**MOKASA EXAMINATION**

**Kenya certificate of secondary education**

**451/1 - COMPUTER STUDIES – Paper 1**

**THEORY**

 **DECEMBER 2021 – 2½hrs**

**Name…………………………………Index ……….…….…………………**

**Candidate’s Signature …………………………Date……………………………..**

**Instructions to candidates**

*(i)Write your name and index number in the space provided above.*

1. *Sign and write the date of examination in the spaces provided above.*
2. *This paper consists of* ***two*** *sections* ***A*** *and* ***B****.*
3. *Answer* ***all*** *the questions in section* ***A.***
4. *Answer question* ***16*** *and any other* ***three*** *questions from section* ***B.***
5. *All answers should be written in the space provided in the question paper.*
6. *This paper consists of 14 printed pages.*
7. *Do not remove and pages from this booklet.*
8. *Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.*
9. *Candidates should answer the questions in English.*

**For Examiner’s Use Only**

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| --- | --- | --- |
| **Section** | **Question Number** | **Candidate’s Score** |
| **A** | **1-15** |  |
| **B** | **16** |  |
| **17** |  |
| **18** |  |
| **19** |  |
| **20** |  |
|  **Total Score**  |  |

**SECTION A (40 MARKS)**

**ANSWER ALL QUESTIONS IN THIS SECTION**

1(a). As you type an entry it is displayed in the formulae bar. Entries into a worksheet can be classified into four data types. List any four of these data types. 2 Marks

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(b) Differentiate between functions and formulae 2 Marks

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**2.**(a) Differentiate between the following formatting elements 2 Marks

(i) Justification

(ii) Indenting

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3.Define virtual reality 1 Mark

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(b) List any four sensory elements in virtual reality 2 Marks

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4. Computer technology has evolved over time. Outline two future trends in computer and information technology 2 Marks

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5 Internet is an important resource. Although it has brought with it some challenges. State two measures that can prevent students from accessing pornography and dirty sites. 2 Marks

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*6.* Computer laboratory should be setup with safety precautions in mind. Outline four measures that can be put in place to protect the users.

 2 Marks

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7. Arithmetic and logic unit and the main memory use electrical pathways called buses. Describe any two of these buses. 2 Marks

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8. Distinguish between the following wireless interfaces. 2 Marks

(i) Infrared

(ii)Bluetooth

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9. Explain the term solid state giving two examples 2 Marks

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10.(a) Software can be acquired using different methods, State four advantages of using standard software 2 Marks

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(b) Define the terms listed below as used in desktop publishing 3 Marks

(i) Master Page

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(ii) Gradient

*………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………*

(iii) Cropping

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11*.* Data can ether be discrete or continuous. Distinguish the two terms.

 2 Marks

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12*.*As opposed to buffers registers hold one piece of data at a time. Differentiate between storage and address registers 2 Marks

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13. List two examples of fourth generation languages and two features of fifth generation languages 2 Marks

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14(a). An operating system basically consist of two main parts namely; Shell and Kernel. List any three functions of an operating system 3 Marks

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(b) Define a foreign key and list any two kinds of relationships in tables 3 Marks

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15.Describe radio communication and list the different kinds of radio waves 3 Marks

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**SECTION B (60 Marks)**

*Answer question* ***16*** *and any other* ***THREE*** *questions from this section in the spaces provided.*

16.Due to the diversity and advancements in writing computer programs, many programming languages have been developed and made more user friendly. Programs written in high level programming languages need to be converted into a form that the computer can understand.

1. State one advantage of using the translators listed below (3 Marks)
2. Assembler

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1. Compiler

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1. Interpreter

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1. State any two qualities of a good flowchart (2 Marks)

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1. Study the flow chart below and use it to answer the questions that follows;

STOP

Print “out of Cash”

YES

YES

NO

NO

State the output of the above program flowchart for the inputs given below (4 Marks)

Amount = 15,000, 14,000 and 23,000 respectively

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1. State the purpose of the flowchart (2 Marks)

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1. Write a pseudocode for the flowchart in question (16. c) above (4 Marks)

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17.Signed binary numbers can be represented using different methods to indicate if a number is positive or negative.

1. How can -2310 be represented in; (6 Marks)
2. Signed Magnitude

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1. Ones complement

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1. Twos complement

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1. Convert the hexadecimal number C7D16 to its equivalent decimal number

(2 Marks)

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1. Perform the binary arithmetic below; (4 Marks)
2. 1001012 + 110112 + 10112

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1. 1110112 – 1001112

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1. Using the twos compliment and 8-bit notation subtract 27 from 12 leaving your answer in decimal notation (3 Marks)

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18.With the introduction 0f the internet services, communication has been made cheaper and faster hence reducing the world into a global village.

1. Distinguish between a hyperlink and a hypertext (2 Marks)

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1. Define the term login as used in internet (1 Mark)

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1. Draw a well labelled diagram for thinnet coaxial cable (5 Marks)

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1. State any two reasons why the fibre optic cable is preferred for data transmission over the other cables (2 Marks)

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1. Protocols are set rules that govern transmission of data between two devices, state the purpose of the protocols listed below;
2. SMTP (1 Mark)

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1. TCP (1 Mark)

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1. State the functions of the following network communication devices (3 Marks)
2. Hub

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1. NIC

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1. Bridge

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19.Data processing helps organizations make informed decisions and rely on accurate information.

1. Differentiate between the mechanical and manual data processing methods

(2 Marks)

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1. State the difference between a sort file and a reference file as used in data processing (2 Marks)

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1. State any two differences between the real time processing mode and interactive processing mode (2 Marks)

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1. State one advantage two disadvantages of random file organization (3 Marks)

Advantage

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Disadvantage

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1. Information is the most valuable asset of an organization that needs to be safe guarded. State any three measures to be considered in maintaining data integrity. (3 Marks)

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1. As Jayden was entering data into the computer, He typed byocott instead of boycott.
2. Identify the type of error made by Jayden (1 Mark)

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1. Other than using direct data entry devices, two other methods Jayden can use to avoid the error (2 Marks)

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20.The success of a system development project depends on the type of model used to develop.

1. Define the term prototype as used in systems development (1 Mark)

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1. State any two disadvantages of prototyping (2 Marks)

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1. State any two characteristics of a system (2 Marks)

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1. State the consequences of having a poorly designed system (3 Marks)

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1. State any three approaches used by an organization to develop a system (3 Marks)

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1. The operating system has the fundamental task of managing the disk with the aim of optimizing the performance of the computer
2. State the function of a formatting tool as used in disk management

(1 Mark)

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1. State what happens during a check disk operation (2 Marks)

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1. Define the term trouble shooting as used in computing (1 Mark)

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