**NAMES \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ADM NO.\_\_\_\_\_\_\_\_CLASS\_\_\_\_\_\_\_\_\_**

451/1

COMPUTER STUDIES

PAPER 1

APRIL 2023

2½ HOURS

**MOMALICHE 2 CYCLE 10**

**KENYA CERTIFICATE OF SECONDARY EDUCATION**

**451/1**

**COMPUTER STUDIES**

**INSTRUCTIONS TO CANDIDATES**

* This paper consists of **TWO** Sections **A** and **B**
* Answer all questions in Section **A**
* Answer question **16 (compulsory)** and any other **THREE** question in section **B**
* All answers should be written in the space provided in the question paper

**FOR OFFICIAL USE ONLY:**

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| --- | --- | --- |
| **Section** | **Question** | **Candidates**  **Score** |
| **A** | **1-15** |  |
| **B** | **16** |  |
| **17** |  |
| **18** |  |
| **19** |  |
| **20** |  |
| **Total Score** |  |  |

**SECTION A:ANSWER ALL QUESTIONS**

1. Define the following terms (2mks)
2. Multiplexing

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1. Baseband signal

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1. a. Give two reasons why two’s complement is preferred to one’s complement in computing. (2mks)

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b. Write these abbreviations in full: (2mks)

FOTRAN…………………………………………………………………………………

BCD……………………………………………………………………………………….

ASCII…………………………………………………………………………………......

EBCDIC………………………………………………………………………………….

1. Computers have evolved through a number of generations. List any three characteristics of the first generation of computers. (3mks)

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1. a) Define an electronicspreadsheet and give two examples of the software. (2mks)

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b) Differentiate between formula and function as used with spreadsheets. (2mks)

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1. Explain the difference between digital signal and analog signal in data communication.

(2mks)

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1. List down two types of computer viruses (2mks)

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1. Explain graphic based DTP software. (1mk)

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1. Give two possible ways of fitting a document in one page. (2mks)

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1. a) Draw a well labelled diagram of the data processing cycle. (3mks)

b) Give two disadvantages of electronicdata processingmethod. (2mks)

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1. Why must food and beverages be kept out of the computer lab? (2mks)

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1. a) What are toggle keys in relation to keyboards? (1mk)

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b) What type of keyboard would you prefer for the following and why? (4mks)

i) Visually impaired users …………………………………………………………………………………………………

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ii) Busy restaurant ……………………………………………………………………………………………………………………………………………………………………………………………………

1. Why are repeaters necessary when setting up a large network? (1mk)

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1. During class discussion, a Form One student was asked to present his findings on what Operating Systems perform in a computer. Explain two key points he will address. (2mks)

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1. As a computer expert, you were approached by certain organization to help them secure some computers they require. You were keen at certain considerations based on the knowledge you have in computing. What would the following considerations imply? (3mks)
2. Software Authenticity

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1. Multi-media capability ……………………………………………………………………………………………………………………………………………………………………………………
2. Software portability ……………………………………………………………………………………………………………………………………………………………………………………
3. Outline four benefits of using word processors over manual typewriters. (2mks)

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**SECTION B:ANSWER Q16 AND ANY OTHER THREE QUESTIONS**

1. a State **two** distinct differences between compilers and interpreters. (2mks)

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b i) Outline three demerits of using low level programming languages. (3mks)

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(ii) Differentiate between monolithic and modular programs. (1mk)

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c Study the following statements and answer the questions that follow.

***Start***

*Initialize x to 3 and y to 4*

*Count = 1*

*While Count <=10*

*Increment x by 1*

*Update y by multiplying y by 2 and subtracting ½*

*Add x to y to attain z*

*Increase the value of Count by 2*

*Endwhile*

*Print the values for x, y and z*

***Stop***

i) What does the above statements represents? (1mk)

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ii) What is the value for y and z? (2mks)

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ii) Implement the above statements using a program flowchart. (6mks)

1. Otieno was tasked with entering marks for a certain exam that was done by an entire class.
2. State two types of errors he is likely to encounter during this exercise. (2mks)

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1. How can the above identified errors be avoided? (1mk)

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1. Other than the errors identified above, list two other errors that can be encountered during data processing. (1mk)

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d) A certain research institution had his staff collect data from the field. The collected data are then surrendered to the central location where they are processed as a unit over a period of term. What processing mode is being used? (1mk)

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1. Describe data integrity. (1mk)

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1. There are so many ways that can be used to reduce threats to data integrity. Mention any two. (2mks)

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1. Give the best file organization employed by Magnetic tapes and SD Cards. (1mk)

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1. i) The school’s LAN is done using UTP cable. List **two** advantages of using this type of cable. (2mks)

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1. List **two** advantages of using fibre optic cable in networking. (2mks)

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1. Data flows in the school’s LAN in a duplex manner. List **two** other modes of data transmission in a network. (1mk)

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1. a. Outline three ways - 4 can be represented in a computer. (3mks)

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b. Use one’s compliment to represent -610 in 8-bits formation. (2mks)

c. Differentiate between wavelength and frequency of a signal. (2mks)

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d. Describe each of the following computer terminologies as used in data representation.(4mks)

1. Word

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1. Bit

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1. Byte

………………………………………………………………………………………………………………………………………………………………………………………………

1. Nibble

……………………………………………………………………………………………………………………………………………………………………………………………..

e. Convert 9.62510 to binary. (2mks)

f. Study the passage below:

**Raila Amolo Odinga** (born 7 January 1945) is a Kenyan politician who served as the [Prime Minister of Kenya](https://en.wikipedia.org/wiki/Prime_Minister_of_Kenya) from 2008 to 2013.He is assumed as the [Leader of Opposition](https://en.wikipedia.org/wiki/Leader_of_the_Opposition) in Kenya since 2013 as the [New Constitution of Kenya](https://www.klrc.go.ke/index.php/constitution-of-kenya/124-chapter-eight-the-legislature/part-3-offices-of-parliament/276-108-party-leaders) does not prescribe for such a position. He was the Member of Parliament (MP) for [Langata](https://en.wikipedia.org/wiki/Langata_Constituency) from 1992 to 2007. Raila Odinga served in the [Cabinet of Kenya](https://en.wikipedia.org/wiki/Cabinet_of_Kenya) as Minister for Energy from 2001 to 2002, and as the Minister for Roads, Public Works and Housing from 2003 to 2005. Odinga was appointed [High Representative for Infrastructure Development](https://en.wikipedia.org/wiki/African_Union_High_Representative_for_Infrastructure_Development) at the [African Union Commission](https://en.wikipedia.org/wiki/African_Union_Commission) in 2018.

Outline four formatting styles that have been applied to the passage. (2mks)

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1. a) State one function of each of these objects in a database. (4mks)
2. Table…………………………………………………………………………………………

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1. Query…………………………………………………………………………………………

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1. Forms…………………………………………………………………………………………

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1. Reports…………………………………………………………………………………………

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b) State two features of a primary key field. (2mks)

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c) Briefly describe the following field properties (3mks)

1. Format…………………………………………………………………………………………

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1. Input mask

…………………………………………………………………………………………………….

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1. Required………………………………………………………………………………………

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d) List any two sources of graphics in a word processor (2mks)

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e) List two health problems associated with improper sitting posture while using a computer.

(2mks)

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f) State two ways of mitigating intellectual property theft (piracy) (2mks)

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1. a) Human activity systems are said to be soft systems. Give threereasons why they are said to be so. (3mks)

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b) What are hard information systems? (2mks)

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c) Discuss any five characteristics of a system. (10mks)

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