social media, films, and online interactions. This can influence language, fashion, and lifestyle, leading to cultural blending or loss of traditional values.

It changes communication styles. People increasingly use digital communication such as texting, emails, and video calls instead of traditional face-to-face methods, reshaping cultural norms of interaction.

ICT promotes cultural preservation by enabling digital archiving. Songs, stories, and historical records can be stored electronically, safeguarding heritage for future generations.

It challenges traditional authority structures. Young people who access global ideas online may question long-held beliefs, leading to shifts in cultural attitudes.

ICT also accelerates cultural globalization. Shared online platforms create common trends across countries, influencing food, music, and entertainment preferences worldwide.

16. Evaluate five consequences of poor data management in organizations.

Poor data management leads to loss of important information. Without proper backup and storage systems, organizations risk losing customer records or financial data permanently.

It results in inefficiency. Employees spend more time searching for misplaced information, which reduces productivity and delays decision-making.

It increases security risks. Poorly managed data is vulnerable to breaches and unauthorized access, which may cause legal and financial problems.

Poor data management also damages organizational reputation. Clients lose trust in institutions that mishandle or lose sensitive information.

It leads to poor decision-making. Inaccurate or incomplete data results in wrong business strategies, financial losses, or missed opportunities.

17. With examples, justify five reasons why ICT literacy is essential for national development.

ICT literacy improves employment opportunities. For instance, many modern jobs require computer skills, so a literate workforce attracts investment and boosts economic growth.

It enhances service delivery in government. E-government platforms allow citizens to access services like tax payment or license renewal online, improving efficiency and reducing corruption.

ICT literacy promotes innovation. Skilled individuals can develop apps, software, or digital businesses that drive national progress, such as mobile payment systems in Africa.

It supports education. Teachers and students who are ICT literate can access digital libraries and e-learning platforms, improving the quality of education nationwide.

It strengthens global competitiveness. Nations with high ICT literacy levels can compete in the global digital economy, ensuring sustainable growth and development.

18. Assess five ethical challenges that arise from the rapid growth of ICT in society.

One ethical challenge is invasion of privacy. Personal data is often collected and shared without consent, raising concerns about misuse of information.

Cybercrime is another issue. Hackers exploit ICT growth to engage in fraud, identity theft, and illegal activities, creating ethical and legal dilemmas.

Plagiarism and intellectual property theft are common. The ease of copying digital content without credit undermines creativity and fairness in society.

Digital divide raises ethical concerns. While some groups benefit from ICT, others without access are left behind, widening inequality.

Addiction to ICT also poses ethical questions. Excessive use of social media and online gaming affects family relations, productivity, and mental health, challenging societal values.