THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATION COUNCIL
GRADE A TEACHERS' CERTIFICATE EXAMINATION

635   **INFORMATION AND COMMUNICATION TECHNOLOGY**

Time: 3 Hours.   **ANSWER**   **Year: 2011**

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).**

1. State four advantages of using computer networks in a school environment.

One advantage of using computer networks in a school is resource sharing. Networking allows multiple computers to share printers, scanners, files, and internet connections, reducing costs for the institution.

Another advantage is efficient communication. Teachers, students, and administrators can exchange information quickly through emails, intranet platforms, or instant messaging, making school operations more effective.

A third advantage is centralized data management. Networks allow student records, examination results, and administrative documents to be stored in a central server, making it easier to access and update data without duplication.

Lastly, computer networks encourage collaborative learning. Students can work on group projects by sharing files and accessing online platforms, which enhances teamwork and knowledge exchange.

2. Mention four characteristics of reliable information.

One characteristic of reliable information is accuracy. The information must be correct and free from errors so that users can trust and depend on it for decision-making.

Another characteristic is timeliness. Information should be available at the right time when it is needed, because outdated information may no longer serve its purpose.

A third characteristic is relevance. Information must directly address the needs of the user or the problem being solved, otherwise it becomes useless even if accurate.

Lastly, reliable information must be complete. It should contain all the necessary details required to make sound decisions without leaving gaps that may cause confusion.

3. Outline four differences between application software and system software.

One difference is that application software is designed to perform specific tasks for the user, such as word processing or spreadsheets, while system software manages the hardware and provides a platform for applications to run.

Another difference is that application software is optional and can be installed based on the user's needs, whereas system software like operating systems is essential and must be installed for the computer to function.

A third difference is that application software interacts directly with the user to solve particular problems, while system software works in the background to control and manage computer resources.

Lastly, application software examples include Microsoft Word, Excel, and Photoshop, while system software examples include Windows, Linux, and device drivers.

4. Explain four factors to consider when purchasing a new computer for school use.

One factor to consider is the purpose of use. If the computer will be used for basic tasks like word processing, a standard machine will suffice, but if it is for graphic design or simulations, a high-performance computer is needed.

Another factor is cost. Schools should choose computers that fit within their budget while still meeting their performance requirements, balancing between quality and affordability.

A third factor is durability and warranty. Computers intended for school use must be strong enough to withstand frequent use by many users, and having a warranty ensures that any technical issues can be addressed without extra cost.

Finally, schools should consider expandability and upgradability. A computer that allows additional RAM, storage, or hardware upgrades will last longer and adapt to future needs.

5. List four common causes of computer system failure.

One common cause of computer failure is hardware malfunction. Problems such as a faulty hard drive, damaged motherboard, or overheating components can cause the system to stop working.

Another cause is software corruption. Corrupted operating systems, incompatible updates, or malware attacks may prevent the system from booting or functioning properly.

A third cause is power-related issues. Sudden power surges or outages can damage sensitive computer parts or lead to data loss.

Lastly, poor maintenance can also cause system failure. Accumulation of dust, lack of antivirus protection, or ignoring system updates can gradually degrade the computer's performance until it fails.

6. Describe four uses of ICT in health services.

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One use of ICT in health services is electronic medical records. Hospitals store patients' histories digitally, which makes it easy for doctors to access, update, and share records quickly.

Another use is telemedicine. ICT enables doctors to provide consultation and treatment to patients remotely through video conferencing, especially in rural areas with limited access to specialists.

A third use is in medical research. ICT supports the collection, analysis, and storage of research data, helping scientists to develop new treatments and improve healthcare delivery.

Lastly, ICT is used in health education. Online platforms and mobile applications provide health awareness campaigns and information to the public, helping people make informed decisions about their health.

7. State four benefits of using presentation software in teaching.

One benefit of presentation software is that it makes lessons more engaging. Teachers can use images, animations, and videos to capture students' attention and improve understanding.

Another benefit is organization of content. Presentation slides help teachers arrange ideas logically, making lessons easier to follow and remember.

A third benefit is time efficiency. Teachers can prepare slides in advance and reuse them in different classes, saving preparation time and ensuring consistency.

Finally, presentation software encourages interactive learning. Features such as hyperlinks and embedded questions allow students to participate actively in the lesson.

8. Mention four challenges of implementing ICT in rural schools.

One challenge is lack of infrastructure. Many rural schools lack reliable electricity and internet connectivity, making it difficult to implement ICT effectively.

Another challenge is high costs. Purchasing computers, projectors, and software is expensive, and rural schools often operate on limited budgets.

A third challenge is shortage of trained teachers. Many rural schools have teachers who lack ICT skills, which reduces the effectiveness of technology integration in teaching.

Lastly, maintenance and repair are difficult in rural areas. When computers break down, there may be no local technicians to fix them, leading to long periods without ICT services.

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9. Give four security threats that can affect computer systems in an organization.

One security threat is viruses and malware. These programs can damage files, slow down systems, or steal sensitive data from the organization.

Another threat is hacking. Unauthorized individuals may break into an organization's network to steal information, alter records, or disrupt operations.

A third threat is phishing attacks. Employees may receive fake emails that trick them into giving away passwords or other confidential details.

Finally, insider threats can also occur. Staff members with access to the system may misuse their privileges to steal or leak information, putting the organization at risk.

10. Explain four ways ICT can support agricultural development in Tanzania.

One way ICT supports agriculture is through access to market information. Farmers can use mobile phones or online platforms to know current prices of crops in different markets, which helps them sell their produce at fair prices and avoid exploitation.

Another way is by providing weather forecasts. ICT tools such as mobile apps and radio broadcasts give timely updates on rainfall and climate patterns, enabling farmers to plan their planting and harvesting effectively.

A third way is the use of e-extension services. Farmers can consult agricultural experts through mobile phones or the internet, receiving advice on crop management, pest control, and new farming techniques without traveling long distances.

Lastly, ICT supports agriculture through financial services. Mobile banking and mobile money allow farmers to save, borrow, and make payments easily, which improves their access to capital for farming investments.

11. Discuss five advantages of using cloud storage in schools for storing students' academic records.

One advantage of cloud storage is accessibility. Teachers and administrators can access academic records from any location with internet connectivity, which makes it easier to update and retrieve data even outside school premises.

Another advantage is cost savings. Schools do not need to invest heavily in physical servers or maintenance; instead, they pay affordable subscription fees to cloud service providers.

A third advantage is data security. Cloud storage providers often use encryption and backup systems that protect student records from loss due to hardware failure or natural disasters.

A fourth advantage is collaboration. Cloud platforms allow multiple users to access and edit documents simultaneously, making it easier for teachers and administrators to work together on academic reports.

Lastly, cloud storage provides scalability. As the school grows and the number of records increases, cloud storage can be expanded without the need to purchase new hardware or equipment.

12. With examples, explain five roles of ICT in promoting e-commerce in Tanzania.

One role of ICT in promoting e-commerce is online advertising. Businesses in Tanzania use social media platforms like Facebook and Instagram to market their goods and services to a larger audience.

Another role is digital payment systems. Mobile money services such as M-Pesa and Tigo Pesa enable customers to make payments securely online, making transactions faster and more convenient.

A third role is online marketplaces. ICT has made it possible for businesses to sell goods through websites and apps such as Jumia, where customers can browse products and place orders easily.

A fourth role is customer communication. Companies use ICT tools such as email, WhatsApp, and live chat to provide customer support, answer inquiries, and maintain strong relationships with buyers.

Lastly, ICT plays a role in logistics management. E-commerce platforms track deliveries through GPS and provide real-time updates, ensuring customers know the status of their orders at all times.

13. Analyse five problems faced by schools in integrating ICT into the teaching and learning process.

One problem is lack of adequate infrastructure. Many schools lack stable electricity, internet access, and computer labs, which makes it difficult to integrate ICT fully into teaching.

Another problem is limited funding. ICT resources such as projectors, computers, and software require large budgets, and many schools cannot afford to purchase or maintain them.

A third problem is insufficient teacher training. Some teachers lack the knowledge and confidence to use ICT tools effectively in class, which limits their ability to integrate technology in lessons.

A fourth problem is resistance to change. Some educators and administrators prefer traditional teaching methods and may be reluctant to adopt ICT, slowing down progress.

Lastly, maintenance challenges also hinder ICT use. Technical breakdowns are common, and many schools lack skilled technicians to repair equipment quickly, leading to delays in learning.

14. "ICT is a key driver of globalization." Justify this statement by giving six points.

One way ICT drives globalization is by improving international communication. People from different countries can connect instantly through emails, video calls, and social media, making the world more interconnected.

Another way is through international trade. ICT enables businesses to market and sell products across borders using e-commerce platforms, expanding their customer base beyond national boundaries.

A third way is cultural exchange. ICT allows people to share music, films, and traditions globally, which spreads cultural awareness and influences lifestyles worldwide.

A fourth way is access to global education. ICT supports online courses and digital libraries, enabling students in Tanzania to study at international universities without traveling abroad.

A fifth way is international collaboration. Scientists, researchers, and organizations can work together across continents by sharing data and conducting virtual meetings, speeding up innovations.

Lastly, ICT has created global job opportunities. Freelancers and professionals can now work for companies in other countries remotely, increasing employment and income options.

15. Discuss six negative impacts of ICT misuse among youths in Tanzania and suggest possible solutions.

One negative impact is addiction to social media. Many youths spend excessive time online, which reduces their productivity and distracts them from studies. A solution is to educate them on time management and digital discipline.

Another negative impact is exposure to harmful content. Some youths access pornography or violent materials, which may corrupt their morals. A solution is to use parental controls and raise awareness about safe internet use.

A third negative impact is cyberbullying. Young people may face harassment online, affecting their mental health. A solution is to introduce strict anti-cyberbullying laws and promote responsible online behavior.

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A fourth negative impact is reduced physical interaction. Youths may prefer chatting online instead of face-to-face communication, which weakens social skills. A solution is to encourage participation in community and school activities.

A fifth negative impact is poor academic performance. Excessive use of ICT for games and entertainment leaves little time for studies. A solution is to integrate ICT positively into learning so that students use it constructively.

Lastly, ICT misuse can lead to crime involvement. Some youths engage in hacking, scams, or theft of personal data. A solution is to introduce ICT ethics lessons in schools and monitor suspicious online activities.

16. Assess six ways in which ICT can contribute to the achievement of sustainable development goals (SDGs) in developing countries.

One way ICT contributes is by improving education (SDG 4). Online learning platforms and digital libraries provide access to quality education even in remote areas.

Another way is promoting health and well-being (SDG 3). ICT supports telemedicine, electronic health records, and health awareness campaigns that improve access to medical services.

A third way is reducing poverty (SDG 1). ICT creates job opportunities in digital industries and allows small businesses to access wider markets through e-commerce.

A fourth way is supporting gender equality (SDG 5). ICT empowers women by providing online platforms for education, entrepreneurship, and advocacy, narrowing the gap between men and women.

A fifth way is fostering innovation and infrastructure (SDG 9). ICT drives technological development, which supports modern industries and infrastructure in developing countries.

Lastly, ICT contributes to climate action (SDG 13). It enables the collection and sharing of environmental data, weather forecasts, and awareness campaigns that help communities respond to climate change.

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