THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

DIPLOMA IN SECONDARY EDUCATION EXAMINATION

738 INFORMATION AND COMMUNICATION TECHNOLOGY

Time: 3 Hours **ANSWERS** **Year: 2010**

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.

SECTION A (40 Marks)

Answer all questions in this section.

1. (a) Briefly describe the meaning of operating system

An operating system manages hardware and software, like memory, supporting science operations, enhancing teaching efficiency and educational outcomes through foundational computing and learning tools in classrooms.

1. (b) Outline any three (3) types of operating system

Windows: One type is Windows, managing PCs, supporting science tasks, improving teaching precision and stability through user-friendly interfaces and educational strategies in education.

Linux: Linux is open-source, for servers, enhancing science efficiency, boosting teaching quality and stability through flexible systems and learning tools in classrooms.

MacOS: MacOS operates Apple devices, aiding science creativity, enhancing teaching effectiveness and educational outcomes through integrated software and learning resources.

2. Give the meaning and two functions of the Central Processing Unit (CPU)

Meaning: The CPU is the computer's brain, processing science instructions, enhancing teaching efficiency and educational outcomes through computational power and learning tools.

Functions:

Execution: It executes science commands, like calculations, improving teaching precision and stability through fast processing and educational strategies in classrooms.

Control: It controls operations, coordinating tasks, boosting teaching quality and stability through orderly science management and learning outcomes in education.

3. Explain the meaning of a computer program. Mention two categories of programs found in a computer

Meaning: A computer program is a set of instructions, like code, performing science tasks, enhancing teaching effectiveness and educational outcomes through functional software and learning tools.

Categories:

System Programs: System programs, like OS, manage hardware, supporting science operations, improving teaching precision and stability through reliable systems and education.

Application Programs: Application programs, like word processors, perform tasks, aiding science education, enhancing teaching quality and stability through specific tools and learning strategies.

4. Briefly explain the concept of publishing webpages and outline four importance of publishing webpages

Meaning: Publishing webpages involves creating and sharing content online, like sites, supporting science communication, enhancing teaching effectiveness and educational outcomes through digital platforms and learning.

Importance:

Information Dissemination: One importance is information dissemination, sharing data. Science sites provide updates, improving teaching precision and stability through accessible resources and education.

Marketing: Webpages market products, boosting income. Science businesses grow, enhancing teaching quality and stability through economic benefits and learning tools in classrooms.

Collaboration: They foster collaboration, enabling projects. Science teams connect, improving teaching impact and stability through interactive learning and educational strategies online.

Education: Webpages support education, offering resources. Science materials aid learning, enhancing teaching effectiveness and educational outcomes through digital resources and instruction.

5. Explain in short any two positive and negative impacts of ICT in Tanzanian society

This question references Tanzania specifically, which contradicts the instruction to remove country names. Since the question cannot be generalized without altering its core, I will adapt it to focus on general ICT impacts, removing the country name but retaining the concept of societal effects.

Positive Impacts:

Economic Growth: One impact is economic growth, creating jobs. ICT, like software, boosts productivity, enhancing societal stability and development through science industry growth and education.

Education Access: ICT improves education access, expanding learning. Science platforms reach remote areas, supporting teaching effectiveness and stability through inclusive education and progress.

Negative Impacts:

Job Displacement: ICT causes job displacement, replacing workers. Automation reduces labor, challenging societal stability and necessitating science training for development and education.

Privacy Issues: It raises privacy concerns, risking data. Science breaches undermine trust, requiring management for societal stability and educational progress through secure practices and learning.

6. Briefly explain each of the following abbreviation:

(i) LAN: Local Area Network connects devices locally, like in schools, boosting science collaboration, enhancing teaching efficiency and educational outcomes through networked resources and learning.

(ii) WAN: Wide Area Network links distant locations, like cities, supporting science communication, improving teaching quality and stability through broad connectivity and educational strategies.

(iii) WWW: World Wide Web is a global network, providing access, enhancing science learning, supporting teaching effectiveness and stability through accessible resources and educational tools.

(iv) GUI: Graphical User Interface uses visuals, like icons, for science navigation, improving teaching precision and stability through intuitive interaction and learning tools in education.

7. In the diagram below, name the labeled parts, and mention one function for each

Label

Name

Function

A

Input Device

Enters science data, like typing, enhancing teaching efficiency and learning outcomes through user interaction.

B

Central Processing Unit (CPU)

Processes science instructions, improving teaching precision and stability through computational power and education.

C

Memory (RAM)

Stores science data temporarily, boosting teaching quality and stability through fast access and learning tools.

D

Output Device

Displays science results, like screens, enhancing teaching effectiveness and educational outcomes through clear feedback.

This diagram supports teaching precision and educational outcomes by clarifying science system components, enhancing learning and development through structured instruction and tools.

8. Produce stepwise procedure you will follow to save your newly developed document that has been created using any word processing program

Step 1: Open File Menu – Click “File” in science software, enhancing teaching efficiency and educational outcomes through navigation and learning tools.

Step 2: Select Save As – Choose “Save As,” naming the science document, improving teaching precision and stability through organized storage and education strategies.

Step 3: Choose Location – Select a folder, like desktop, storing science files, boosting teaching quality and stability through accessible resources and learning tools.

Step 4: Name Document – Enter a science title, ensuring clarity, enhancing teaching effectiveness and educational outcomes through identifiable records and instruction.

Step 5: Click Save – Confirm by clicking “Save,” securing science data, supporting teaching reliability and stability through preserved materials and learning strategies.

9. Outline any four criteria of selecting website development software

Ease of Use: One criterion is ease of use, ensuring accessibility. Simple science interfaces aid learning, enhancing teaching effectiveness and educational outcomes through user-friendly tools and learning.

Functionality: Functionality supports features, like coding. Science tools offer capabilities, improving teaching precision and stability through robust systems and educational strategies.

Compatibility: Compatibility with systems ensures integration. Science software matches hardware, boosting teaching quality and stability through seamless applications and learning tools.

Cost-Effectiveness: Affordable options ensure feasibility, minimizing expenses. Science budgets support choices, enhancing teaching efficiency and educational progress through economical strategies and learning.

10. Multimedia can be broadly categorized into two, explain them briefly

Linear Multimedia: Linear multimedia follows a fixed sequence, like a slideshow, limiting interaction, supporting science education through structured learning but reducing teaching flexibility and engagement in classrooms.

Non-Linear Multimedia: Non-linear multimedia allows user control, like interactive simulations, enhancing science learning through flexible navigation, improving teaching effectiveness and educational outcomes through adaptability and instruction.

SECTION B (40 Marks)

Answer two (2) questions from this section.

11. State the importance of using computer presentation program in teaching and learning process

Engagement: One importance is engagement, making lessons interactive. Presentation software, like science slides, captivates students, enhancing teaching impact and educational outcomes through visual learning and instruction.

Clarity: It ensures clarity, simplifying concepts. Science visuals reduce confusion, improving teaching quality and stability through clear communication and educational strategies in classrooms.

Organization: Presentations organize content, structuring lessons. Science topics flow logically, boosting teaching precision and learning progress through structured delivery and education tools.

Efficiency: They improve efficiency, saving time. Science tools streamline lessons, enhancing teaching productivity and stability through effective resource use and learning strategies.

12. Discuss the basic principles that focus to students in teaching and learning ICS subject in the classroom

Engagement: One principle is engagement, making lessons interactive. Science simulations captivate students, enhancing teaching effectiveness and educational outcomes through active participation and learning in classrooms.

Clarity: Clarity ensures understandable instruction, simplifying concepts. Clear science explanations on software reduce confusion, improving teaching quality and stability through precise communication and education.

Relevance: Relevance connects lessons to real-world needs, like technology. Teaching science applications aligns with goals, boosting teaching impact and stability through applicable learning and educational strategies in classrooms.

Interaction: Interaction fosters collaboration, enabling discussions. Science groups solve problems, improving teaching precision and stability through peer learning and educational progress in education.

13. Describe precisely five most observed laboratory rules. Provide the possible consequences of breaking those rules

No Eating/Drinking: One rule is no eating/drinking, ensuring safety. It prevents science contamination, enhancing teaching precision and stability; breaking it risks health hazards, challenging educational outcomes and learning.

Wear Safety Gear: Wearing safety gear, like gloves, protects users. It ensures science security, improving teaching quality and stability; ignoring it causes injuries, impacting educational progress and instruction.

Follow Instructions: Following instructions ensures order, like procedures. It maintains science discipline, boosting teaching effectiveness and stability; non-compliance disrupts learning, affecting educational outcomes and strategies.

Handle Equipment Carefully: Careful handling prevents damage, like tools. It supports science functionality, enhancing teaching reliability and stability; misuse breaks equipment, hindering educational progress and learning tools.

Report Hazards: Reporting hazards, like spills, ensures safety. It maintains science environments, improving teaching precision and stability; neglecting it risks accidents, challenging educational outcomes and instruction.

14. Prepare a structured scheme of work, using a topic of "Types of networks" and network topology" to teach public secondary students in August 2009

Subject: Information and Computer Studies (ICS)

Topic: Types of Networks and Network Topology

Class: Public Secondary Students (Form 3)

Duration: August 2009 (4 Weeks, 3 Lessons/Week, 40 Minutes Each)

Scheme of Work:

Week 1: Introduction to Networks

Objective: Students will understand network basics, like LAN, enhancing teaching effectiveness and educational outcomes through foundational science learning and instruction.

Content: Define networks, types (LAN, WAN), science examples.

Activities: Discussion on science uses, diagram drawing, enhancing teaching precision and stability through interactive education and learning tools.

Resources: Charts, computers, supporting teaching quality and stability through accessible materials and educational strategies.

Week 2: Types of Networks

Objective: Students will differentiate network types, improving teaching impact and educational outcomes through science classification and learning.

Content: LAN, WAN, MAN, science characteristics.

Activities: Group analysis of science examples, presentations, boosting teaching efficiency and stability through collaborative learning and instruction.

Resources: Handouts, internet, enhancing teaching precision and stability through relevant resources and educational tools.

Week 3: Network Topology Basics

Objective: Students will identify topologies, like star, enhancing teaching effectiveness and educational outcomes through science structure understanding and learning.

Content: Star, bus, ring topologies, science advantages.

Activities: Model building, science discussions, improving teaching quality and stability through hands-on education and strategies.

Resources: Diagrams, models, supporting teaching reliability and stability through visual aids and learning tools.

Week 4: Application and Assessment

Objective: Students will apply topology knowledge, boosting teaching impact and educational outcomes through science problem-solving and learning.

Content: Case studies, science network design.

Activities: Project on science scenarios, quiz, enhancing teaching precision and stability through practical assessment and education.

Resources: Computers, worksheets, improving teaching efficiency and stability through interactive materials and learning strategies.

Assessment: Weekly quizzes, project evaluation, ensuring teaching effectiveness and educational progress through fair science assessment and learning outcomes in August 2009.

SECTION C (20 Marks)

Answer two (2) questions from this section.

15. Outline any six factors you will consider when selecting teaching and learning methods in ICS class

Student Needs: One factor is student needs, ensuring engagement. Methods for science concepts match abilities, enhancing teaching effectiveness and educational outcomes through tailored instruction and learning.

Learning Objectives: Objectives guide method selection, defining goals. Science-focused strategies align with aims, improving teaching quality and student progress through targeted education and strategies.

Resource Availability: Available resources, like software, influence choices. Selecting science tools ensures effective learning, supporting teaching precision and stability through accessible materials and instruction.

Time Constraints: Time availability shapes methods, ensuring efficiency. Short activities for science topics fit schedules, enhancing teaching productivity and educational progress within limits and learning.

Teacher Skills: Teacher expertise affects method choice, ensuring success. Skilled science educators use interactive methods, improving teaching impact and stability through competent instruction and education.

Engagement Level: Engagement needs drive method selection, boosting participation. Science simulations captivate, enhancing teaching effectiveness and stability through interactive learning and educational strategies.

16. You are the head of department of ICS at Wilima Secondary School. Discuss the identify the possible environmental factors that may likely damage components in the laboratory. Show how you will overcome this problem

Environmental Factors:

Dust: One factor is dust, clogging science equipment. It damages components, challenging teaching precision and stability, requiring maintenance for educational outcomes and learning tools.

Humidity: High humidity corrodes science hardware, like circuits. It affects reliability, impacting teaching quality and stability, necessitating controls for educational progress and instruction.

Temperature: Extreme temperatures, like heat, harm science devices. It reduces functionality, challenging teaching efficiency and stability, requiring regulation for learning outcomes and education.

Power Surges: Surges damage science systems, like motherboards. They disrupt operations, impacting teaching reliability and stability, necessitating protection for educational progress and learning.

Vibration: Vibrations, from nearby machinery, affect science components. They cause wear, challenging teaching precision and stability, requiring stabilization for educational outcomes and instruction.

Solutions:

Regular Cleaning: Cleaning removes dust, protecting science equipment. Scheduled maintenance ensures teaching precision and stability, enhancing educational outcomes and learning tools through safe labs.

Humidity Control: Using dehumidifiers regulates moisture, safeguarding science hardware. It improves teaching quality and stability, supporting educational progress and instruction through controlled environments.

Temperature Regulation: Air conditioning maintains coolness, preserving science devices. It enhances teaching efficiency and stability, boosting learning outcomes and education through functional labs.

Surge Protectors: Installing protectors shields against surges, securing science systems. It supports teaching reliability and stability, improving educational progress and instruction through protected equipment.

Vibration Dampening: Adding pads reduces vibrations, stabilizing science components. It ensures teaching precision and stability, enhancing learning outcomes and education through secure labs and strategies.

17. Prepare a lesson plan for teaching a concept of “information” in a form I class

Subject: Information and Computer Studies (ICS)

Topic: Concept of Information

Class: Form I

Duration: 40 Minutes

Lesson Plan:

Objective: By the end of the lesson, students will define information, explain its importance, and identify sources, enhancing teaching effectiveness and educational outcomes through science learning and instruction.

Lesson Outline:

Introduction (10 minutes)

Greet students and pose a question: “Why is data important in daily life?” Use a chart to introduce information basics, engaging science learners and setting the stage for effective teaching and learning.

Briefly explain information as processed data, ensuring science clarity and interest, preparing students for interactive education and strategies.

Main Lesson (20 minutes)

Explanation (10 minutes): Describe information using examples, like reports, connecting to science processes, enhancing student comprehension and teaching effectiveness through clear instruction and learning.

Discussion (10 minutes): Facilitate a discussion on information sources, like books. Students share science ideas, improving teaching precision and stability through collaborative learning and educational outcomes.

Conclusion and Assessment (10 minutes)

Summarize key points, emphasizing information’s science role. Use a quick question: “What is information?” to assess understanding, ensuring teaching goals are met and learning is effective through science evaluation and strategies.

Assign homework: List three information sources, reinforcing science education and student progress through practical application and learning tools.

Resources: Chart, whiteboard, handouts, enhancing teaching quality and stability through accessible materials and educational strategies in classrooms.

Assessment: Class participation and responses, ensuring teaching effectiveness and educational progress through fair science assessment and learning outcomes in Form I.

18. Prepare a lesson plan for teaching a concept of “information” in a form I class

This appears to be a duplicate of question 17, so I will provide a variation focusing on a different aspect while maintaining the general structure and adhering to the guidelines.

Subject: Information and Computer Studies (ICS)

Topic: Concept of Information

Class: Form I

Duration: 40 Minutes

Lesson Plan:

Objective: By the end of the lesson, students will differentiate information from data, describe its processing, and apply it to daily life, enhancing teaching effectiveness and educational outcomes through science learning and instruction.

Lesson Outline:

Introduction (10 minutes)

Greet students and ask: “How is news different from raw numbers?” Use a diagram to introduce data vs. information, engaging science learners and setting the stage for effective teaching and learning.

Briefly explain data as raw facts and information as processed insights, ensuring science clarity and interest, preparing students for interactive education and strategies.

Main Lesson (20 minutes)

Explanation (10 minutes): Describe data processing into information, using science examples like statistics to reports, enhancing student comprehension and teaching effectiveness through clear instruction and learning.

Activity (10 minutes): Conduct a group activity classifying science examples (e.g., numbers as data, reports as information), improving teaching precision and stability through hands-on learning and educational outcomes.

Conclusion and Assessment (10 minutes)

Summarize key points, highlighting information’s science value in decision-making. Use a quick task: “Identify data and information in a scenario” to assess understanding, ensuring teaching goals are met and learning is effective through science evaluation and strategies.

Assign homework: Create a simple example of data turning into information, reinforcing science education and student progress through practical application and learning tools.

Resources: Diagram, whiteboard, handouts, enhancing teaching quality and stability through accessible materials and educational strategies in classrooms.

Assessment: Group activity responses and task results, ensuring teaching effectiveness and educational progress through fair science assessment and learning outcomes in Form I.