THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL

GRADE A TEACHERS' CERTIFICATE EXAMINATION

635 INFORMATION AND COMMUNICATION TECHNOLOGY

Time: 3 Hours. **ANSWER** **Year: 2009**

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 form this section

1. Mention four advantages of online banking.

   Online banking provides convenience because customers can perform transactions at any time without visiting a bank physically. This 24-hour availability saves time and energy for both individuals and businesses.

   It allows fast money transfers and bill payments. Customers can send funds to others instantly or settle utility bills quickly without standing in long queues.

   It reduces congestion in physical banks since many people prefer online services. This makes operations inside bank branches smoother for customers who require in-person services.

   It provides a wider range of services such as account balance checks, loan applications, and investment management, which increases customer satisfaction and flexibility.

2. State four disadvantages of using pirated software.

   Pirated software is often embedded with malware or viruses that can damage computer systems and compromise user data. This makes it unsafe for use.

   It is illegal to use pirated software, and individuals or organizations caught using it may face fines, lawsuits, or imprisonment depending on the law.

   Pirated software lacks updates and official support from the developer. This leaves the software vulnerable to cyber threats and makes it unstable in the long run.

   It may not function properly, since it is an unauthorized copy. This can cause frequent crashes, loss of data, and reduced productivity.

3. List four features of reliable ICT networks.

   A reliable ICT network has high speed that ensures fast transmission of data, allowing smooth communication and operations.

   It is secure, meaning it has mechanisms to protect users and systems from unauthorized access, hacking, and data theft.

It has high availability, meaning users experience minimal downtime, so services are accessible most of the time without interruption.

It is scalable, which means the network can easily expand to accommodate more users and devices without reducing performance.

4. Mention four ICT devices used in smart homes.

Smart thermostats are devices that regulate heating and cooling automatically, saving energy while keeping homes comfortable.

Smart security cameras allow homeowners to monitor their property remotely and receive alerts in case of suspicious activities.

Smart speakers such as Google Home or Amazon Alexa use voice commands to control other smart devices and provide information to users.

Smart lighting systems allow remote control of bulbs, brightness, and colors via smartphones or voice assistants, making homes energy efficient.

5. Outline four roles of ICT in modern journalism.

ICT supports online news publishing through websites and blogs. Journalists can instantly share breaking news to global audiences.

It enhances investigative journalism through digital tools for research, fact-checking, and analyzing large sets of data to expose corruption or crimes.

It allows live broadcasting and streaming of events, such as political rallies and sports, which keeps audiences updated in real time.

It enables direct engagement between journalists and the public through social media platforms, where feedback and discussions take place instantly.

6. State four challenges of ICT infrastructure in rural areas.

Unreliable electricity supply in rural areas limits the effective use of ICT equipment and connectivity.

High installation and maintenance costs of internet infrastructure discourage providers from investing in remote locations.

There is a shortage of skilled technicians in rural areas, making it difficult to repair and maintain ICT systems when problems arise.

Poor transport networks also hinder the delivery and servicing of ICT equipment, slowing down development in rural communities.

7. List four benefits of ICT in transport and logistics.

ICT improves vehicle tracking using GPS systems, which enhances safety and efficiency in transport companies.

It supports online booking and ticketing, making it easier for passengers to reserve seats and pay electronically.

It helps companies manage fleets better by monitoring fuel use, driver behavior, and routes, which reduces costs.

It improves communication between drivers, passengers, and company offices, ensuring smoother operations.

8. Mention four examples of malicious software.

Viruses are malicious programs that attach themselves to files and spread when executed, often causing damage.

Worms are malware that replicate themselves and spread through networks without needing human action.

Trojans disguise themselves as legitimate software but secretly harm computers or steal data once installed.

Spyware is a type of malware that secretly monitors user activity and steals sensitive information without permission.

9. Give four advantages of computer simulation in education.

Simulations provide learners with safe environments to practice skills without risking harm, such as flight simulators for pilots.

They make abstract concepts easier to understand by visually demonstrating processes, such as chemical reactions or physics experiments.

They reduce costs since physical equipment or labs may not always be needed when simulations can provide similar learning experiences.

They make learning more engaging and interactive, capturing the attention of students and improving retention.

10. State four differences between hardware and software.

Hardware refers to the physical components of a computer such as the CPU, monitor, and keyboard, while software refers to the instructions and programs that make hardware work.

Hardware can be touched and seen, while software cannot be physically touched since it exists as digital code.

Hardware deteriorates physically over time due to wear and tear, while software does not wear out but may become outdated.

Hardware cannot function without software, while software requires hardware to run and execute tasks.

SECTION B (30 Marks)

Answer any two questions from this section

11. Explain five measures to ensure effective use of ICT in schools.

Schools should provide regular ICT training for teachers so they can confidently use technology in teaching. This ensures students benefit from interactive lessons.

They should invest in reliable infrastructure such as computers, projectors, and internet connections, which support digital learning.

Schools must establish clear policies for responsible ICT use, guiding both teachers and students in avoiding misuse such as cheating or social media distractions.

They should integrate ICT into the curriculum, making it part of subjects instead of treating it as a separate course, so students develop digital literacy early.

Regular maintenance and upgrading of ICT equipment should be done to avoid breakdowns that interrupt learning.

12. Discuss five ways ICT supports inclusive education.

ICT provides assistive technologies such as screen readers for visually impaired students, making education accessible to all.

It supports distance learning platforms that allow students in rural or disadvantaged areas to access quality education.

ICT enables personalized learning through adaptive software that tailors lessons to the pace and needs of each learner.

It promotes collaborative learning by connecting students of different abilities and backgrounds through online platforms.

ICT creates awareness campaigns about disability rights and inclusion, influencing policymakers and communities to support equal education.

13. Analyse five challenges of ICT adoption in public health.

High costs of equipment such as electronic health records and telemedicine tools make adoption difficult for many governments.

Shortage of skilled ICT professionals in the health sector reduces effective use and management of digital systems.

System failures, such as server crashes, can delay treatment and put patients at risk.

Concerns about privacy and security of patient records make people skeptical about ICT adoption in health.

Unequal access to ICT between urban and rural areas creates inequality in health services, leaving rural populations underserved.

14. Explain five contributions of ICT in achieving economic development.

ICT creates new industries such as software development, mobile apps, and e-commerce, which contribute to job creation and income generation.

It improves efficiency in businesses by automating processes like accounting and inventory management, which reduces costs and increases profits.

ICT supports international trade by enabling businesses to sell goods and services globally through online platforms.

It enhances education and training by providing online learning resources that develop skilled workforces, driving economic growth.

ICT improves communication infrastructure, which attracts investors and connects economies globally.

SECTION C (30 Marks)

Answer any two questions from this section

15. Critically assess five impacts of artificial intelligence on employment.

Artificial intelligence creates new job opportunities in fields such as robotics, machine learning, and data analysis, where human expertise is needed.

It leads to job displacement as machines replace humans in repetitive and routine tasks, for example in manufacturing or customer service.

AI improves productivity, allowing employees to focus on complex tasks while machines handle simple activities.

It increases demand for highly skilled workers, meaning people with AI and digital skills gain better employment opportunities, widening the gap with unskilled workers.

AI may also create job insecurity since many employees fear being replaced by machines, affecting morale and motivation.

16. With examples, evaluate five dangers of cyberbullying among youths.

Cyberbullying causes emotional distress such as depression, anxiety, and low self-esteem among victims, especially teenagers.

It may lead to poor academic performance, as victims lose concentration and motivation to study due to constant harassment.

Cyberbullying can damage reputations since false information spreads quickly online, affecting personal and future professional opportunities.

In severe cases, cyberbullying leads to social withdrawal, where victims isolate themselves to avoid online attacks.

It may even result in suicidal thoughts or attempts, as seen in various reported cases worldwide where youth succumb to online harassment.

17. Justify five reasons why ICT should be integrated into all sectors of the economy.

ICT increases efficiency in all sectors by automating processes, reducing human errors, and saving time.

It promotes transparency and accountability in government and business, improving trust and governance.

It enables innovation, such as e-health in medicine, e-commerce in business, and e-learning in education, which drive growth.

It creates global competitiveness by connecting local industries to international markets through online platforms.

It supports decision-making in sectors like agriculture, banking, and manufacturing through data analysis and forecasting.

18. Analyse five ethical challenges arising from the use of big data.

Big data raises privacy concerns since personal information collected from individuals may be misused without consent.

It can lead to discrimination if data analysis is biased, for example, in hiring processes or loan approvals.

Big data may be exploited for surveillance by governments or organizations, reducing personal freedoms.

It increases security risks, since massive amounts of sensitive data attract hackers who target organizations for theft.