THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL

GRADE A TEACHERS' CERTIFICATE EXAMINATION

635 INFORMATION AND COMMUNICATION TECHNOLOGY

Time: 3 Hours. **ANSWER** **Year: 2005**

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)

1. Mention four advantages of using email over traditional letters.

   Email is very fast compared to traditional letters. A message sent by email is delivered within seconds to the recipient, while traditional letters may take days or weeks depending on the distance. This speed makes email more efficient for urgent communication.

   Email is cheaper than traditional letters. Sending a letter requires paper, envelopes, and postage fees, which can be costly especially for international mail. On the other hand, email only requires an internet connection, making it a more affordable option.

   Email allows the attachment of files such as documents, photos, audio, and videos. This makes it possible to share more than just written words, which traditional letters cannot achieve unless additional printed materials are included, which is expensive and time-consuming.

   Email supports sending messages to multiple recipients at the same time. With the CC and BCC features, one message can reach many people instantly, while traditional letters would require multiple copies and separate postage for each recipient.

2. State four differences between first generation and fourth generation computers.

   First generation computers used vacuum tubes as their main electronic component, while fourth generation computers use microprocessors that combine thousands of integrated circuits on a single chip. This difference makes modern computers much more powerful.

   First generation computers were extremely large, occupying entire rooms, and consumed a lot of electricity. In contrast, fourth generation computers are compact and energy efficient, making them more practical for everyday use.

   First generation computers were very slow, produced a lot of heat, and had very limited memory capacity. Fourth generation computers, however, are fast, reliable, and come with large memory and storage capabilities, making them highly efficient.

   First generation computers were very expensive and available only to governments or large institutions, while fourth generation computers are affordable, widely available, and used in homes, schools, and businesses.

3. List four uses of spreadsheets in business.

Spreadsheets are used to prepare financial reports such as profit and loss accounts, balance sheets, and cash flow statements. This helps businesses to monitor their financial performance accurately.

Spreadsheets are used to analyze sales data, making it possible to identify trends and predict future sales. This allows businesses to make informed decisions on marketing and production.

Spreadsheets help businesses to manage budgets by recording income and expenses. This makes it easy to compare planned spending against actual spending and to control costs effectively.

Spreadsheets are used to prepare payrolls by calculating employee salaries, deductions, and bonuses automatically. This reduces errors and saves time in payment processing.

4. Give four features of multimedia presentations.

Multimedia presentations integrate different elements such as text, images, audio, and video. This variety of media makes presentations more engaging and easier to understand.

They include animations and transitions that make slides attractive and maintain audience attention. These visual effects help to emphasize key points and improve the delivery of information.

They allow interactivity through features like hyperlinks, embedded quizzes, and navigation controls. This makes presentations more dynamic and participatory compared to static methods.

They present information in a clear and visually appealing way, which helps the audience to understand and remember the content better compared to plain text explanations.

5. State four disadvantages of using mobile phones in classrooms.

Mobile phones can distract students during lessons. Instead of paying attention to the teacher, some students may use their phones for texting, gaming, or browsing the internet.

They can promote cheating during examinations. Students may use phones to search for answers online or share information secretly, reducing academic honesty.

Mobile phones may expose learners to inappropriate content such as violence, pornography, or harmful information if not properly monitored. This can negatively affect their moral and social development.

They reduce direct interaction between teachers and students. Instead of engaging in classroom discussions, students may rely too much on their phones, weakening face-to-face communication skills.

6. Mention four ICT devices used in modern libraries.

Computers are used in libraries to search catalogs, access digital resources, and connect to the internet. This makes information retrieval faster and more convenient for users.

Scanners are used to digitize old books, journals, and documents. This helps in preserving materials and making them accessible in digital form.

Barcode readers are used to manage borrowing and returning of books. Each book has a barcode, and the reader makes it quick to register transactions accurately.

Printers are used to produce hard copies of digital documents, allowing library users to print important information or research material for personal use.

7. Outline four characteristics of reliable data.

Reliable data must be accurate. This means it should be correct, free from errors, and represent the true situation being studied.

Reliable data must be complete. It should cover all necessary information required for analysis without leaving out important details.

Reliable data must be consistent. Information about the same subject should remain the same across different systems or reports to avoid contradictions.

Reliable data must be timely. It should be available when needed, as outdated data may not support decision-making effectively.

8. List four limitations of using the internet in education.

The internet can expose students to misinformation and unreliable sources. Without proper guidance, learners may rely on false or misleading content.

It can lead to addiction to social media, online gaming, and other entertainment sites, which reduces study time and lowers academic performance.

Internet access can be expensive in some regions, making it difficult for schools and students in low-income areas to benefit from online learning.

The internet can expose learners to risks such as cyberbullying, online predators, and harassment, which can affect their emotional well-being.

9. State four functions of the operating system.

The operating system manages hardware resources such as the CPU, memory, and input-output devices. This ensures efficient performance of the computer.

It provides a user interface that allows users to interact with the computer, either through graphical icons or command lines.

It handles file management by saving, retrieving, and organizing files in storage devices. This makes it easy to access and manage data.

It controls security by managing user accounts, passwords, and access rights to protect information from unauthorized use.

10. Mention four ways ICT can promote entrepreneurship.

ICT enables entrepreneurs to market their goods and services online through websites, social media, and digital advertisements, helping them reach a wider audience.

It supports e-commerce, allowing entrepreneurs to sell products and services globally without the need for physical shops.

It provides mobile payment systems like mobile banking and e-wallets that make financial transactions easier, faster, and safer.

It facilitates access to information and networking platforms where entrepreneurs can connect with customers, suppliers, and investors to grow their businesses.

SECTION B (30 Marks)

11. Explain five benefits of using ICT in healthcare management.

ICT improves patient record keeping through electronic health records (EHR). These systems store patients' medical histories, test results, and prescriptions in digital format, which reduces paperwork and allows easy retrieval of information by doctors and nurses.

ICT enhances diagnosis and treatment by supporting advanced technologies like MRI scans, CT scans, and computer-assisted surgery. These tools provide accurate results and enable doctors to detect and treat diseases earlier and more effectively.

ICT allows remote consultations through telemedicine. Patients in rural or remote areas can consult doctors through video calls, emails, or mobile applications, reducing the need for travel and making healthcare more accessible.

ICT speeds up medical research by enabling scientists to share data globally, access digital libraries, and analyze large datasets. This collaboration helps in finding cures, developing vaccines, and improving medical practices more quickly.

ICT improves hospital management by using software for scheduling patient appointments, managing medical staff shifts, and controlling inventory of drugs and equipment. This ensures efficiency in service delivery and reduces wastage.

12. Discuss five challenges of integrating ICT in public administration.

One major challenge is the high cost of ICT infrastructure. Purchasing hardware, software, and networking equipment, as well as maintaining them, requires large investments that many governments struggle to afford.

Another challenge is the lack of ICT skills among public servants. Many employees are not well trained in using modern digital tools, which slows down the implementation of ICT-based systems in government services.

Resistance to change is also a problem. Some officials prefer traditional manual systems due to fear of technology or job insecurity, leading to slow adoption of ICT innovations.

Cybersecurity risks are a significant challenge. Hackers may target government databases to steal sensitive information, disrupt services, or manipulate data, which threatens national security and public trust.

Limited internet infrastructure, especially in rural areas, makes it difficult to implement e-government services equally. Citizens in such areas cannot access online services effectively, creating inequality in service delivery.

13. Explain five roles of ICT in disaster management.

ICT plays a role in early warning systems by providing alerts through radio, mobile phones, and internet platforms about disasters like floods, hurricanes, or earthquakes. This helps communities to prepare and evacuate in time.

Geographic Information Systems (GIS) are used to map disaster-prone areas and monitor changes in the environment. This helps authorities to plan preventive measures and respond effectively when disasters strike.

ICT supports real-time communication during disasters. Rescue teams can coordinate using mobile phones, satellite systems, and radios, which ensures quick and organized response.

Social media platforms and mobile applications are used to mobilize resources, share information about affected areas, and connect volunteers with victims in need. This enhances community participation in disaster management.

ICT is used for data collection and analysis after disasters. Databases store information on the number of victims, resources used, and damages caused, which helps governments and NGOs in planning recovery programs and preventing future disasters.

14. Discuss five ways ICT can be used to preserve cultural heritage.

ICT enables digital archiving of historical documents, manuscripts, and artifacts. Scanning and storing them electronically ensures that cultural information is preserved for future generations without risk of physical damage.

Virtual museums and online exhibitions allow people worldwide to explore cultural sites, artworks, and historical items without physically visiting. This widens access to cultural knowledge.

ICT supports the documentation of oral traditions, songs, and indigenous languages through audio and video recordings. These records help prevent the extinction of languages and traditions.

Databases are created to catalogue cultural sites and resources. Governments and organizations can use them to monitor, protect, and promote heritage sites more effectively.

Social media and websites are used to promote cultural awareness by sharing videos, images, and stories about traditions, festivals, and history. This encourages younger generations to value their culture.

SECTION C (30 Marks)

15. Critically analyse five impacts of ICT on employment patterns in modern economies.

ICT has created new job opportunities in fields such as software development, cybersecurity, digital marketing, and online services. These jobs did not exist before and are now crucial to the economy.

ICT has led to automation, which has replaced many repetitive manual jobs in factories and offices. Machines and software can now perform tasks that previously required human labor, leading to job losses in some sectors.

ICT has promoted remote working, allowing employees to work from home using online platforms. This has changed traditional employment patterns and increased flexibility in work arrangements.

ICT has increased the demand for digital skills in almost every profession. Workers now need knowledge of computers, internet tools, and software applications to remain competitive in the job market.

ICT has supported the rise of the gig economy, where people take short-term jobs or freelance work through online platforms such as Upwork, Fiverr, or Uber. This has provided more flexible employment options but also created job insecurity.

16. With examples, evaluate five consequences of cybercrime in society.

One consequence of cybercrime is financial loss. Hackers may steal money directly from bank accounts, commit online fraud, or scam people through fake websites. For example, phishing emails trick users into giving away credit card details.

Another consequence is loss of privacy. Cybercriminals may steal personal data such as identity documents, social security numbers, or health records, which can then be used for identity theft and fraud.

Cybercrime disrupts business operations by launching attacks such as ransomware, which locks companies out of their data until they pay money. This can paralyze organizations for days or weeks.

Reputation damage is also a consequence. If a company suffers a cyberattack, customers may lose trust in its ability to protect data. This affects customer loyalty and can reduce business growth.

Cybercrime threatens national security. Hackers may attack government systems, power grids, or military databases, which can destabilize a country and cause political or economic crises.

17. Justify five reasons why ICT is a key driver of globalization.

ICT enables instant communication across borders through emails, video conferencing, and social media. This allows businesses, governments, and individuals to interact in real time worldwide.

ICT facilitates international trade by supporting e-commerce platforms such as Amazon and Alibaba, where products are bought and sold globally with ease.

ICT promotes cultural exchange by allowing people to share music, films, and traditions online. Social media platforms like YouTube and TikTok have made it possible for cultures to influence one another.

ICT supports global collaboration in research and education. Scientists and students from different countries can share knowledge, work on joint projects, and access online courses, creating a global learning environment.

ICT improves logistics and travel by providing online booking systems, tracking shipments, and coordinating international transport. This makes globalization more efficient and convenient.

18. Assess five ways ICT can be misused in politics and governance.

ICT can be misused to spread misinformation and propaganda through social media platforms. Politicians may manipulate public opinion with fake news or misleading campaigns.

Election results can be manipulated through hacking or tampering with digital voting systems. This undermines democracy and causes disputes in governance.

Governments may misuse ICT for illegal surveillance of political opponents and citizens, violating privacy and human rights. This can create fear and reduce freedom of expression.

ICT can be used to promote cyberbullying and hate speech against political rivals. Online attacks may damage reputations and polarize society along political or ethnic lines.

ICT systems can also be misused for corruption, such as diverting public funds electronically or awarding contracts unfairly through manipulated digital platforms. This weakens transparency and accountability in governance.