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**THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA
DIPLOMA IN SECONDARY EDUCATION EXAMINATION
INFORMATION AND COMMUNICATION TECHNOLOGY**

Time: 3 Hours

ANSWERS

Year: 2020

Instructions

1. This paper consists of section A, B and C.
2. Answer all questions in section A, two questions from section B and two questions from section C.

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1. Why electronic mail are mostly preferred than traditional mail in sending a message? Explain by giving four reasons.

Electronic mail is faster than traditional mail because messages are delivered almost instantly, regardless of distance. This reduces the time taken to send and receive communication.

Electronic mail is more cost-effective since it does not require postage fees, paper, or envelopes, making it a cheaper alternative to traditional mail.

Electronic mail allows for the attachment of various types of files, such as documents, images, and videos, which is not possible with traditional mail. This enhances communication by allowing the sharing of additional information.

Electronic mail provides better organization and storage, as emails can be archived, searched, and retrieved easily compared to traditional mail, which may get lost or require physical storage.

2. Using two points, distinguish internal storage of a computer from external storage devices.

Internal storage is built within the computer and is used to store the operating system, applications, and user data permanently. Examples include hard disk drives (HDDs) and solid-state drives (SSDs).

External storage devices are separate from the computer and are used to store or transfer data externally. They include USB flash drives, external hard drives, and memory cards, allowing for portability and additional storage capacity.

3. Describe four applications of Information and Communication Technology in the education sector.

Information and Communication Technology enhances e-learning by providing digital platforms where students can access learning materials, attend virtual classes, and interact with educators remotely.

Information and Communication Technology facilitates research through the internet, where students and teachers can access vast amounts of information from various sources, including online libraries and databases.

Information and Communication Technology improves administrative tasks by automating processes such as student record management, timetable scheduling, and communication between teachers, students, and parents.

Information and Communication Technology supports the use of multimedia in teaching, which includes videos, animations, and presentations, making learning more engaging and interactive for students.

4. Briefly describe the importance of each of the following in the computer system:

(a) Computer hardware

Computer hardware is essential as it comprises the physical components that enable a computer to function, such as the processor, memory, storage devices, and input/output devices.

Computer hardware determines the performance and capabilities of a computer, including processing speed, storage capacity, and overall efficiency in executing tasks.

(b) Computer software

Computer software provides the necessary instructions that enable hardware to perform specific tasks, including operating systems, application programs, and utilities.

Computer software enhances user experience by allowing interaction with the computer through graphical user interfaces, productivity tools, and entertainment applications.

5. Differentiate electronic database from the traditional database.

An electronic database is a digital system that stores, organizes, and manages data using software, allowing for fast searching, updating, and retrieval of information.

A traditional database refers to a manual system of storing data, such as using paper-based records, which are less efficient and require more time for processing and retrieval.

6. How can students cause damage in a computer laboratory? Briefly explain four ways.

Students can cause damage by mishandling hardware components, such as forcefully inserting or removing cables, keyboards, and USB drives, leading to physical damage.

Students may introduce malware by downloading and installing unauthorized software or using infected external storage devices, compromising the security of the system.

Students can cause accidental data loss by deleting important files, misconfiguring system settings, or shutting down computers improperly, leading to system failures.

Students may damage network equipment by unplugging cables, tampering with routers, or interfering with configurations, disrupting connectivity and communication.

7. Computers can cause health problems to users. Explain four health problems and their prevention methods.

Prolonged computer use can cause eye strain due to staring at screens for extended periods. This can be prevented by taking regular breaks, adjusting screen brightness, and using anti-glare filters.

Poor posture while using a computer can lead to back and neck pain. Maintaining proper sitting posture, using an ergonomic chair, and adjusting screen height can help prevent these issues.

Frequent use of keyboards and mice can cause repetitive strain injuries, such as carpal tunnel syndrome. Prevention includes using ergonomic accessories, maintaining proper wrist positioning, and taking breaks.

Exposure to computer screens for long hours can lead to headaches and mental fatigue. This can be reduced by following a healthy work routine, taking breaks, and ensuring proper lighting conditions.

8. What are the advantages of using each of the following types of computer network architecture?

(a) Peer-to-Peer

A peer-to-peer network is cost-effective as it does not require a central server, reducing infrastructure costs and making it suitable for small networks.

A peer-to-peer network is easy to set up and maintain since each computer acts as both a client and a server, allowing direct file sharing without complex configurations.

(b) Client-Server

A client-server network improves data security because data is stored in a central location, where access can be controlled and managed effectively.

A client-server network enhances performance by allowing multiple clients to access resources efficiently from a dedicated server, reducing the load on individual computers.

9. Write the HTML codes to create a webpage showing the following information:

(a) Page title: Website Design.

(b) Heading 1: Ministry of Education Science and Technology.

(c) One paragraph carrying the following information: "The Ministry of Education, Science and Technology head office has shifted from Dar es Salaam to Dodoma".

CODES:

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<!DOCTYPE html>
<html>
<head>
<title>Website Design</title>
</head>
<body>
<h1>Ministry of Education Science and Technology</h1>
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<p>The Ministry of Education, Science and Technology head office has shifted from Dar es Salaam to Dodoma.</p>

</body>

</html>

10. Differentiate the following activities done in an application software:

(a) Selecting a text and cutting a text

Selecting a text means highlighting a portion of text without removing it from its original position, allowing for copying or formatting changes.

Cutting a text means removing the selected text from its original position and placing it in the clipboard, making it available for pasting elsewhere.

(b) Copying a text and pasting a text

Copying a text creates a duplicate of the selected content without removing it from its original position, allowing the same text to be used elsewhere.

Pasting a text means inserting the copied or cut content from the clipboard into a new location within the document or application.

11. What is the importance of using multimedia in the teaching and learning process in secondary schools? Explain giving five points.

Multimedia enhances understanding by presenting information through various formats, such as text, images, audio, and video. This makes complex concepts easier to grasp, especially for visual and auditory learners who benefit from diverse teaching methods.

Multimedia increases student engagement by making lessons more interactive and stimulating. Instead of relying solely on textbooks, students can watch educational videos, participate in simulations, and use interactive applications, which make learning more enjoyable.

Multimedia supports distance learning by enabling students to access educational content remotely. With online courses, recorded lectures, and digital learning materials, students who cannot attend physical classes can still learn effectively from anywhere.

Multimedia allows for personalized learning by catering to different learning speeds and styles. Some students may prefer reading while others benefit from listening or watching demonstrations. Multimedia resources allow learners to review content at their own pace.

Multimedia improves retention and recall by using visuals and sound, which reinforce memory. Students are more likely to remember information presented through engaging animations, infographics, and interactive exercises compared to traditional text-based learning.

12. Elaborate five uses of spreadsheet application in the society.

Spreadsheets are used in financial management for budgeting, accounting, and financial analysis. Businesses and individuals use them to track income, expenses, and cash flow, ensuring better financial planning and decision-making.

Spreadsheets are used in data analysis to organize, sort, and analyze large datasets. Researchers, businesses, and professionals use spreadsheets to perform calculations, create charts, and generate reports for better data-driven decisions.

Spreadsheets are used in education for student performance tracking and grade calculation. Teachers use them to record attendance, test scores, and final grades, making it easier to evaluate students' progress over time.

Spreadsheets are used in inventory management for keeping records of stock levels, sales, and supplies. Businesses use them to track items, manage orders, and prevent shortages by maintaining accurate inventory records.

Spreadsheets are used in project management for planning and scheduling tasks. Project managers use them to set deadlines, assign responsibilities, and monitor progress, ensuring efficient time and resource management.

13. The introduction of social networks has brought some drawbacks to the society. Justify this statement using five points.

Social networks contribute to reduced face-to-face interactions, leading to weaker personal relationships. Many people spend more time communicating online rather than engaging in real-life conversations, which affects social bonding and emotional connections.

Social networks increase the risk of cyberbullying, where individuals experience harassment, threats, or humiliation online. This can have serious emotional and psychological effects, especially on teenagers and young users.

Social networks contribute to reduced productivity as many people get distracted by social media during work or study hours. Constant notifications and endless scrolling lead to wasted time and decreased efficiency in daily tasks.

Social networks expose users to misinformation and fake news, which can influence public opinion and cause misunderstandings. Many unverified sources spread false information, making it difficult to distinguish between facts and lies.

Social networks can lead to privacy concerns and identity theft. Personal data shared on platforms can be misused by hackers, advertisers, or malicious individuals, putting users at risk of fraud or unauthorized access to their personal information.

14. Elaborate five assessment tools that can be used in assessing Information and Computer Studies in secondary schools.

Written tests are used to assess students' theoretical understanding of Information and Computer Studies concepts. These include multiple-choice questions, short answers, and essays that evaluate knowledge of key topics like hardware, software, and networking.

Practical assignments are used to evaluate students' ability to apply theoretical knowledge in real-world situations. Tasks such as creating spreadsheets, designing web pages, or programming help assess their hands-on skills and problem-solving abilities.

Projects are used to assess students' creativity and research skills by requiring them to develop real-life applications. For example, a student may be asked to design a database system or create a multimedia presentation, demonstrating their understanding of software tools.

Observations are used by teachers to assess students' practical engagement in the learning process. By monitoring how students perform tasks like troubleshooting computer errors or assembling hardware components, teachers can evaluate their technical proficiency.

Oral presentations are used to assess students' ability to explain concepts clearly. Students may be required to present topics related to Information and Computer Studies, such as cybersecurity or artificial intelligence, demonstrating their communication and critical thinking skills.

15. The introduction of Information and Communication Technology has improved services in various areas in the society. Using five points, explain how banking services have been improved.

Information and Communication Technology has enabled online banking, allowing customers to access their accounts, transfer funds, and pay bills from anywhere. This eliminates the need to visit physical bank branches, making banking more convenient.

Information and Communication Technology has improved banking security by implementing advanced authentication systems such as biometric verification, encryption, and fraud detection technologies. These measures protect customers' financial data from unauthorized access.

Information and Communication Technology has introduced automated teller machines (ATMs), which provide 24/7 banking services. Customers can withdraw cash, deposit money, and check balances at any time, reducing the reliance on bank staff.

Information and Communication Technology has enabled mobile banking, where customers can perform transactions using smartphones. With mobile banking apps, users can send money, buy airtime, and manage accounts from their mobile devices.

Information and Communication Technology has improved customer service through chatbots and artificial intelligence. Banks use automated systems to assist customers with inquiries, provide transaction alerts, and offer financial advice, making banking services faster and more efficient.

16. Using five points, describe the criteria used in selecting a teaching method.

The nature of the subject determines the appropriate teaching method. Practical subjects such as Information and Computer Studies may require hands-on demonstrations, while theoretical subjects may be effectively taught through lectures and discussions.

The learning objectives influence the choice of teaching methods. If the goal is to develop problem-solving skills, interactive methods like case studies or group discussions may be more effective than passive lectures.

The level of students' understanding affects the teaching method selection. Beginners may require step-by-step explanations and visual aids, while advanced students may benefit from independent research and project-based learning.

The availability of teaching resources plays a role in choosing a method. Methods like multimedia presentations require access to projectors and computers, while traditional lectures can be conducted with minimal resources.

The class size impacts the effectiveness of different teaching methods. Large classes may require structured lectures to manage time efficiently, while smaller groups can benefit from personalized teaching approaches such as discussions and practical activities.