THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

036/1 INFORMATION AND COMPUTER STUDIES 1

(For Both School and Private Candidates)

Time: 3 Hours **ANSWERS** **Year: 2012**

Instructions

1. This paper consists of sections A, B and C with a total of twelve questions

2. Answer all the questions in section A and B and one question in section C.

1. For each of the following items (i) – (x), choose the most correct answer from the alternatives provided and write its letter beside the item number.

(i) Which among the following is NOT a file format for Graphics and Images?
A. bmp
B. jpg
C. png
D. gif
E. doc
Answer: E. doc
Reason: The "doc" file format is used for text documents, not for graphics or images.

(ii) The computers which are used for processing data and performing complex mathematical calculations are known as:
A. Supercomputers
B. Microcomputer
C. Mainframe computers
D. Minicomputers
E. Complex computers
Answer: A. Supercomputers
Reason: Supercomputers are designed to handle complex calculations and large-scale data processing.

(iii) Which one of the following is an example of a mixed cell reference in a spreadsheet?
A. A1
B. $A1
C. A$1
D. A1
E. A1:A10
Answer: B. $A1
Reason: A mixed cell reference locks either the row or the column; "$A1" locks the column.

(iv) Cells A4, A7, C4, C5, and C7 contain values 5, 5, 6, and 3 respectively. Then in cell D4, formula =C5*(A4+A7+C4/C7) is entered. What will be the value for cell D4?
A. 28
B. 16
C. 18
D. 14
E. 20
Answer: D. 14
Reason: The formula calculates as follows: =6*(5+5+6/3) = 6*(5+5+2) = 6*14 = 14.

(v) The following are features of the PageMaker publication window except:
A. Toolbox

B. Pasteboard
C. Rulers
D. Control palette
E. Tool bar
Answer: E. Tool bar
Reason: Toolbars are generally not a feature of PageMaker publication windows.

(vi) Which of the following devices must be used to connect two computers for sharing of data?
A. USB
B. NIC
C. Modem
D. UPS
E. Gateways
Answer: B. NIC
Reason: A Network Interface Card (NIC) enables computers to connect and share data over a network.

(vii) The unique identifier of records in databases is represented by:
A. Primary key
B. First key
C. Foreign key
D. Candidate key
E. Permanent key
Answer: A. Primary key
Reason: A primary key uniquely identifies each record in a database table.

(viii) Which of the following is not a word processor?
A. Word star
B. Word wrap
C. Word
D. Word pad
E. Apple works
Answer: B. Word wrap
Reason: Word wrap is a feature in word processors, not a word processor itself.

(ix) The programs designed to perform specific tasks are called:
A. System software
B. Utility programs
C. Computer programs
D. Application software
E. Special programs
Answer: D. Application software
Reason: Application software is created to perform specific tasks such as editing, accounting, or browsing.

(x) Peripheral devices are connected to the system unit using special cables known as:
A. Interface cables
B. Ports cables
C. USB cables
D. Twisted cables
E. Device cables
Answer: A. Interface cables
Reason: Interface cables are used to connect peripheral devices like printers and scanners to the system unit.

2. Match the following functions of network devices in List A to their corresponding network hardware in List B by writing the letter of the correct option beside the item number.

List A
(i) Determines selectively through address filtering the appropriate network segment for which a message is meant for delivery.
(ii) Converts an analogue signal to digital form for transmission on a digital medium.
(iii) A device that is configured to provide access to a wide area network or Internet.
(iv) Connects computers to the network so that signals can be transmitted from one computer to another without filtering.
(v) Converts digital signals to analogue signals and vice versa.
(vi) Creates a physical link between the computer and the transmission media.
(vii) Transmitting and receiving antenna which facilitates communication very fast.
(viii) Interconnects different networks and directs data transfer from source to destination.
(ix) A device that recognizes signals transmitted in a channel and sends it directly to the address node without broadcasting it.
(x) Detects signals in the surrounding which are transmitted in the form of radio waves, infrared waves, or microwaves.

List B
A. Wireless access point
B. Switch
C. Gateway
D. Router
E. Repeater
F. Bridge
G. Hub
H. Modem
I. Codec
J. Network Interface Card
K. Coaxial cable
L. Data bus
M. Universal serial bus

Solution:
(i) B
(ii) H
(iii) D
(iv) G
(v) H
(vi) K
(vii) A
(viii) C
(ix) B
(x) A

3. In the following items, write (T) for True statement and (F) for False statement.

(i) Most website pages on the Internet are currently written in programming language. T
(ii) Any text or alphanumeric characters entered in a cell are viewed as labels. T
(iii) Modern communication cannot take place in half-duplex mode. F
(iv) Function keys are used for tasks that frequently occur in programs. T
(v) A cathode ray tube monitor looks and works much like a television screen. T
(vi) Kerning refers to fixing of particular pairs of numbers that are too close or far apart from each other. F
(vii) A scanner is an example of output devices. F
(viii) A parallel interface cable can transmit eight bits of data at once. T
(ix) Windows 95 was popular because it featured cooperative multitasking. T
(x) Notepad has got very limited formatting features. T

4. (a) Mention four safety precautions for each type of computer component given below that should be observed to provide a conducive working environment in a computer laboratory.

(i) Hardware:
1. Keep hardware in a dust-free environment.
2. Avoid overloading power outlets to prevent electrical damage.
3. Use surge protectors to safeguard against voltage spikes.
4. Handle components with care to avoid physical damage.

(ii) Software:
1. Regularly update antivirus software to prevent malware infections.
2. Avoid installing pirated or unverified software.
3. Backup data regularly to prevent data loss.
4. Ensure software compatibility before installation.

(iii) Humanware:
1. Ensure proper seating posture to prevent strain injuries.
2. Adjust screen brightness to reduce eye strain.

3. Limit usage time to avoid fatigue.
4. Maintain proper ventilation to ensure comfort in the lab.

(b) Describe the two major differences between primary storage devices and secondary storage devices, giving one example for each type.
1. Primary storage (e.g., RAM): Temporary storage that holds data and instructions currently in use.
2. Secondary storage (e.g., hard drive): Permanent storage used for saving data and programs for future use.

5. (a) A Telephone Company produces paper-based directories. It has decided to offer directory information to customers via a website.

(i) Give two advantages to the telephone company in doing this.
1. Reduces costs associated with printing and distributing paper directories.
2. Provides real-time updates to directory information.

(ii) What advantage does this new system offer to the customer?
The customer can access updated directory information conveniently from anywhere with internet access.

(iii) Give two disadvantages to the customer that the new system will have.
1. Customers without internet access will face difficulties accessing the information.
2. There may be security concerns with sharing personal directory details online.

(b) Describe any four career opportunities that are available in the computing field.
1. Software Developer: Designing and creating software applications.
2. Data Analyst: Analyzing and interpreting complex data.
3. Cybersecurity Specialist: Protecting systems from security threats.
4. Network Administrator: Managing and maintaining computer networks.

6. (a) An estate agent keeps a file of properties for sale on a computer. Some of the information stored on each property is shown in the table below:

Code	Type	Class	Price	Number of Bedrooms
MSL123	House	D	142,000	3
MSL917	Storey building	B	1,000,000	2
MSL134	House	S	500,000	4
MSL912	Storey building	S	2,000,000	2

(i) State how many records are there in the file?
There are 4 records in the file.

(ii) State the names of the fields available in the table above.

Code, Type, Class, Price, Number of Bedrooms.

(iii) Which of the above fields can be set as a primary key? Why?
The "Code" field can be set as a primary key because it uniquely identifies each record in the table.

6.

(b) Simba – Traders employs 300 workers. One of their goals is to place the workers according to their training and skills. They believe that the experience of the employees must be utilized and expanded in their work. The firm has just identified a new project in which employees between the ages of 25 and 30 with training and experience as plumbers may be employed to advantage. Name five fields and the appropriate data type in a database that will definitely be used in a query to select the names of workers who can be assigned to the project.

1. Name (Text)
2. Age (Number)
3. Experience (Text/Number)
4. Training/Skills (Text)
5. Position/Job Role (Text)

7.

(a) State the output of the following HTML code after browsing:

```
<html>
<title>Form II examinations</title>
<body>
<h1>Background</h1>
<Table>
<tr>
<th>School attended</th><th>Period of attendance</th><th>Qualifications acquired</th>
</tr>
<tr>
<td>Nyali Primary School</td><td>1990-1995</td><td>Certificate</td>
</tr>
<tr>
<td>Nyali High School</td><td>1995-2000</td><td>Certificate</td>
</tr>
<tr>
<td>Kigoma Secondary School</td><td>2000-2002</td><td>CSEE</td>
</tr>
</Table>
</body>
```

</html>

Output:

Form II examinations

Background

School attended	Period of attendance	Qualifications acquired
Nyali Primary School	1990-1995	Certificate
Nyali High School	1995-2000	Certificate
Kigoma Secondary School	2000-2002	CSEE

(b) Explain why physical formatting tags are better choices for getting the intended appearance than logical tags.
Physical formatting tags, such as `<b>` for bold and `<i>` for italics, directly specify how text should appear on the page, ensuring consistent visual output across browsers. Logical tags, like `<strong>` and `<em>`, rely on the browser's interpretation, which may vary, leading to inconsistent appearances.

8.

(a) Outline two internet uses that negatively affect our culture.

1. Access to inappropriate content: Promotes moral degradation and affects traditional values.
2. Online fraud and scams: Erodes trust and increases financial insecurity in communities.

(b) Explain how information and technology has contributed to environmental pollution.

1. Electronic waste: Discarded computers and gadgets release toxic substances into the environment.
2. Energy consumption: Large-scale IT infrastructures like data centers consume excessive energy, contributing to carbon emissions.
3. Paperless offices: While reducing paper usage, manufacturing digital devices has its own environmental impact.

9.

(a) Describe the terms below as used in word processing:

(i) Line spacing: The vertical distance between lines of text in a document.
(ii) Justification: Aligning text evenly along both the left and right margins.
(iii) Formatting text: The process of changing the appearance of text, including font size, style, and color.

(b) Why almost all word processors have common features?
Most word processors share common features to maintain standardization, improve usability, and meet universal user requirements, such as editing, formatting, and saving documents.

(c) Differentiate a microcomputer from a supercomputer.
A microcomputer is a personal computer designed for individual use, suitable for general tasks like word processing and internet browsing. A supercomputer, on the other hand, is a highly advanced machine used for complex calculations and large-scale simulations, such as weather forecasting.

10. Describe how temperature, humidity, and dust can cause computer damage.

1. Temperature: Overheating can cause components to fail, such as the CPU and hard drive.
2. Humidity: Excessive moisture can lead to corrosion of electronic circuits.
3. Dust: Dust buildup can block air circulation and damage hardware by causing overheating or short circuits.

11. Trace the development of modern computers by elaborating the unique characteristics which were developed in each generation of computers.

1. First Generation (1940s-1950s): Vacuum tubes for circuitry, bulky and expensive.
2. Second Generation (1950s-1960s): Transistors replaced vacuum tubes, reducing size and power consumption.
3. Third Generation (1960s-1970s): Integrated Circuits improved speed and reliability.
4. Fourth Generation (1970s-present): Microprocessors enabled personal computers.
5. Fifth Generation (Present and beyond): Focus on AI and quantum computing.

12. Analyze the risks that a company faces by not creating backups for computerized information.

1. Data loss: Loss of critical information due to hardware failure or accidental deletion.
2. Security threats: Increased vulnerability to cyberattacks without recovery options.
3. Operational downtime: Inability to access essential data can halt business operations.
4. Reputational damage: Losing customer data can erode trust and harm the company's image.